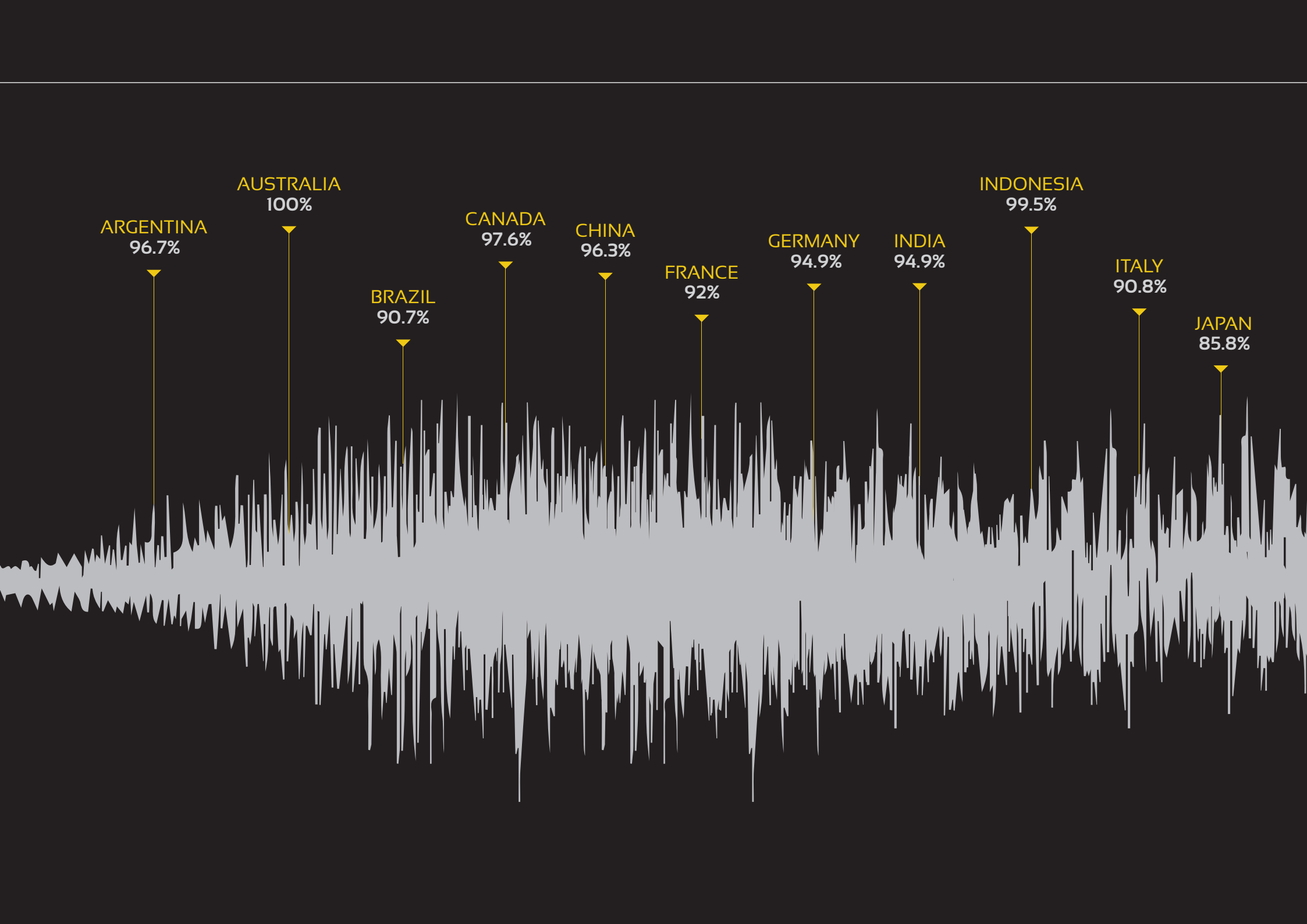


# THE VOICE OF

# THE G20 CITIZENS



This consolidated G20 Nations Case Study Report has been prepared based on the participation by more than 90 G20 government ministries, IGOs/NGOs, academia, and private sector experts in their respective National Shipment and Trade Efficiency Assessments.



ARGENTINA  
96.7%

AUSTRALIA  
100%

BRAZIL  
90.7%

CANADA  
97.6%

CHINA  
96.3%

FRANCE  
92%

GERMANY  
94.9%

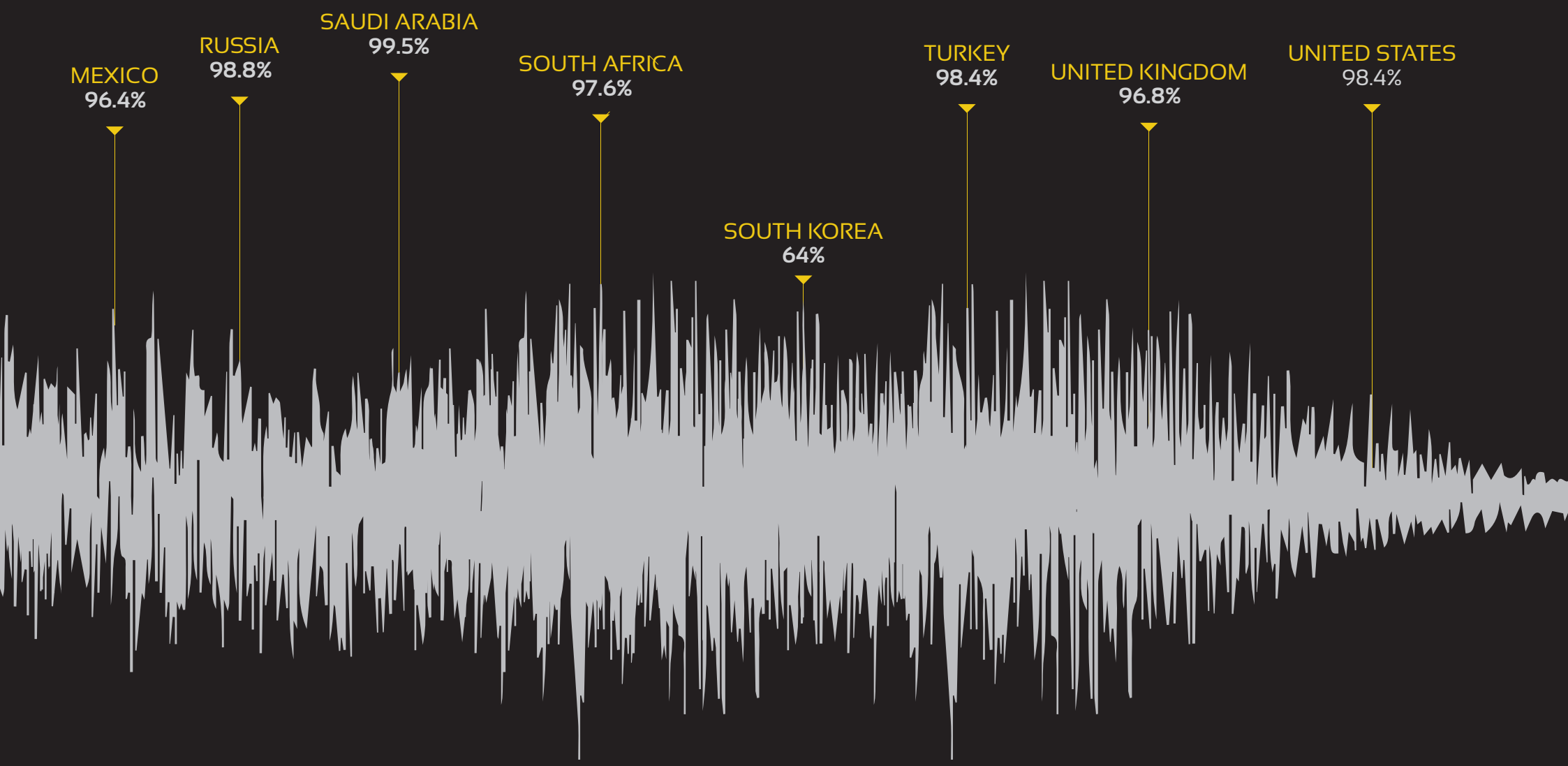
INDIA  
94.9%

INDONESIA  
99.5%

ITALY  
90.8%

JAPAN  
85.8%

94.5% OF THE G20 CITIZENS WANT THE DIGITAL ECONOMY PLATFORM PROPOSED BY GCEL



# PREFACE

## Only Together We Can Change the Pattern

According to the media, our global leaders are facing further diminishing trust from the very citizens they represent.

The reality is the majority of our global leaders, actually do care about the well-being of our societies and are vigorously seeking sustainable economic solutions to make the world a better place. However, we must ask ourselves: why aren't they more successful in meeting the economic ambitions of the world's citizens and why is the gap between good intentions and reality continuously widening?

This is due to many factors including recurring challenges, jurisdictional limitations and the political risks associated with their actions; above all, the issues faced by the world are so great that they are almost unsolvable using the methods at hand today.

The reality is that 'diminishing trust' is not caused by one party or another; it is caused by all of us. Therefore, we are all part of the problem and our leaders need us all to be part of the solution. The public sector can point the way forward and can assist in providing the tools for the creation of the public good. However, each citizen must also be part of the solution forming dynamic communities leading to global prosperity.

It is based on the above premise this report has been prepared to present the voice of the G20's citizens on the ground level to their leaders as to what they need to do for a better job, thereby, setting the foundation for a prosperous tomorrow in our time and for generations to come.

This is not just another report. This is a call for action. This call is being made by all of us through the most comprehensive and exhaustive program that started more than 10 years ago towards implementing the required solution to achieve sustainable economic growth. This call is global in scope, founded on partnership and not competition, and can be deployed rapidly across the globe at no cost to businesses thereby promoting real economic growth.



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## FOREWORD BY THE CO-CHAIRMAN

The present economic unrest and the uncertainty of the future call on the world's leaders to look beyond conventional solutions, learning from history while leveraging 21<sup>st</sup> century tools.

The Digital Economy has become more crucial than ever before led by the strong belief that in the current digital era, today's information technology must be able to help achieve sustained economic growth. In fact, 2015 and 2016 were the first years that the Digital Economy was at the focal point of the G20 / B20 agenda and policy recommendations.

The common theme we are witnessing is that most global experts around the world have introduced their own products and services while attempting to define the Digital Economy. So in other words, providing digital products or services, generating revenue and creating jobs, although important, does not represent the full power of the Digital Economy. We must understand that the objective of the G20 / B20's recommendations is not to construct the Digital Economy to be just another product or service in the marketplace; rather the objective is to deliver upon the economic recommendations of the B20 taskforces related to Employment, SMEs, Trade, Financing Growth and Infrastructure Investment by maximizing on what technology can make possible today and in the future.

In brief, the Digital Economy must assist in delivering the B20/G20's recommendations, thus restoring the health of the global Real Economy. By the Real Economy we mean those industries that produce and service the food we eat, the clothes that we wear and the materials to build our cities with emphasis on SMEs, who generate up to 80% of employment in many countries around the world.

Now that the Digital Economy has been recognized as the common theme for implementing global economic policies, it is incumbent upon us to ask the real economy participants at the ground level how the Digital Economy tools should look like so they can do a better job, thus creating productive communities today and in the future.

Based on the foregoing, GCEL announced the launch of the G20 Nations Case Study of Shipment and Trade Efficiency Assessment (SEA) at the OECD-B20 joint taskforce sessions held June 2<sup>nd</sup> 2015 in Paris. The G20 Nations Case Study is an assessment of the entire real economy value stream across 19 industry clusters from shelf to shelf including; buyers, sellers, logistics service providers, governments, banks and insurance firms.

This is not just another assessment since we are entrusted to convey the voice of the G20 Citizens to their leaders through our participation in the B20 taskforces, we have designed a new global standard to reflect the needs of the real economy participants on the ground.

The G20 Nations Case Study is now completed and it involved the collective contributions of more than 90 government ministries, industry associations, academic institutions, and private sector experts. We collected nearly 1.2 million data points through face-to-face interviews, ensuring accurate responses using animated show-cards in local language with multiple options, throughout all country economic zones covering the entire spectrum of large, medium and small enterprises.

The G20 Countries have committed to conduct their national assessments as a first step to empower the Digital Economy. The results have been staggering: about 90% of the real economy participants surveyed do not have an integrated system and over 94% have collectively agreed on a common description on what the Digital Economy tools should look like to reduce their costs, de-risk doing business, expand their market reach and ease their access to greater financing and insurance.

Diagnosis without providing the cure does not improve the condition, therefore it is of paramount importance to call upon the experts of the world to remedy the situation. In this case the doctors are the technology industry. The top 26 technology firms of the world have committed to participate in an equal opportunity process as a first step to be selected as a qualified trusted network to deliver what the real economy participants demand. The selection is based on offsetting geopolitical, monopolistic and data privacy concerns while delivering the required tools at no cost to the end user.

The size and scope of the Digital Economy calls upon public and private organizations to work in concert by capitalizing on each organization's capabilities and jurisdiction. Thus, introducing an independent global monitoring mechanism that will offset the above concerns and at the same time securing benefits to all. The foregoing will ensure rapid adoption of the Digital Economy Platform (DEP).

The Digital Economy is the tipping point to a new era of prosperity. Consider this: Our global business-to-business expenditures total USD 140 trillion according to the VISA Commercial Consumption Expenditure Index and is forecasted to reach USD 337 trillion by the year 2030. An Asia Development Bank survey in 2012 revealed that of USD 4.6 trillion in trade finance requests, more than USD 1.6 trillion was rejected. Think about this, just USD 3 trillion was approved representing less than 3% of the total business-to-business market. This is an enormous lost opportunity for the financial industry and similarly for the insurance and technology industries.

What we are witnessing today is the birth of a new major industry. Imagine this: today the world gold production engrosses USD 0.136 trillion, and the world oil production engrosses about USD 2.3 trillion; meanwhile the Digital Economy, as a new industry, is projected to reach USD 5.5 trillion per year by 2030.

Although fiscal, monetary and trade policies are important, we must focus our efforts to enlarge the global economic pie instead of competing on the same one. This report for the first time ever presents the required target confirmed by the world's citizens to increase the world's GDP by 17% thus creating nearly 300 million new jobs by 2030. The roadmap to reach the defined target, the required tools needed, and the largest global consensus to secure its successful implementation in our time and for generations to come are ready; ready and available for all of us to be part of it.

Captain Samuel Salloum

Co-Chairman

— **The Global Coalition for Efficient Logistics**, January 2018

## ACKNOWLEDGEMENTS



The Global Coalition for Efficient Logistics extends its gratitude to the following organizations for their participation in one or more activities such as review of the survey methodology and survey process analysis, conducting survey interviews, and reviewing the study report in the execution of their respective individual Country Shipment & Trade Efficiency Assessments, which were consolidated to prepare this G20 Nations Case Study Report.

- ▶ Acindar Argentina
- ▶ Alliance for Transportation Innovation (ATI21) – United States of America
- ▶ Analytica Consultora – Argentina
- ▶ Argentina Ministry of Production, Secretary of Industry
- ▶ Argentina Ministry of Transportation
- ▶ Argentine Industrial Union (UIA)
- ▶ Asia-Pacific Model E-Port Network (APMEN) – China
- ▶ Association Des Centraliens – France
- ▶ Association Francaise De Supply Chain Management
- ▶ Australia Department of Foreign Affairs and Trade
- ▶ Australia Department of Industry and Science
- ▶ Australia Department of Infrastructure and Regional Development
- ▶ Australian Chamber of Commerce and Industry (ACCI)
- ▶ Bankers Association for Finance and Trade (BAFT) – United States of America
- ▶ Bogaziçi University Department of International Trade – Turkey
- ▶ Business Unity South Africa (BUSA)
- ▶ C.D. Howe Institute – Canada
- ▶ Canadian Association of Importers and Exporters (I.E. Canada)
- ▶ Canada Border Services Agency
- ▶ Canada Post
- ▶ Canadian Pacific Railway
- ▶ Canadian Society of Customs Brokers (CSCB)
- ▶ Canadian Transportation Research Forum
- ▶ Cass Business School – United Kingdom
- ▶ Chamber of Commerce and Industry of France (CCI France)
- ▶ Chamber of Commerce and Industry of the Russian Federation
- ▶ China's Top 500 Foreign Trade Enterprises Club
- ▶ City Logistics Research Center of China (CLRCC) – China
- ▶ CONCANACO – Mexico's Confederation of the National Chambers of Commerce
- ▶ Confederation of Employers of The Mexican Republic (COPARMEX)
- ▶ Confederation of Indian Industry (CII)
- ▶ Confederation of Mexican Industrial Chambers (CONCAMIN)
- ▶ Council of Mexican Business for Trade, Investment & Technology (COMCE)
- ▶ Council of Saudi Chambers (CSC) – Kingdom of Saudi Arabia
- ▶ Deloitte
- ▶ ESCP Europe – France
- ▶ France Stratégie
- ▶ Frost & Sullivan
- ▶ George Mason University – United States of America
- ▶ German Association for Small and Medium-sized Businesses (BVMW)
- ▶ Germany Ministry for Economic Affairs & Energy
- ▶ Global Affairs Canada
- ▶ Higher School of Economics – Russia
- ▶ India Ministry of Shipping
- ▶ Indonesia Coordinating Ministry of Economic Affairs
- ▶ Indonesia Ministry of Communication & Information Technology
- ▶ Indonesia Ministry of Industry
- ▶ Indonesia Ministry of Trade
- ▶ Indonesian Chamber of Commerce and Industry (KADIN)
- ▶ Insitut Teknologi Bandung (ITB) – Indonesia

**Legend:**

- ▶ Academic Organization
- ▶ Non-Governmental Organization
- ▶ Government Organization
- ▶ Private Organization

- ▶ Institute of International Studies and Training – Japan
- ▶ Indian Institute of Management Udaipur (IIMU)
- ▶ International Islamic Trade Finance Corporation (ITFC)
- ▶ International Network for SMEs (INSME)
- ▶ Islamic Centre For Development of Trade (ICDT)
- ▶ Italian Ministry for Economic Development
- ▶ Italian Trade Agency
- ▶ Japan Chamber of Commerce and Industry (JCCI)
- ▶ Japan Ministry of Economy, Trade and Industry (METI)
- ▶ Kingdom of Saudi Arabia Customs
- ▶ Kingdom of Saudi Arabia Ministry of Commerce and Industry (MCI)
- ▶ Korea International Trade Association (KITA)
- ▶ Korea Trade Network (KTNET)
- ▶ Korea Transport Institute (KOTI)
- ▶ League of Arab States (LAS)
- ▶ Lord Waverley – Member of the House of Lords and Chairman of Supply Finder
- ▶ Mexican Confederation of Customs Brokers Association (CAAAREM)
- ▶ Mexico Ministry of Economy
- ▶ Mexico Ministry of Finance
- ▶ Mouvement des Entreprises de France (MEDEF)
- ▶ Russia Ministry of Economic Development
- ▶ Russia Ministry of Industry & Trade
- ▶ Russian Presidential Academy of National Economy and Public Administration – (RANEPA)
- ▶ Russian Venture Company
- ▶ Skolkovo Foundation – Russia
- ▶ South Africa Department of Industry and Trade
- ▶ South Africa Ministry of Small Business Development
- ▶ South Africa Small Enterprise Development Agency (SEDA)
- ▶ Supply Chain Management Association – Canada
- ▶ techUK – United Kingdom
- ▶ Tecnológico De Monterrey (ITESM) – Mexico
- ▶ The Nielsen Company
- ▶ Transportation Institute, National University of San Martin – Argentina
- ▶ Turkey Ministry of Economy
- ▶ Turkey Ministry of Science, Industry and Technology
- ▶ Turkey Ministry of Transport, Maritime Affairs and Communications
- ▶ Turkish Industry And Business Association (TÜSIAD)
- ▶ Unioncamere – Italy
- ▶ United States Ocean Carrier Equipment Management Association (OCEMA)
- ▶ United States Department of Trade, Office of the International Trade Administration
- ▶ United States Small Business Administration, Office of International Trade
- ▶ Universitas Mercatorum – Italy
- ▶ Universität Göttingen – Germany
- ▶ University of South Africa
- ▶ UPS
- ▶ Vnesheconombank – Russia

**Legend:**

- ▶ Academic Organization
- ▶ Non-Governmental Organization
- ▶ Government Organization
- ▶ Private Organization



*Low productivity growth, weak trade and new forms of protectionism are threatening the future of young generations worldwide. There is a desperate need for innovative policy solutions such as the Digital Economy Platform available at no cost to end users, to boost SME trade and employment. Digital logistics combined with e-Commerce, e-Finance and e-Insurance will enable SMEs to improve reach to distant markets, de-risk trade and ease access to trade finance and insurance, at lower costs. By de-risking business transactions, we are going to open a new world of opportunities for all!"*



**Dr. Sergio Arzeni, President INSME**

International Network for SMEs and former Founder and Director of the OECD Centre for Entrepreneurship and SME



## EXECUTIVE SUMMARY

## EXECUTIVE SUMMARY

The objective of this report is to present the voice of the G20 Citizens to their leaders when defining the required digital tools to do a better job on the ground level. The question remains, how can we maximize on the digital tools to achieve sustained economic growth? The starting point must highlight the powerful demographic trends that commend a new economic order. Consider this:

In the high-income countries where fifteen percent of the world's population lives, birth rates are low; the population is aging and salaries remain high. This is an efficient and productive community challenged with low market demand.

Meanwhile in mid- and low-income countries, birth rates are high, the population is young and strong, but salaries are merely 20% of those in high-income countries. This is a highly populated community challenged with low buying power.

The high-income countries cannot clone people, and face challenges to open their borders wider. The only viable choice for these countries is to build the buying power of the mid- and low-income countries, thus creating a vast new market for their products and services.

The only survival choice for the mid- and low-income countries is to commit to business excellence, thus achieving efficient and transparent operations, thereby attracting national and international investment, resulting in increased buying power.

The Digital Economy is the tool to connect our economies more efficiently and **DE-RISK Transactions Among Businesses and Nations** in order to grow global trade, thereby rebalancing the world economy. This is how we can enlarge the global economic "pie" instead of competing on the same one that we have today. It is not just another global initiative; this is the NEXT BIG THING.

This is the foundation of the "Implementable Policy Formula" presented by GCEL to the G20 / B20, after more than 10 years of R&D. In fact GCEL, a Swiss based non-profit public private partnership, has already started the execution of the Implementable Policy Formula, which includes:

### I - Focus on Common Denominator Among Policies

This is the most common and comprehensive denominator of those tangible and quantifiable policies that have a rapid and direct positive impact on the real economy.

- ▶ **2015 Turkey G20/B20:** For the first time ever, the G20 adopted the Digital Economy as a policy initiative contributed by GCEL in 17 out of 25 key B20 2015 Turkey Taskforce recommendations.
- ▶ **2016 China G20/B20:** The G20 adopted the Digital Economy Development and Cooperation Initiative as a policy directive.
- ▶ **2017 Germany B20:** Established for the first time a "Digitalization Task Force" to focus on Digital Economy implementation.

Today, global leaders have embraced the Digital Economy as a common and comprehensive denominator for the implementation of policies.

### II. Obtain Validation From The Ground Level

It is of paramount importance that the proposed policy benefits are validated by listening to the voice of the real economy participants impacted by these policies at the ground level.

**This is the foundation of the G20 Nations Case Study in hand that presents the voice of the G20 Citizens at the ground level** through the highest world standard assessment involving more than 90 ministries, NGOs / IGOs, academia and private sector experts from the G20 Countries. This Case Study will shape how the Digital Economy should look like to serve as the tool to implement the recommendations by the policy makers.

The results of this global study have been staggering:

- ▶ 90.4% do not have an integrated system and
- ▶ 94.5% want the Digital Economy Platform proposed by GCEL in order to do a better job on the ground level.

### III. Secure Industry Capability & Commitment

Once the policy's benefits are validated at the ground level, we must secure the related industry resources for a rapid implementation.

We have obtained the commitment of the world's top technology companies—servicing more than 60% of the world's GDP and with more than 2.6 million experts to collectively deliver upon policy makers' recommendations to meet the needs of the real economy participants, at no cost to the end-user.

Governments and leading international organizations have recognized the importance of domestic and international trade efficiency as the key to prosperity of people, nations, and the whole world. The inefficiency of global trade increases the cost of our food, clothing, and the materials we use to build our cities, ultimately compromising the wellbeing of people worldwide. On the other hand, all of us stand to benefit from the gains in trade efficiency and security.

Trade is mostly founded upon four interdependent pillars: Commerce, Finance, Insurance and Logistics. The weakest link among the four industries is Logistics. Maximizing the efficiency of global logistics represents the solid foundation required to empower the other three industries, presenting a new era of trade efficiency to the world. By establishing an open-access digital logistics platform, we will also enhance digital commerce, digital finance, and digital insurance, ultimately empowering the Digital Economy.

In fact, when the marine container made logistics more efficient and secure, it was able to reduce the cost of trade exponentially, including cutting loading costs from USD 5.86 to USD 0.16 per ton. Today, with digital technology, we can do it again, thus providing the world with USD 3.7 trillion in yearly domestic and international trade cost savings. This sets the foundation for trade increase and job creation. The first step in reaching the level of digital technology utilization necessary for maximum trade efficiency is to determine the world's current efficiency levels.

When assessing the level of modern digital technology utilization, efficiency measurements should not be based only upon the current best practices but also on a new standard in order to meet 21<sup>st</sup> century trade efficiency requirements. This standard is based upon what current technology makes possible when applied to the following six key areas: Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. These areas have been separately recognized by renowned international organizations - including the

World Bank, UNCTAD, and APEC - as essential factors to trade efficiency, and are basic foundations of our 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI) standard.

The G20 Nations Case Study begins by recognizing that trade is inherently a horizontal process, and that its efficiency is defined by the movement of a shipment through each segment of the trade pipeline. Thus, data was gathered along the full extent of this pipeline, sampling participants from businesses of all sizes and in all economic zones. By covering the entire shipment flow, the G20 Nations Case Study is able to highlight the strengths and weaknesses of G20 Countries' individual businesses, industry clusters and economic regions. Global experts have reached a consensus that this analysis demonstrates the new high standard of assessment by virtue of:

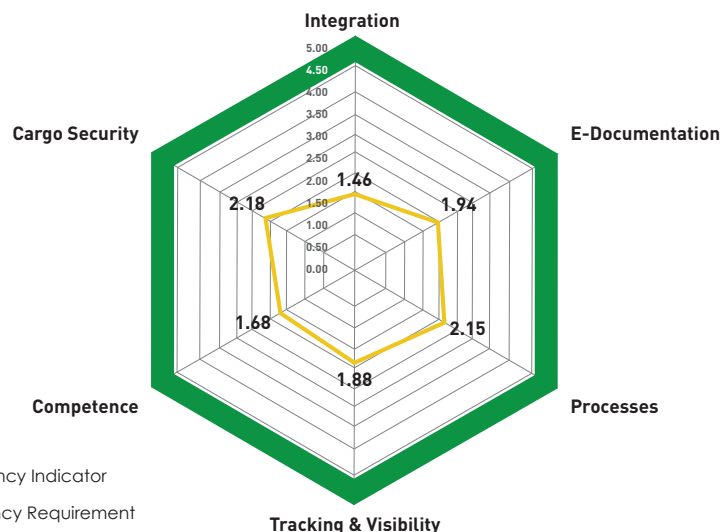
- ▶ **Scale/Scope:** The Case Study covered all private and public participants in the flow of trade, including customs, logistics service providers, shippers, ports, carriers, financiers, and insurance providers.
- ▶ **Breadth of Sample:** The study targeted industry participants from small, medium and large enterprises, as well as from the public sector throughout the supply chain pipeline.
- ▶ **Geographic Coverage:** Respondents were surveyed in all key economic zones of the G20 Countries.
- ▶ **Sample Size:** Throughout each country, the survey included more than 10 times the number of respondents sampled in the existing world standard.
- ▶ **Direct Sampling:** Assessments were conducted with trained examiners on a person-to-person basis, rather than via electronic or automated means.
- ▶ **Survey Methodology:** Questions were illustrated in local language in order to visualize the subject of inquiry, thus ensuring ease of understanding, which results in optimum response accuracy.
- ▶ **Quality Assurance:** The survey received world-class oversight and extensive quality control cross-checks to ensure data accuracy, including call backs to more than 50% of survey respondents to further validate data quality.

Several public data exchange platform initiatives introduced by various Single Windows of the G20 Nations such as Automated Commercial Environment, National Transport and Logistics Public Information Platform, Customs Management Information System, and other customs management information systems all have been instrumental in advancing the G20's digital trade capabilities with the goal of integrating trade-related systems, increasing trade, and enhancing cargo security.

However, the main obstacle facing all 19 clusters is that 90.4% of the businesses surveyed in G20 Countries do not have an integrated system and depend on third parties to process shipment information. Furthermore, 94.9% of the data transmitted between trade participants is through manual methods of fax, phone and email. This number of companies with no integrated systems and which rely on manual data transmittal between trade participants is so large that it delays integration, both within G20 Countries as well as with their trade partners. This restrains the G20 Countries from achieving the trade efficiency required to maximize their potential and realize the economic ambitions of their citizens.

Based upon the survey results, the following chart illustrates where G20 Countries stand today in relation to the 21-6-ETEI. For trade to reach its highest potential, all six areas must perform at peak efficiency. As the 21-6-ETEI chart indicates, there is an opportunity for optimization in each of the six areas where G20 Countries are concerned. The values expressed for each country / area are presented on a scale of 0 to 5.0, with 5.0 representing peak performance within an optimal environment maximizing on what technology can make possible today. Peak performance relative to the individual areas is explained in detail within the body of this analysis.

The survey results clearly demonstrate that G20 Countries have worked hard to create a favourable trade environment; however, substantial opportunities exist to achieve their full potential:



- ▶ Under the 21-6-EETI standard, G20 Countries' Integration scored 1.46. This signifies the importance of increasing the levels of horizontal integration across G20 Countries' 19 trade clusters; this will further leverage G20 Countries' significant investment in several initiatives such as the Advanced Commercial Environment, the National Transportation and Logistics Public Information Platform, the Customs Information System, and other customs management information systems, thereby improving collaboration between G20 Countries' trade pipeline participants and with their trade partners globally. This will also provide tremendous opportunity to achieve trade facilitation targets and enable more efficient data sharing in order to enhance supply chain security, and bring new efficiencies to governments and industries.
- ▶ The E-Documentation score of 1.94 represents an opportunity to increase electronic transfer of shipment data between trade participants across the G20 Countries. The number of days for customs clearance across G20 Nations varies significantly between high income and medium income countries. By increasing the use of electronic documentation and leveraging on a Global Single Window (GSW++) across the G20 Nations by connecting all the existing national single windows, trade participants will reduce the level of manual data entry throughout trade activities, thereby minimizing human error as well as the frequency of incomplete or missing documentation. This will facilitate advance customs clearance, thus reducing shipment delays.
- ▶ The Processes score of 2.15 presents the opportunity for improvement to reach optimal 21-6-EETI standards. G20 Countries can further evolve to a model where productivity gains are generated through innovation. The use of technology to implement more efficient processes across all jurisdictions in G20 Countries' trade pipelines will contribute towards minimizing unnecessary shipment delays, lowering wait times at points of entry, and reducing excess domestic and international trade costs.
- ▶ G20 Countries' Tracking & Visibility score of 1.88 reflects the level of real-time information concerning a shipment's location and movements. The introduction of the transportation and Logistics Public Information Platform, Customs systems and e-Port systems in G20 Countries coupled with improved shipment visibility through an integrated horizontal system within G20 Countries' trade pipelines and their trade partners can further enhance planning capabilities, improve predictability of shipment deliveries, decrease operational costs, and lower inventory levels.

- ▶ The Competence score of 1.68 indicates that there are gains to be achieved in terms of participant performance. When properly trained using systems that dynamically monitor trade performance based on contractual obligations, G20 Countries' trade workforce can provide businesses a competitive advantage in both their national and global markets.
- ▶ G20 Countries' Cargo Security score of 2.18 reflects the leadership role of G20 Countries' Customs to implement efficient practices through the use of technology to secure their countries' borders and flow of commerce. However, the lack of integration across the 19 clusters inhibits G20 Countries' Customs from receiving real time and validated shipment information necessary to anticipate and stop security threats before they reach their countries' borders.

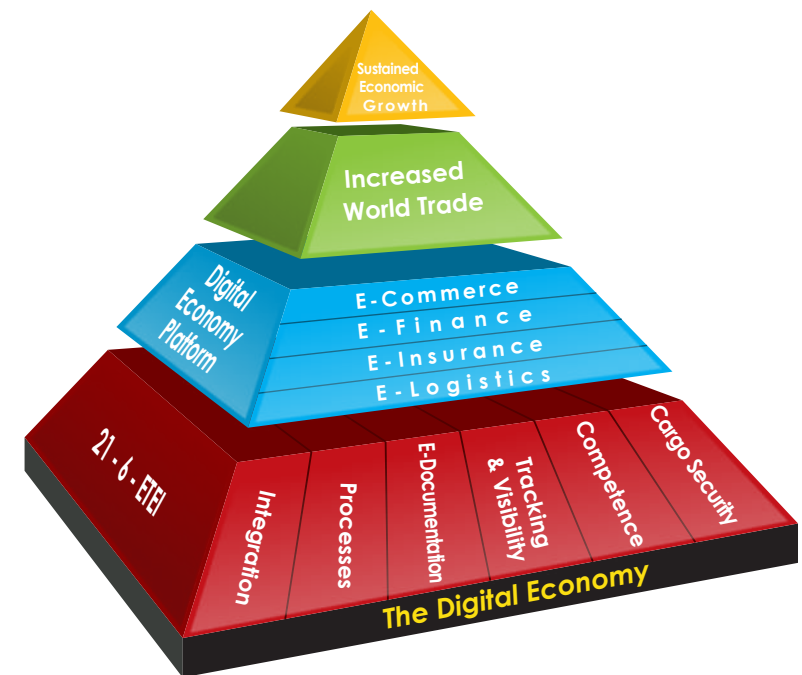
Logistics cost as a percent of GDP varies across G20 Countries. High Income economies in North America, Asia, and Europe incur logistics costs that run between 7.9% and 9.7% of GDP while in mid-income countries in South America, Asia-Pacific and the Middle East and Africa range is between 12% to 15%. In Indonesia, Russia and China the logistics cost as percent of GDP is over 18%. This variation by region and the overall high logistics cost in G20 Countries is mostly due to the fragmented nature of the logistics sector. Carrying goods around the different countries can involve a mixture of foreign, state-owned and domestic private businesses. As efficiency gains are achieved in each area and region, and numeric scores are increased to within the range of 4.5 to 5.0, there are corresponding savings in international and domestic trade costs. This level of improved performance would result in yearly savings of nearly USD 3.7 trillion annually by 2030, providing the tools to expand G20 Countries' trade by USD 7.7 trillion annually, and lead to creation of over 300 million new jobs globally. Furthermore, new digital tools can help maximize capacity utilization of G20 Countries' present physical logistics infrastructure, while providing a real-time national trade dashboard that will help to secure and prioritize national and international physical infrastructure investments.

Just as G20 Countries have taken an innovative role in trade efficiency by introducing single windows in different countries, their trade community has expressed broad interest in pioneering new initiatives for the Digital Economy, and utilizing them to integrate G20 Countries' SMEs, both within each G20 country and across the world. In fact, 94.5% of respondents expressed their desire for the Digital Economy Platform.

G20 Countries would like a Digital Economy Platform that allows businesses to:

- ▶ Promote their services and products nationally and internationally
- ▶ Target qualified buyers – in need of their services and products – directly
- ▶ Simplify decision making of potential buyers, and accelerate the sales cycle
- ▶ Expedite and simplify trade finance
- ▶ Decrease trade insurance premiums while enhancing the coverage
- ▶ Ease integration into the global trade pipeline and
- ▶ Post their products and services in the languages that potential customers prefer

G20 Countries' SMEs desire the required Digital Economy Platform environment to connect with their counterparts around the globe. The Association of Development Financing Institutions in Asia and the Pacific (ADFIAP) and the former Secretariat of the World Federation of Development Financing Institutions (WFDI), whose members serve the financial needs of more than 60% of world's SMEs, have also confirmed the desirability of the following Digital Economy environment based upon their regular daily interactions within the current inefficient environment.



## The Digital Economy In G20 Countries

We have briefly presented the results of the G20 Nations Case Study with emphasis on the six key areas of trade efficiency in relation to the 21-6-ETEI standard, which will be explored more thoroughly later in this document. However, the end game is the empowerment of the four pillars of trade to establish the required Digital Economy Platform: A fully digital trade environment consisting of optimally-performing levels of E-Commerce, E-Finance, E-Insurance, and E-Logistics. As illustrated in the foregoing chart, the six key elements of trade efficiency – Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security – are the necessary elements for an E-Logistics platform that is integrated with the other three trade pillars. Optimal performance in all of these six key areas is necessary to empower the four pillars, enabling them to deliver the efficiency and cost reductions required to drive trade growth, and thus propel economic prosperity for all nations for generations to come.

## The 21<sup>st</sup> Century Digital Economy Environment Foundation

The 21<sup>st</sup> Century Digital Economy environment is an ecosystem that permits global integration of product and service offerings with the intelligent proficiency to match sellers to targeted buyers. This environment is based upon dynamic, validated real-time information accumulated and continuously updated through the normal course of trade activities around the world, rather than the unsubstantiated reviews presently in use.

The quality of data in the world of information can be divided into two extremes: The first extreme is the Non-Validated Data or NVD provided by a single source of data without validation.

The second extreme is the Ultimate Data Quality (UDQ) provided to initiate an action in the real world validated through multiple sources of data in the same pipeline. For example, when traveling we cannot enter the name of George and show-up at the airport with Robert's passport. In order for Robert to travel he must enter the true data to initiate an action in the real world, then the multiple parties involved in Robert's move from one part of the world to another will continuously update the data as a prerequisite to initiate the sequential events in a real action.

For this Digital Economy to succeed it must be dependent on real-time dynamic data validated by multiple sources. Simply said, the Digital Economy must be based on the UDQ.

The UDQ is initiated from the logistics industry. The logistics industry is the core of our real economy, the products we find on the shelves of our supermarkets or the materials with which we build our cities are available thanks to the logistics

industry. To most people when we mention logistics the first thing that comes to their minds is a truck. The logistics industry has been underestimated for a long time and still is today. Yet it has enormous potential to empower our global economy.

The logistics pipeline is the core of our economies, while at the same time it represents the main source of the UDQ that we are in desperate need of, in order to reach the tipping point towards achieving the required sustainable economic growth and prosperity in the 21<sup>st</sup> century era.

As previously mentioned, the B2B marketplace depends upon four interdependent industries: Commerce, Finance, Insurance, and Logistics. The weakest of these is logistics, which is highly fragmented. Issues facing logistics prevent the other three industries from performing at optimal levels. Enhancing the efficiency of the logistics will enable peak logistics performance and at the same time will generate the UDQ to boost the performance of the other three industries, thus empowering them to reach their full potential to a complete new level never possible before. This, in brief, is the main foundation of the Digital Economy.

In regards to the growing level of concern about data privacy and information security in the digital era, since trade data is of national security importance and such information is the currency of the Digital Economy, it must be securely exchanged. Accordingly, the DEP must be delivered through the Global Data Security Standard (GDSS) consisting of the "Axioms of the 5Cs" shown below, thereby providing the multi-layered mechanism to safeguard the data privacy and information security of public and private organizations:

- ▶ Consortium of Globally Balanced Ownership
- ▶ Council of Worldwide Fiduciary Governance Board
- ▶ Committee of Technology Governance Board Experts
- ▶ Controlled Segregated Technology Development
- ▶ Continuous and Comprehensive Audits

It is clear that data security requires a comprehensive and global solution, one that serves the needs of high, mid and low-income countries alike. It should allow the public and private sector to contribute to the development and the implementation of the standard in a geo-politically diverse and non-monopolistic manner, thereby garnering acceptance by all the regions of the world. It must also involve multiple layers of ownership and governance within a true Public-Private Partnership.

### The Future of E-Logistics in G20 Countries

The main benefit of the ecosystem described above is that it allows the creation of the smart E-Logistics environment that will provide the ability to:

- ▶ Minimize standardization requirements.
- ▶ Create a point-to-world integration environment.
- ▶ Transform Logistics Service Provider (LSP) contract obligations into electronic metrics, enabling real-time monitoring of contracted vs. forecasted vs. actual performance.
- ▶ Create an optimum E-Documentation environment that minimizes keystrokes and errors by:
  - ▶ Validating data from multiple sources within the same trade pipeline
  - ▶ Auto populating the missing information dynamically to meet the evolving Buy, Sell, Country, Industry, Financial, and Insurance (BSCIFI) documentation requirements.
- ▶ Provide the required tools to plan and manage global trade lanes from shelf-to-shelf at no cost to end users.

Despite vertical efficiencies achieved by some LSPs, the G20 Countries' logistics industry suffer from the same problems facing the industry worldwide. It remains fragmented and unnecessarily costly, and the lack of technologically optimized systems and processes prevents it from achieving the highest 21-6-ETEI ratings.

### The Future of E-Commerce in G20 Countries

The main benefit of the ecosystem described above is that it allows the creation of a smart E-Commerce matrix that provides the dynamic scoring level needed to:

- ▶ Ensure quality of services and products based on sellers' global activities.
- ▶ Facilitate and expedite product and service finance.
- ▶ Minimize insurance premiums and optimize coverage.
- ▶ Ensure easy integration of sellers into the buyer supply chain.
- ▶ Ensure the reliability and dependability of the logistics industry pipeline from seller to buyer.

Based on the UDQ, the aforementioned scoring system is presented at any time the buyer decides to evaluate a seller's product or service, locally, regionally or globally. Such a system results in maximizing conversion ratios from seeing a desired product and service to acquisition.

Although it remains an ideal system that G20 Countries, and the rest of the world, are striving to reach, this E-Commerce environment does not yet exist. However, as previously stated, 94.5% of G20 Countries' businesses have demanded the E-Commerce environment previously described.

### The Future of E-Finance in G20 Countries

The main benefit of the ecosystem described above is that it allows the creation of the smart E-Finance matrix that will provide the dynamic scoring level needed for:

- ▶ Trade Finance Risk Mitigation: Minimize underwriter risk based upon borrowers' historic and future global trade finance activities.
- ▶ Minimize Transaction Risk: Maximize lenders' capability to electronically direct loan proceeds to the borrower's pre-approved sellers of products and services.
- ▶ Asset Recovery Risk: Ensure the capability to seize assets in the trade pipeline for rerouting or liquidation to minimize asset impairment loss.

All of the above will expedite trade finance, promote trade increases and thereby enable new global market expansion for large enterprises, as well as for the SMEs of the world who represent one of the main cornerstones of global economic growth.

Currently, the lack of access to the information described above limits E-Finance for trade in G20 Countries. Although financial institutions have created efficient in-house vertical systems, banks have limited access to real-time shipment information and to timely data regarding buyers, sellers and the movement of goods. Banks' 21-6-ETEI scores remain among the lowest of all clusters surveyed in the G20 Countries.

### The Future of E-Insurance in G20 Countries.

The main benefit of the ecosystem described is that it allows the creation of the smart E-Insurance matrix that will provide the dynamic scoring level needed for:

- ▶ Trade Insurance Risk Mitigation: Minimizing underwriter risk based upon all trade lane participants' historic performance as well as specific trade pipeline routes and destinations, thus expediting insurance coverage.
- ▶ Maximize Global Coverage: Provides the ability for firms' seamless integration into the global trade insurance market, enabling them to provide door-to-door coverage with limited risk.
- ▶ Expedite Claims Processes: Access to current and historic information gathered throughout the trade pipeline provides firms with needed data to process claims quickly and accurately.

In G20 Countries today, E-Insurance for trade remains costly and difficult to obtain. The lack of trade integration and visibility to the state of shipments within the pipeline, as well as the continued reliance on paper documentation, holds insurance industry scores below optimal 21-6-ETEI levels.

### The Future Trade Potential of G20 Countries

Currently, the G20 High Income Countries (HIC) trade approximately USD 1 trillion among themselves. Currently, HIC are experiencing slow economic growth due to excess production capacity accompanied by decelerating demand, a high debt burden, and an aging population. Nearly 35 years ago, the HIC used to be 22% of the world's population. Due to low birth rates and an aging population, the HIC now represent 15% of the world's population, and with the same trend this level is projected to reach 11% by 2050. Based on this declining population, experts estimate that the growth in trade within HIC will also decline in the future.

Hence, it is fundamental for G20 Nations to minimize their trade dependence on HIC by investing in the economies of the middle income countries (MIC) and low income countries (LIC) towards building their purchasing power so that G20 Countries can grow their exports to those countries in the near future. For every 1% increase in the purchasing power of MIC/LIC, G20 Countries can increase their exports by USD 99 billion with a potential annual trade increase for G20 Countries reaching up to USD 4.6 trillion by 2030.

The main challenge is to de-risk trade between countries which is made possible through the adoption of the DEP that will provide increased efficiency and transparency as well as assist to achieve business excellence in a relatively short time frame. This campaign has already been endorsed by the League of Arab States, the

Organization of Islamic Cooperation, the African Union and the Organization of American States, among others, that have entered into strategic agreements to deploy the DEP. Accordingly, G20 Countries will reduce domestic and international trade costs as well as de-risk operations with their trade partners, thereby attracting domestic and foreign direct investments, easing access to trade finance and insurance, and increasing their reach to global markets, all of which contribute towards building their purchasing power.

In addition to the above, through the digitization of trade activities, G20 Countries can realize annual international and domestic trade cost savings of USD 3.7 trillion and create more than 300 million jobs.

To sum up, the digital tools for doing a better job on the ground level, which have been commonly defined in this report by 94.5% of the G20 Countries trade community, will also serve to assist them towards achieving their national strategic economic objectives.

### In Summary

The G20 Nations Case Study is intended to provide guidance as to the current strengths and opportunities of G20 Countries' trade environment. Its existence is a testament both to G20 Countries' dedication to achieving trade excellence and GCEL's commitment to providing support for the G20 Countries and the world.

GCEL has already demonstrated its commitment to promoting prosperity through trade efficiency via its research and knowledge-sharing initiatives. We will continue to support G20 Countries' efforts to achieve optimal 21-6-ETEI performance levels by collaborating with G20 Countries' governments and businesses as we deploy the DEP. It is GCEL's core foundation to offset the geopolitical, monopolistic, and data privacy concerns related to the DEP, and making it available without cost to every business around the world.

Once acted upon, the body of knowledge represented by this report will lay the foundation for revitalized trade and for unprecedented economic benefits to humanity. The remainder of this document provides an in-depth exploration of the G20 Countries' trade environment, as well as recommendations that will enable G20 Countries to take a leading role in the 21<sup>st</sup> century Digital Economy.

"Due to the present economic unrest and the uncertainty of the future, we cannot be satisfied with the cup half full; we must always strive towards peak results in order to overcome today's challenges, and build a solid economic foundation for future generations."  
— Global Coalition for Efficient Logistics (GCEL)



# FOUNDATION OF THE G20 NATIONS CASE STUDY



## An essential starting point in creating economic prosperity tomorrow lies in understanding shipment efficiency levels today

The world is at a tipping point toward a new digital era. Even as nations struggle to recover from the ongoing challenges from the 2008 Global Financial Crisis, technological advancement has begun to fundamentally change the way business is done. As leaders seek a global digital solution to the material problem of a battered global economy, the opportunity has arisen to boost the world's economies through a fundamental transformation of global trade, achieved by leveraging technology to create a new paradigm of trade efficiency.

The G20 Nations Case Study is a series of Shipment and Trade Efficiency Assessment (SEA) studies conducted in 19 of the G20 Countries. The focus of this assessment is upon the shipment itself, as the shipment is more than just a product that is bought and moved. The shipment lifecycle starts with the policy making to generate it and the free trade agreements to sell it, the infrastructure investment to manufacture it, the logistics infrastructure to move it, and the service industries to service it. Simply put, the shipment is the common denominator that brings this world together in economy and trade. We must analyze the shipment efficiency throughout its journey from production until it reaches the end consumer.

The shipment is one of the most important nuclei of the global economy that directly affects our lives. At the macro level, it represents the food we eat, the clothes in our stores, and the materials used to build our cities, all of which impact the nature and quality of our lives. Supporting these are the four industries that serve as the pillars of global trade: Commerce, Finance, Insurance, and Logistics. These industries are represented through nineteen clusters, categories of public and private organizations directly involved in shelf-to-shelf shipment movement. At the micro level, the shipment itself is the common denominator between the clusters, the pillar industries, and our lives. Therefore, making the shipment more efficient and reducing its cost has the potential to directly affect every household around the world, positively impacting every single human life.

To correctly assess shipment efficiency, we must analyze critical information related to each of these nineteen clusters and how they are handling the shipment when it is in their jurisdiction throughout its shelf-to-shelf journey. The emphasis must be upon horizontal shipment activities rather than vertical operations.

Today, E-Commerce, E-Finance, E-Insurance, and E-Logistics all well exist and serve our needs to a certain extent; digital systems and practices have been implemented to varying degrees within each of these industry verticals. The flow of trade, however, is by definition a horizontal process. Efficiency is determined by the characteristics of a shipment movement through the entire length of the trade pipeline. While commerce, banking, insurance, and certain logistics firms have achieved efficiency gains through digitization, the efficiency of the overall system cannot exceed that of its lowest performing member: Logistics.

Logistics has historically been the weakest link in this chain, despite being the industry that makes trade possible, and that connects our world; its fragmentation has prevented E-Commerce, E-Finance, and E-Insurance from realizing their full potential. In addressing the efficiency challenges faced by the logistics industry through the required logistics platform, we present the foundation needed to maximize the capabilities of the other three pillars, enabling them to reach their full potential, resulting in the birth of the 21<sup>st</sup> century Digital Economy Platform (DEP).

### G20 Nations Case Study and the HumaWealth Program in G20 Nations

The G20 Nations Case Study represents the starting point for Phase 6 of 7 total Phases in launching the HumaWealth Program, a global economic development initiative, to deploy the 21<sup>st</sup> century Digital Economy Platform (DEP) in each of the four regions of the globe. The phases are as follows:

#### 1. Regional Strategic Partnerships

An execution of official partnerships agreement between GCEL and pan-regional organizations within a specific region toward achieving the following:

- a) Official recognition of the DEP importance to the G20 Nations and the four regions of the world's economies;
- b) Co-convene the HumaWealth Awareness Events with GCEL, across each of the four regions of the world, to provide opportunity for each region's Commerce, Finance, Insurance and Technology (CFIT) firms to be part of the deployment team;
- c) Joint publication presenting the economic roadmap leveraging the DEP to create jobs and increase trade throughout the different regions;
- d) Identification of the proper countries within the regions to participate in the Benchmark Trade Lane (BTL);

- e) Co-convene the HumaWealth Genesis Event triggering the selection of the first global deployment network to launch the DEP worldwide. – (Partnerships completed)

## 2. HumaWealth Awareness Events

A series of events in partnership with governments across the region announcing to the local CFIT firms the opportunity to participate in the HumaWealth Genesis Event. This Genesis Event is the trigger point for the equal opportunity process to select the Global Deployment Network that will launch the first DEP worldwide.

– **(Awareness Events completed)**

## 3. Think Tank Session

A strategy session with key regional government officials to jointly plan steps towards the deployment of the BTL within the region. – **(Think Tank Sessions in process)**

## 4. Joint Missions

Joint missions towards qualification of the BTL country partners.

– **(Qualification of BTL Countries in process)**

## 5. BTL Launch Ceremony

A ceremony hosted jointly by GCEL, the pan-regional organizations, and the two BTL countries in each of the four regions of the world initiating regional BTL activities, triggered by the MOU executed between GCEL and the countries' respective officials.

– **(BTL Launch Ceremony in process)**

## 6. The Benchmark Trade Lane

This phase includes the following steps:

- a) **The G20 Nations Case Study:** Assessment of shipment and trade efficiency examining critical information related to shipment participants when handling the shipment from shelf to shelf; **(G20 Nations Case Study completed)**
- b) **Education:** Sharing of findings from the G20 Nations Case Study with industry representatives of the G20 Countries, outlining areas of improvement, and presenting the DEP as the tool to achieve business excellence; **(Education in process)**
- c) **BTL Participant Selection:** Involves the selection of parties in a shelf-to-shelf shipment process in an existing trade lane between the preselected countries in each region of the world; **(BTL participant selection in process)**

- d) **The Genesis Event:** In cooperation with international NGOs and global pan-regional organizations triggers the selection of the first round of the Global Deployment Network consisting of Commerce, Finance, Insurance, and Technology (CFIT) Gateways, conducted through a transparent, equal-opportunity process; **(Selection in process)**

- e) **BTL Deployment:** Implementation of the 21<sup>st</sup> century DEP on the preselected trade lane; and

- f) **BTL Showcase:** Regional events wherein GCEL and the CFIT Gateways invite the Gateways' customers and selected industry representatives to witness the benefits first hand, triggering the DEP global deployment.

GCEL's Assessment is designed to span the entire shipment flow; as a result, the findings provide a clear roadmap to overcome weaknesses, reduce expenditures of time and capital, expand trade, and ultimately provide the foundation for sustainable economic growth. The assessment has three key characteristics:

### 1. The G20 Nations Case Study builds upon global standards.

The World Bank's Logistics Performance Index (LPI) is one of the current global standards for logistics efficiency assessments. The LPI gathers limited information from 1,051 online, self-selected, voluntary respondents from 132 countries (an average of 8 respondents per country)<sup>1,2,3</sup>.

GCEL's Assessment advances the global standard in seven important ways to ensure rigorous findings that point the way to a new era of efficiency:

- ▶ **Scale/Scope:** The study covered all private and public participants in the flow of trade, including customs, logistics service providers, shippers, financiers and insurance providers.
- ▶ **Breadth of Sample:** The study targeted industry participants from small, medium and large enterprises, as well as from the public sector throughout the entire logistics pipeline.
- ▶ **Geographic Coverage:** Respondents were surveyed in all key trade zones of the country.
- ▶ **Sample Size:** Throughout the country, the survey included more than ten times the number of respondents sampled in the existing world standard.
- ▶ **Direct Sampling:** Assessments were conducted with highly trained examiners on a person-to-person basis, rather than via electronic or automated means.

- ▶ Survey Methodology: Questions were illustrated in order to visualize the subject of inquiry, thus ensuring ease of understanding which results in optimum response accuracy.
- ▶ Quality Assurance: The survey received world-class oversight and an extensive quality control cross-check to ensure data accuracy as well as call backs of over 50% of survey respondents to further substantiate data quality.

## 2. The 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)

The standard of the GCEL assessment is based on realizing the full potential of 21<sup>st</sup> century technology as applied to six internationally recognized efficiency elements called the 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI). Efficiency results from doing things correctly and on time. In the case of trade efficiency, the obvious question is: Which things must be done correctly and on time? Many international organizations such as the World Bank, APEC, UNCTAD, and others have studied ways to reduce landed import and export costs—the measure of all costs from shelf to shelf, apart from the cost of the product itself.

### The 21-6-ETEI are:

- |                    |                          |
|--------------------|--------------------------|
| 1. Integration     | 4. Tracking & Visibility |
| 2. E-Documentation | 5. Competence            |
| 3. Processes       | 6. Cargo Security        |

Historically, organizations have assessed these indicators separately. GCEL's 21-6-ETEI views these indicators as interrelated, taking into account that performance in any single area necessarily affects the performance in other areas for better or worse. The core purpose of the Assessment is to correctly diagnose the root causes of inefficiency so that the right treatment can be prescribed. For this prescription to be sound, the underlying survey must be comprehensive, evaluating all segments of the logistics pipeline according to the 21-6-ETEI criteria. In doing so, the Assessment appropriately addresses all six elements holistically, enabling us to offer solutions that are measured and appropriate.

## 3. The G20 Nations Case Study is conducted in accord with world-class standards.

At each step in the survey process - from the formulation of the initial survey strategy through final and rigorous quality control - the assessment has been conducted according to recognized, established standards for accuracy and data integrity. Our partners include leading global firms with proven expertise within their respective disciplines and exhaustive knowledge of the trade, shipping, and security arenas. All the organizations mentioned in section 3 of this report have all played a role towards the completion of their respective individual country SEA studies that were consolidated to produce this report. Each has done its part to ensure that the G20 Nations Case Study has been conducted in accordance with the highest international standards; moreover, the information included in the report is timely, relevant, and suited to provide a clear path towards establishing the highest possible performance levels in trade practice. Future assessments and reports shall be conducted with the same high standards, and shall employ the services of a similar range of leading firms and agencies.





"You must be the change you want to see in the world."  
— Mahatma Gandhi

## 7. DEP Global Deployment and National Trade Dashboard (NTD)

The NTD is a self-monitored dashboard assisting governments to prioritize and attract physical infrastructure investment, as well as identifying firms that have reached business excellence. This criterion is a required foundation to drive increased trade, finance and investment. It is significant to note that the Benchmark Trade Lanes in Asia, MEA, Europe and Americas will have no technological requirement beyond internet access besides the integration with the selected carriers; limited access to technology is no barrier to usage, and in some instances may be an advantage. Indonesia, for example, was one of the first nations in the world to deploy digital soft infrastructure for telecommunications, swiftly deploying cellular networks and triggering the rapid adoption of digital telecommunications. In fact, Indonesia's rate of adoption surpassed that of the United States, where the existing hard infrastructure of copper lines and analogue switches were legacy investments that actually delayed its transition to digital telecommunications. In the same way, nations around the world have the opportunity to rapidly deploy the soft infrastructure needed for a powerful 21<sup>st</sup> century digital platform for trade.

### Survey Results

The G20 Nations Case study was launched to hear the "Voice of the G20 Citizens" and to define what the Digital Economy should look like so they can be more competitive in the global market place. All G20 Countries have completed their national assessments. These assessments have been compiled and analyzed by an expert panel in each of the G20 Countries. These panels included government officials, renowned world-class consulting and research firms, and global experts from the industry itself. The panel in each of the G20 Countries prepared a comprehensive report that summarized key findings on the current efficiency levels and that provided a roadmap to increased trade efficiency in each of the G20 Countries.

The Voice of the G20 Citizens comprehensive report published in cooperation with over 90 Government ministries, industry associations and academia will be delivered to the G20 /B20 summits for purposes of incorporating the recommendations of the Case Study in the final policy recommendations. It will also be presented to public and private leaders throughout the G20 Nations, providing an essential base of shared knowledge among trade participants. This roadmap provides the foundation for informed investment and policy decisions, helps in setting state and corporate priorities, and serves as a critical initial step toward delivery of the required tools to expand trade, support new jobs, and sustain economic growth.

### In Conclusion

As stated earlier, the gains in trade efficiency achieved by the cargo container led not only to the transformation of industries, but also to increased global prosperity over many decades. In fact, trade efficiency is the key to global prosperity; it is absolutely critical that we diagnose trade efficiency performance correctly, and implement appropriate solutions that maximize efficiency within all of the 19 participant clusters that support the four pillars of trade. In doing so, we stand to guide the world past its recent period of economic hardship, laying the foundation for the innovation that the world is calling for. However, any innovation must be founded upon a thorough understanding of present conditions, and should provide a clear path ahead together with promised measurable benefits. The G20 Nations Case Study represents this foundation,

and is the first step towards realizing the 21<sup>st</sup> century Digital Economy.

1. World Bank, 2016. Connecting to Compete 2016, Trade Logistics in the Global Economy: The Logistics Performance Index and Its Indicators.
2. Morse (1994) Designing Funded Qualitative Research; Handbook of Qualitative Research (2nd Ed.)
3. Creswell (1998). Qualitative Inquiry and Research Design... Sage Publications.

## FINDINGS AND RECOMMENDATIONS

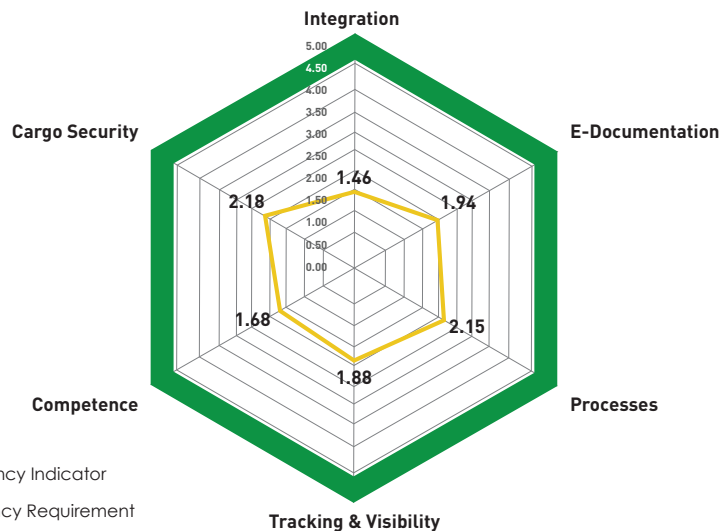


## Introduction: G20 Nations Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated the current G20 Nations trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment established by actualizing the full potential of what technology can provide today. In the following pages, we will explore the significance of each element as well as its performance in relation to this new standard. We will present the results based upon overall G20 level performance, individual countries, and individual industry clusters at a G20 country level — accompanied by recommendations of essential steps that must be taken in order to attain peak performance in each element.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. It also illustrates the considerable gains G20 Countries will achieve once the recommendations of this report are acted upon. Through these recommendations, G20 Countries can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 3.7 trillion, trade increase of USD 7.7 trillion, and job creation of nearly 310 million. This new level of efficiency will serve as a solid foundation to meet the economic ambitions of the G20 and the world citizens.

### G20 Nations Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



G-20 Nations Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

We have chosen to present the results of the G20 Nations Case Study based on 21-6-ETEI standards, illustrating current trade practices as follows.

#### I. The Element

- ▶ What is the meaning of the element?
- ▶ When is the element used?
- ▶ Why is the element important?
- ▶ Who has validated the importance of this element?
- ▶ Where does the element apply to the public and private sectors?

#### II. FINDINGS - DATA

#### III. FINDINGS - IMPACT

#### IV. RECOMMENDATIONS

# INTEGRATION



# Integration

The state of trade efficiency within a trade pipeline, throughout a country or region is determined in large measure by the level of integration that has been achieved among the nineteen clusters. The purpose of this section is to define integration and to explore its vital role in supporting efficiency and—by extension—a country's economic well-being.

## What Is the Meaning of Integration?

Integration is defined as the ability to connect all participants involved in the flow of a shipment within a seamless, dynamic information-sharing environment. Information provided by trade participants within this environment is then available as needed and appropriate to other participants within the trade pipeline. Presently, the main method of integration practiced is based on point-to-point integration; the 21<sup>st</sup> century trade efficiency standard is based on point-to-world integration.

## When and How Is Integration Used?

When Integration is achieved either through point-to-point or point-to-world methods, the information shared can be generally categorized as either Participant-related or Shipment-related.

Participant-related information consists of data concerning a specific trade pipeline participant. This information is typically entered once and continuously updated as needed. This would include:

- ▶ Organization name
- ▶ Facility locations
- ▶ Contact details
- ▶ Products or services
- ▶ Financial information
- ▶ Certification information
- ▶ Conveyors, equipment, etc.

Shipment-related information consists of data concerning a specific shipment as generated in real-time at various steps in the shipping process. This is the common denominator information shared between all trade pipeline participants and includes:

- ▶ Buying and selling information
- ▶ Shipping and receiving information
- ▶ Finance information
- ▶ Insurance information
- ▶ Regulatory compliance information

## Why Is Integration Important?

There are three primary reasons why Integration is an essential element of trade efficiency:

- I. To Enable a Real-Time Dynamic Data Environment
- II. To Provide Data Consistency and Validity
- III. To Provide Dynamic Validated Data History

### I. Real-Time Dynamic Data Environment

The advantage of this environment is the ability to make an action in one part of the world simultaneously visible to the rest of the world.

The main benefit of such an environment is that it allows us to have real-time comprehensive visibility, facilitating decisions for prompt action. This represents the foundation for the additional benefits that will be achieved from a point-to-world integration environment.

### II. Data Consistency and Validity

Data consistency is achieved when the environment provides the ability for multiple sources within a pipeline to compile information about the same shipment, starting from the buy/sell agreement all the way to the final delivery of the shipment. Validity is achieved when everyone in the trade pipeline can confirm data entered during previous steps in the shipment process. This multiple-source data confirmation occurs across companies, countries and continents—making data tampering impossible.

The main benefits of Data Consistency and Validity are illustrated in the following key areas:

- a) Reduced data redundancy
- b) Minimized keystrokes, and thus the reduced possibility of human errors
- c) Easier population of validated E-Documentation data
- d) Reduced manual communications via fax, email, post, and phone

These benefits are especially important for government agencies concerned with the goods point of origin, cargo security, or compliance with national and international regulations. They are also valuable for financial and insurance firms, as well as for trade partners.

### III. Dynamic Validated Data History

As data is dynamically collected and validated through real-time processes, trade information history gets accumulated and continuously updated throughout the normal course of trade activity. This is achieved horizontally for all nineteen clusters around the world providing unprecedented quality scores as opposed to current single-source, unsubstantiated reviews.

The main benefit of the validated data history is that it will allow us to create metrics based upon a global standard, thus maximizing the conversion ratios at the commerce stage from seeing a desired product to acquisition. It also expedites trade finance, providing visibility of historic and planned trade activity as well as minimizing underwriting risk and other finance-related issues. Furthermore, the quality of the validated data will reduce insurance underwriter risk leading to greater access to insurance at affordable prices and will allow us to make well-educated decisions in selecting reliable and dependable logistics services pipelines, thus helping G20 Nations achieve "Just-in-Time" (JIT) logistics at the lowest cost possible. The above is a brief representation of the unprecedented benefits that can be achieved out of the dynamic validated data history.

#### Who Has Validated the Importance of Integration?

The importance of Integration has been confirmed by many renowned international organizations, yet global integration has never been quantified nor have integration tools been made available, at no cost, to the nineteen clusters around the world. The importance of Integration can be confirmed by the following summarized statements from leading international organizations:

**United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP):** "The importance of integration to the development of "sustainable transport" and the significance of developing mechanisms to assist policy makers, managers of unimodal transport systems and integrated transport operators in ensuring the efficient operation of transport infrastructure and services."<sup>1</sup>

**World Bank:** "Globalization has made the demand for logistics services more sophisticated, pushing for integration and diversification of services to help operate uninterrupted supply chains."<sup>2</sup>

**Asian Development Bank (ADB):** "The need to reduce transport and logistics costs, by connecting production clusters in different countries and connecting these clusters with markets, will be a major challenge in the next few decades."<sup>3</sup>

**Asia – Pacific Economic Cooperation (APEC):** "Delivering stronger business growth requires a renewed focus on removing barriers to deeper integration."<sup>4</sup>

#### Where Does Integration Apply to the Public and Private Sectors?

Integration is important to a broad range of businesses and governmental entities, since it provides a validated dynamic data history for effective planning. Meanwhile, it also provides a real-time dynamic data environment that is consistent and validated, enabling optimal operations and thus reaching business excellence at the highest standard. In order to present a brief overview of the benefits of Integration, we have divided the nineteen clusters into the following three categories:

##### Buyers, Sellers, and Logistics Service Providers

- ▶ Provide optimum visibility for market needs and expansion
- ▶ Enable effective planning when outsourcing for services or goods
- ▶ Allow real-time performance monitoring of trade partners based on contract obligations
- ▶ Integrate KANBAN level with "Just-in-Time" logistics, resulting in optimized costs while meeting market requirements
- ▶ Increase reliability and dependability of the supply chain pipeline, providing a solid foundation for market expansion
- ▶ Maximize infrastructure capacity utilization with better visibility, allowing for optimal planning
- ▶ Enable sound decision-making in a timely manner

##### Finance and Insurance Firms

- ▶ Banks can validate trade history, as well as current and future activity performance, thus minimizing underwriting risk. Furthermore, Integration will ensure that the funds provided are spent in the proper place and at the right time. It also enables the financed materials in the pipeline to become properly collateralized assets. All of the above will contribute to minimizing banks' risk and easing access to trade finance.
- ▶ Development banks can maximize returns on investments through the improved performance of the clusters involved. The transparency of productivity will attract major local and international physical infrastructure investment.

- Insurance firms can maximize the accuracy of risk assessment, which will increase underwriters' competitiveness and market share, nationally and internationally. It will also enhance and expedite claims investigations.

### Government

#### Cargo Clearance

- Provide accurate information about product point of origin and all other related shipment data; resulting in better profiling, allowing faster clearance of goods, and improving trade efficiency.

#### Cargo Security

- Optimize cargo security measures by minimizing single points of failure, providing multiple layers of cargo security defense—starting from the intelligence, coast guard, border crossing, and domestic layers—while minimizing cargo security compliance costs nationally and internationally.

#### Food Safety

- Faster containment and better response to food disease outbreaks by establishing a global agricultural health surveillance system to contain disease outbreaks proactively while reducing the cost of regulatory compliance

#### Disaster Impact Readiness

- Ability to integrate into the global and domestic trade pipeline, thus redirecting materials required for emergency situations with the highest degree of efficiency by rapidly mobilizing LSPs to deliver necessary relief supplies at minimum cost.
- Capability to implement an Emergency Transportation Flow Management System to direct and redirect traffic, ensuring the uninterrupted flow of commerce.

#### Carbon Footprint

- Reduce fuel consumption by increasing capacity utilization of logistics conveyors throughout the logistics pipeline, especially by increasing throughput at ports and state border crossings

### Findings - Data

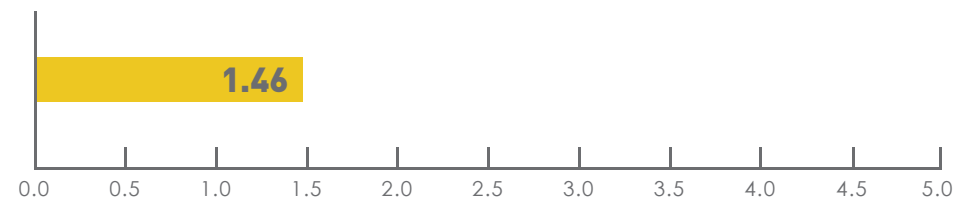
Integration Efficiency scale in brief:

**Level 1** = Absence of effective integration systems, extensive use of phone/fax/mail for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective integration and communication systems, low degree of data redundancy.

### G20 Nations Overall Integration Score

This represents the aggregate data on a G20 level from all nineteen clusters surveyed in the G20 Countries. Collectively they have scored a 1.46 out of a possible 5. The top score of 5 represents the optimal use of technology in the field of integration.



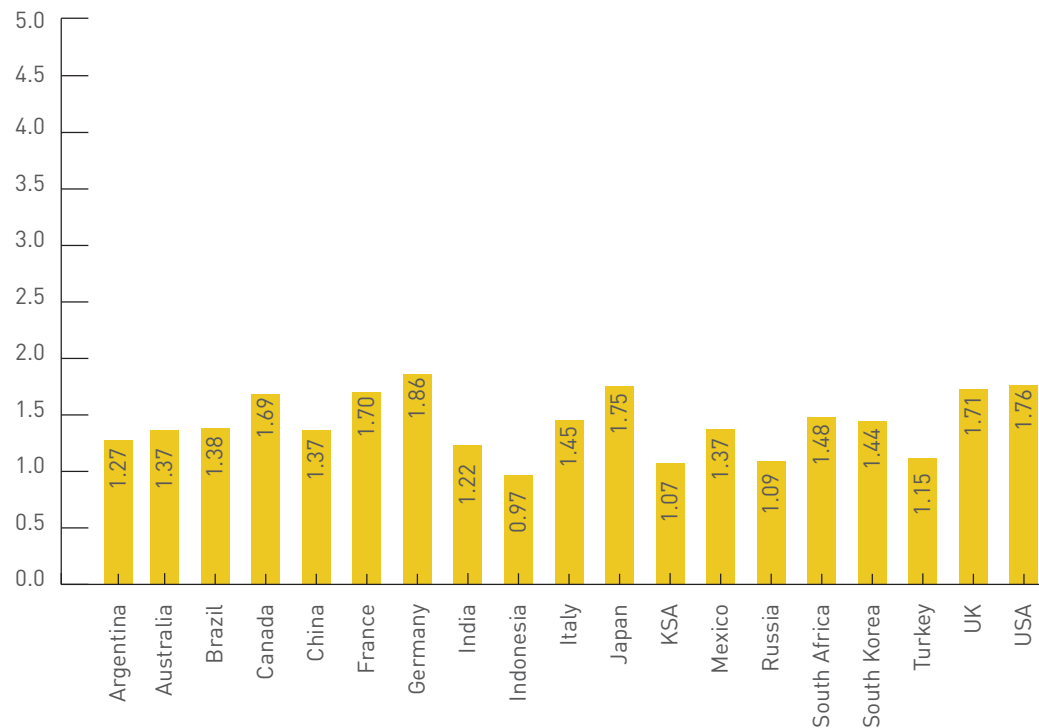
### Integration by Individual G20 Countries\*

Germany scored the highest Integration score across the G20 Nations with 1.86. Developed economies in North America, Asia and in Europe including the United States (1.76), Japan (1.75), the United Kingdom (1.71), France (1.70), and Canada (1.69) have scored higher than the remaining countries.

Moderate Integration scores include South Africa (1.48), Italy (1.45), South Korea (1.44), and Australia (1.37). The remaining countries have lower Integration scores.

However, 94.9% of businesses in the G20 Countries still track their shipments manually. This high number of companies with no systems to track their shipments in global value chains indicate their lack of Integration and restrains these countries from achieving the level of trade efficiency required to maximize on their potential and realizing the economic ambitions of their citizens.

The average G20 Nations Case Study scores for each country is highly correlated with the ranking of the countries in the Logistics Performance Index (LPI) developed by The World Bank ( $r = -0.91$ ,  $p = 0$ ) and to the logistics cost as a percent of GDP ( $r = -0.68$ ,  $p = 0$ ). Thus, the G20 Nations Case Study is consistent with the LPI index and builds upon that foundation by providing rich diagnostic information to empower the G20 Nations to enhance their logistics efficiency.



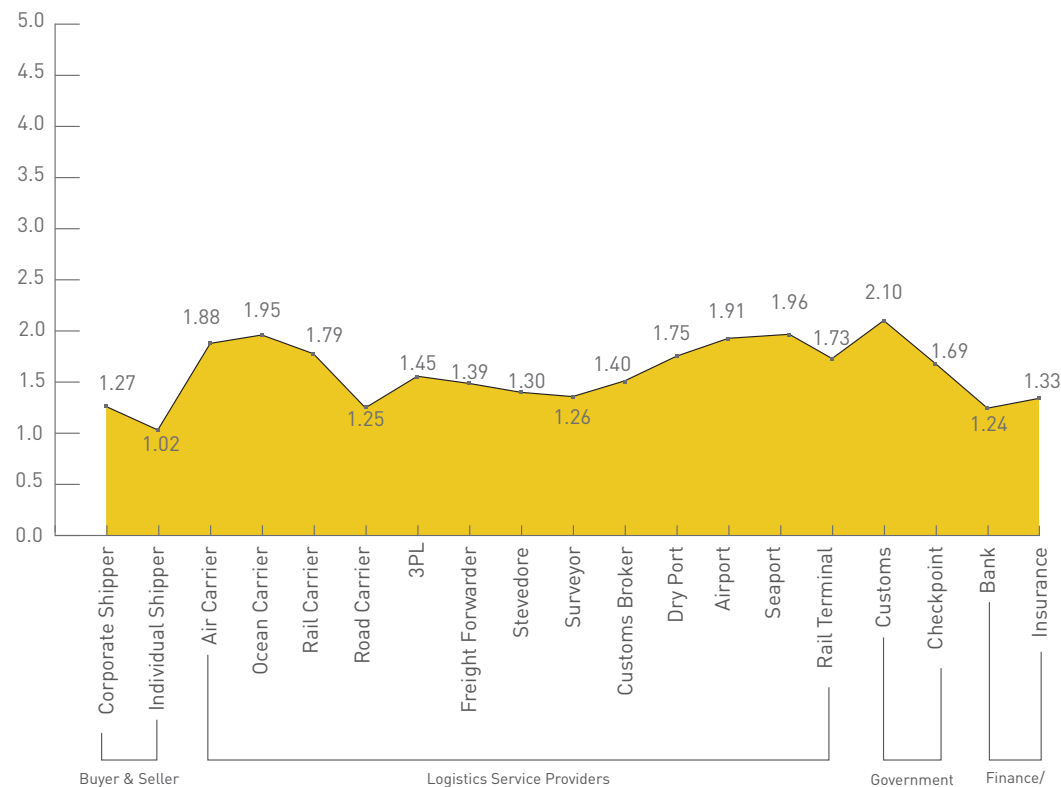
\*The G20 Nations Case Study is comprised of two groups. The Case Study for Group I was completed in 2013 and included Australia, India, Indonesia, Kingdom of Saudi Arabia, and Turkey. The Case Study for Group II was completed in 2016 and included the remaining G20 Countries of Argentina, Brazil, Canada, China, France, Germany, Italy, Japan, Mexico, Russia, South Africa, South Korea, the UK, and the USA. Since the G20 Leaders have adopted the Digital Economy as a key policy directive and emphasized the importance of digitally empowering SMEs, the Case Study for Group II surveyed a relatively higher percentage of SMEs than Group I to capture their voice. This resulted in lower efficiency scores for Group II countries relative to Group I countries. Hence, to ensure comparability of the scores across these two groups, the scores of Group II countries were normalized upwards.

## Integration by the 19 Clusters in the G20 Countries

Customs had the highest Integration score across the G20 Countries with a 2.10 indicating some level of Integration among the trade participants. This has been accomplished through the National Single Window portal initiatives in the different G20 Countries. These Single Windows are in general integrated public service systems providing the ability to submit and process customs data electronically.

The Carriers have also scored higher than the remaining clusters due to the fact that these organizations have developed their own web-based portals that allow for the electronic transfer of some of the shipment data with the other clusters. This modest level of Integration is reflected in the scores of Ocean Carrier (1.95) and Air Carrier (1.88). The Seaport (1.96) and Airport (1.91) have also scored moderate levels of Integration across the G20 Nations.

90.4% of businesses in the G20 Countries have no integrated systems and most of them operate their business manually. The lack of Integration is evident in the lower scores across the 19 clusters. The lack of Integration and high dependency on manual procedures have resulted in some G20 Countries to pay higher costs for logistics such as Indonesia, Russia, and China with logistics cost at or over 18% of their GDP.



### Predominant Communication Methods by the Nineteen Clusters Integration Indicators

Only 5.1% of survey respondents communicate within their own trade pipeline using FTP (File Transfer Protocol) or EDI (Electronic Data Interchange). The remaining 94.9% communicate manually within the pipeline through phone, fax, postal mail, or email.

The Nineteen Clusters	Predominant Communication Method
Corporate Shipper	Fax
Individual Shipper	Fax
Air Carrier	Email/EDI
Ocean Carrier	Email/EDI
Road Carrier	Phone
Rail Carrier	Phone
3PL	Phone
Freight Forwarder	Phone
Stevedore	Fax
Surveyor	Fax
Customs Broker	Email
Airport	Email/EDI
Seaport	Email/EDI
Rail Terminal	Phone
Dry Port	Phone
Customs	Email/EDI
Checkpoint	Email/EDI
Bank	Fax
Insurance	Fax

## Integration Indicators

The following chart provides a summary of predominant responses by specific industry cluster classes to Integration-related questions asked during the survey<sup>1</sup>.

	Buyers/Sellers	LSPs	Finance/Insurance	Government	Overall G20 Nations
How Is Information Exchanged? <sup>2</sup>	Postal Mail/ Fax	Postal Mail/ Fax	Postal Mail/ Fax	Email/EDI	Postal Mail/ Fax
Communication Protocol <sup>3</sup>	No Electronic Communication Protocol	No Electronic Communication Protocol	No Electronic Communication Protocol	Flat file/EDI	No Electronic Communication Protocol
Data Redundancy <sup>4</sup> %	31-50% Same information	31-50% Same information	31-50% Same information	31-50% Same information	31-50% Same information
Frequency Of Sending & Receiving Shipment Updates <sup>5</sup>	> Day	> Day	> Day	> Day	> Day
Trading Partner Data Validation <sup>6</sup>	Limited	Limited	Limited	Limited	Limited
New Partner Integration Time <sup>7</sup>	15-30 Days	15-30 Days	15-30 Days	15-30 Days	15-30 Days
New Partner Integration Cost <sup>8</sup>	Expensive	Expensive	Expensive	Expensive	Expensive

On average, 90.4% of the businesses surveyed do not have an integrated system and depend on third parties to process shipment related documentation. Therefore, Integration improvements across G20 Countries can be achieved through a Digital Economy Platform (DEP) that provides point-to-world integration for organizations with no system and connects the existing fragmented vertical systems.

### OBSERVATIONS:

1. Values reflect the average response from answers received.
2. Consider Predominant Communication Methods by Trade Participant chart above.
3. There is no Electronic Communication Protocol due to lack of integration.
4. This refers to the percentage of redundant data that is re-entered over and over in multiple forms.
5. This indicates how often shipment updates are received. Since system integration is minimal, more than a day elapses between shipment updates. Updates are also received when costly mistakes occur, when it is already too late to react.
6. This indicates how many trade partners and LSPs in the same trade pipeline are re-validating the same shipment data.
7. This refers to the time needed for a new trade partner or LSP to integrate in the trade pipeline after finalizing the buy/sell agreement for products and services.
8. This refers to the cost needed for a new trade partner or LSP to integrate in the trade pipeline after finalizing the buy/sell agreement for products and services.

### Findings - Impact

The survey indicates that most of the 19 clusters in the G20 Countries communicate with phone, fax, postal mail or email. Due to this lack of integration, no electronic communication protocol is used. The majority of the clusters have up to 70% data redundancy and it takes them days to send and receive shipment updates with very limited data validation. In addition, integrating new trading partners can take up to 30 days, which can reduce competitiveness, limit market-share expansion, and increase cost.

Based on the above, it is necessary to know where we stand today. Therefore, our objective is not to rank the G20 Countries with “Best Practice” standards in comparison to each other or other nations, but to a new standard based upon the peak performance that can be achieved when maximizing upon the full potential of 21<sup>st</sup> century technology.

G20 Countries' Integration rating is 1.46. on a scale of 1.0 to 5.0, suggesting that significant steps must still be taken in order to achieve peak performance and realize the benefits of point-to-world integration. The 1.46 Integration level translates as follows:

#### **Current Data Environment in the G20 Nations – Passive**

A passive data environment is the opposite of a real-time dynamic environment. This means that information can only be shared sporadically and with limited visibility throughout the G20 Nations supply chain pipeline. The main problem caused by such an environment is that actions may be taken based upon incomplete or outdated information— leading to errors, and therefore excess costs.

#### **Current Data Environment in the G20 Nations – Inconsistency and Lack of Validation**

The lack of real time end-to-end shipment information leads to inconsistent data that is not properly validated. This greatly limits data verification or dynamic comparison of trade pipeline participants' documents or actions, and therefore prevents instant identification of data anomalies or errors.

The main problems caused by such an environment are:

- a) Data redundancy is greatly increased.
- b) The number of keystrokes is multiplied, thus increasing the probability of data errors.
- c) The ability to dynamically populate E-Documentation with accurate, verified data is greatly limited.
- d) The need for manual involvement such as phone, fax, postal mail or email is significantly increased.

#### **Current Data Environment in the G20 Nations – No Dynamic Validated Data History**

The lack of effectively collected, validated, categorized and stored data limits the availability and accessibility of information concerning trade participants' activities and performance, making it difficult to effectively accomplish key objectives including:

- a) Attract and evaluate new trading partners or logistics service providers.
- b) Penetrate national and international markets.

Available information, such as statistical research and unsubstantiated online reviews, is limited and passive; this can inhibit trade finance and increase insurance costs.

The above-mentioned characteristics of the current data environment limit the ability of the G20 Countries' business community or governments to reach their full capabilities in trade efficiency and economic growth. For example, it is globally recognized that SMEs are the engine of job creation and economic growth. In return, SMEs require business and trade finance in order to grow; nonetheless, they continue to face obstacles in securing needed funds.

This is mainly because financial institutions categorize SMEs as high risk. At the same time, due to the pressures imposed on them, financial institutions cannot be held solely responsible for underfunding growth. These pressures can be summarized as follows:

- ▶ The business strategy of the financial institutions can be characterized as being of a risk-averse nature, since the majority of funds available are other people's money.
- ▶ Further restrictions on financial institutions, for example Basel III (Set of reforms in 2009, revised in 2013, designed to improve regulation, supervision, and risk management in the financial sector).
- ▶ Pressure is placed upon financial institutions from economic leaders around the world to provide further credit, and especially trade finance to SMEs, in order to get the engine of trade humming again. Financial institutions lack the needed integration with global trade that would provide them with real-time, validated, and consistent visibility regarding prospective clients. The reality is that The G20 Nations financial institutions scored a 1.24 on the 21-6-ETEI scale of 5. This means that they have limited transparency or visibility in either the trade pipeline or the business activities that they finance.

In order to mitigate underwriting risk, banks need dynamic, validated, and consistent information concerning companies and their practices—at not only the loan application stage, but also when funds are disbursed. For example:

- ▶ How long has the firm been in business?
- ▶ Has there been any financial fraud involvement?
- ▶ What is its product volume and who is the buyer?
- ▶ How long has the firm produced a particular product?
- ▶ Is the buyer of the product financially stable?

- ▶ What is the firm's degree of business success?
- ▶ Do the materials come from a reliable source?
- ▶ What is the historical timeliness of payment transactions?

When finance is provided, it is necessary for the financial institutions to dynamically ensure that the funds are used for their stated purpose. In addition, loans must be collateralized to limit risk. Integration would provide real-time visibility to the goods in transit. Combined with the authority to seize control of the assets if needed, this would provide banks with additional assurance, enabling and expediting finance.

The G20 Nations Insurance firms have an Integration score of 1.33. This makes it difficult for them to dynamically evaluate trade participants that have higher numbers of insurance claims or higher rates of reported damages. Consequently, insurance premiums are high, and in some cases, full coverage is subject to conditions. With the National Single Windows across many G20 Countries, online secure portals providing easy access to all the trade facilitation systems being in place, most of the trade participants received the clearance data from Customs via portal or EDI. However, as previously explained, these systems are dependent upon a domestic single source of data represented in the current environment, which limits all of the following on a global basis:

- ▶ Validation of the data provided to Customs
- ▶ Transparency required for national and international freight visibility
- ▶ Fulfilment of cargo security measures
- ▶ Validation of the goods country of origin

### Recommendations

World economic leaders have long recognized the importance of Integration as a foundation to sustain economic growth. This is important when rebalancing the world economy and facilitating economic integration among the HIC, MIC, and LIC. The G20 Nations have continually acknowledged the vital role Integration must play in order to increase the share of trade among its members. It is also recognized in the G20 that Integration will reinforce the economy and make the G20 countries more competitive on the global economic stage.

However, Integration has neither been properly defined nor has its application point, start point, or cost been specified. Is Integration alone enough? All of these questions are answered in this section. In fact, Integration alone will not do the job; otherwise, the Internet alone would have been sufficient, as it provides a form of point-to-world integration. The Internet has changed the face of communications and retail trade, but it has neither achieved its own potential nor has it created

the integrated trading environment that the world needs. Until today, no one has provided a comprehensive plan for its realization, or recognized all the factors needed for Integration to achieve its desired results.

Integration is the first of six essential environments (21-6-ETEI) that need to be enhanced in order to deliver the economic benefits that the world desperately needs. A true trade integration solution must have the following four foundations:

1. In order for a global, regional, or national integration solution to be rapidly adopted when involving multiple parties in the same pipeline it must be free of cost to end-users. A new business model is a must in order to achieve the above and ensure sustainability of the solution while ensuring rapid global deployment.
2. The Integration solution must be non-intrusive. This is only possible in two ways:
  - a. The solution must provide portal-in access to the nineteen clusters, opening direct access to world markets and services. Such an environment will enable quick adoption by SMEs and LSPs, allowing them to perform to their full potential.
  - b. The solution must provide plug-in access to large firms, enabling Integration with their vertical in-house systems. This should be conducted through their own trusted technology providers.
3. When adopting the Integration solution, nothing must go wrong. The word "nothing", by itself, is unquantified; yet, sometimes it is required when proposing an innovation. In reality, there are two ways to address such an issue:
  - a. Define what could go wrong, and address these items one by one. However, since no one can predict what could go wrong ahead of time, we have to maximize on plan B.
  - b. There are only two ways to ensure that we are able to remedy the unknown:
    - i. Technology without investment constraints
    - ii. The top technology firms in the world, sitting together at one table and resolving what went wrong
4. The Integration solution must offset geopolitical, monopolistic, and data privacy concerns. For the solution to be sustained, it must be delivered by a private sector network of leading technology firms who have earned the world's trust through their proven capabilities. These companies must work together despite their natural inclination to compete; the world will simply not accept a solution provided by one company or one region. Thus, the solution must be deployed based on equal opportunity to all organizations capable of doing the job, and monitored within a strongly structured environment by the public and private sectors.

Meeting the Integration challenge also requires that we improve our standards. It is not enough to rely upon the traditional “Best in Class” standards based upon the best current performance examples. Today’s “Best in Class” standards have constrained trade and logistics within a box keeping them fragmented and inefficient in the eyes of the world. Our measure must be based upon the optimization of technology and the benefits it can provide when operating at peak levels; we must implement an integration solution that meets this new and elevated standard. By doing so, we will enable G20 Nations to be ready for 21<sup>st</sup> century trade efficiency and to sustain the leading position in global trade it commands.

1. UNESCAP, Toward an Asian Integrated Transport Network, p.9,2007
2. The World Bank, Connecting to Compete 2010, Trade Logistics in the Global Economy, The Logistics Performance Index and its Indicators, p. 3, 2010
3. Asian Development Bank, Institutions for Regional Integration: Toward an Asian Economic Community, p. 56, 2010
4. APEC Business Advisory Council, Report to APEC Economic Leaders, Working Towards Sustainable Growth For All, Yokohama, Japan, p. 50, 2010



# PROCESSES



# Processes

Efficient trade processes are defined as the ability to systematically perform routine tasks within a changing and fast moving environment. In other words, different but interrelated processes performed well by the various 19 clusters within the trade pipeline determine the efficiency of the shipment when crossing from shelf to shelf.

## What is the Meaning of Processes?

Processes are generally defined as the blueprint for how to maximize the use of available tools and manpower to achieve a desired output in a specific vertical environment. Since trade is a horizontal process, the 21<sup>st</sup> century trade efficiency standard requires a horizontal solution as a foundation for achieving trade efficiency.

## When and How Are Vertical and Horizontal Processes Used?

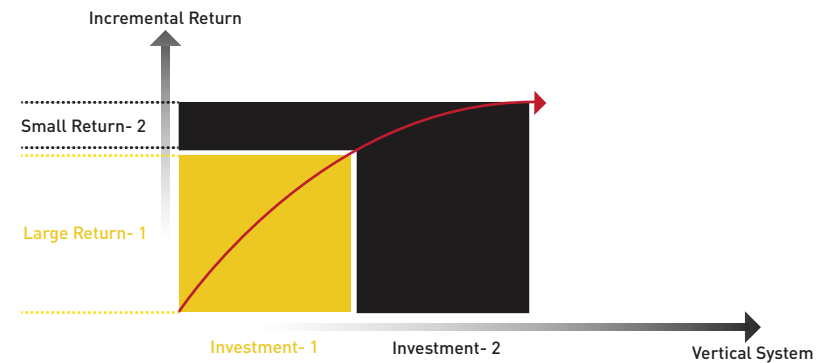
**Vertical Processes** - Today, each of the 19 clusters in the trade lane pipeline is expected to have their own internal processes to achieve their own business requirements. Some of these enterprises use sophisticated systems, while others use basic ones. The level of sophistication of the processes adopted by each of the 19 clusters on its own is subjective and determined by their individual business requirements. These requirements take into consideration customer needs, country requirements, local culture, the available labor force, and other factors that vary from one cluster to another. Again, their processes are designed to optimize vertical business performance in their attempt to maximize their bottom line.

**Horizontal Processes** - Because trade is a horizontal process, the 21<sup>st</sup> century horizontal efficiency standard is a must in order to achieve shipment efficiency when crossing all the trade participants across the trade pipeline. This standard requires cooperation and compatibility among all participants involved in the horizontal flow of a shipment.

## Why are Vertical and Horizontal Processes Important?

As previously stated, vertical processes are important in optimizing business performance within a specific cluster. Horizontal processes are important to maximize the efficiency of the trade lane pipeline as shipments cross the 19 clusters. Vertical processes alone will not meet horizontal efficiency requirements; they must work together in a non-intrusive manner. The following represent the three main factors that prevent us from achieving efficiency in the horizontal global trade process:

**1. Inappropriate Investment Strategy** – The fragmentation that we are facing in global trade today is mainly due to vertical in-house system investments erroneously geared towards maximizing horizontal efficiencies. As illustrated in the graph below, initial investments in vertical systems (shown in yellow) provide high efficiency returns on a vertical basis. However, returns on investment start to diminish as businesses over-invest vertically in their attempts to enhance horizontal efficiency (shown in black).



**2. Inequality of Vertical Efficiency Levels across the Trade Pipeline** – Horizontal efficiency is limited by that of the lowest performing participant among the 19 clusters within the trade pipeline. Efficiency gains within any single vertical must be matched by other participants in order to be horizontally effective. The adopted process must be coordinated across participants from shelf to shelf in order to achieve optimal results in the trade pipeline.

**3. Inefficient Hand-off Processes** – Even if all 19 clusters have equivalent standard levels, the hand-off remains a critical element toward maximizing efficiency within the trade pipeline.

In conclusion, it is commonly believed that to maximize horizontal process efficiency, it is necessary for all parties to adopt the same standard processes. Today's reality is that standardized language and processes are not the answer. We ought to examine the airline industry and how it has been successful in maximizing its horizontal process efficiency while each cluster has maintained its own vertical processes.

As passengers cross from their point of departure to their final destination, they pass through multiple clusters (airline systems, airports, etc.). Each cluster uses its own systems and processes, and focuses on the common denominator for data exchange—**the passenger**. By exchanging the minimum data, termed as the Universal Data Elements (UDEs)—required for the passenger to cross horizontally in an efficient manner, these firms in the airline industry have been able to move the passenger efficiently through all verticals without any need for standardization by the clusters involved.

Similarly, for trade, the common denominator among all 19 clusters is **the shipment**. The shipment requires a minimum number of data elements (UDEs) in order to cross efficiently and securely from shelf to shelf across all 19 clusters' jurisdictions. It has been proven that up to 61-80% of data exchanged between the 19 clusters in the G20 Countries is redundant. This redundancy is not limited to only G20 Countries. For example, among the top 20 ocean carriers in the world, which together represent 83% of global cargo volume, there is only a 20% variance in their bill of lading data elements. This is why the UDEs are required to maximize the horizontal efficiency of a shipment without any standardization required by the clusters involved.

#### Who Has Validated the Importance of Processes?

Organizations from around the world have recognized the benefits of harmonization or standardization. Their main objective is not full standardization per se, but rather the benefits that can be achieved through it. The UDE initiative will minimize the standardization requirements while realizing the benefits that the world has long awaited. Recognizing that this global need has yet to be met, each of the following organizations has stated:

**United Nations (UN):** "The word 'facilitate' means to make easy or easier, and this is precisely the goal of trade facilitation – to make the processes and procedures of international trade as simple and efficient as possible for traders, concerned public authorities and governments. The need for simplification and harmonization is particularly evident in the preparation and submission of the extensive range of information and documents required by governmental authorities to comply with import, export and transit-related regulations. These requirements place a heavy burden on the resources of companies and can constitute a serious barrier to the development and efficiency of international trade, especially for Small and Medium Enterprises (SMEs)."<sup>1</sup>

**World Trade Organization Economic Research and Statistics Division:** "Studies of standards and trade that focus on sectors for which supply chains and intermediate goods are important find either that standardization per se promotes trade, or that international standards are more trade-promoting than national standards." ... "Harmonized standards can promote trade, and also make supply chains more efficient."<sup>2</sup>

**Asian Development Bank (ADB):** "Countries should harmonize their procedures, data, and documentary requirements with international conventions, standards and other relevant instruments to improve transparency and predictability."<sup>3</sup>

**APEC Business Advisory Council (ABAC):** "Given the global nature of modern supply chains, ABAC urges the harmonization of transportation regulations on an international basis to achieve both safety and facilitation of trade. Standards in each economy should be aligned with those set by relevant international organizations and where international standards do not exist, the introduction of an appropriate international framework to establish globally harmonized regulations should be encouraged. APEC economies should promote capacity building activities to ensure transportation safety by encouraging compliance with current regulations among relevant supply chain operators."<sup>4</sup>

**International Civil Aviation Organization (ICAO):** "The solution is clear – optimum, end-to-end security of the global supply chain through the consistent application of relevant and effective controls, from start to finish during the shipping process."<sup>5</sup>

#### Where Do Processes Apply & How Important Are They to the Public & Private Sectors?

Processes are a required foundation to achieve optimum performance for the public and private sectors, thus optimizing the efficiency of the entire trade pipeline and generating multiple benefits including the following:

##### Buyers/Sellers and Logistics Service Providers

- ▶ Reduce domestic and international trade costs
- ▶ Maximize the capacity utilization of physical infrastructure
- ▶ Optimize outsourcing costs and quality
- ▶ Enable market expansion
- ▶ Maximize the operation's earnings

##### Finance & Insurance

- ▶ Maximize efficiency of document validation, underwriting, and claims processing procedures
- ▶ Improve customer service and speed of response
- ▶ Reduce administrative costs

##### Government

- ▶ Increase speed of border crossing and Customs clearance
- ▶ Improve speed and accuracy of security measures
- ▶ Reduce costs associated with enforcement, document validation, and pass-through times

## Findings - Data

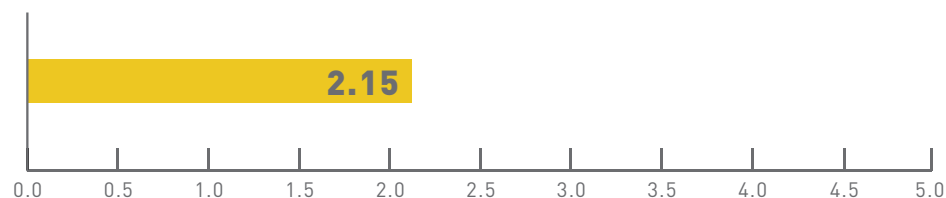
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete processes in a trade lane pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing on such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete processes in a trade lane pipeline.

## G20 Countries' Overall Processes Score

The following result represents the overall national Processes score assessing the handling of shipment flow through the trade pipeline. Collectively, the trade participants in the G20 Countries have scored 2.15 out of a possible 5.0 on the 21-6-ETEI scale.

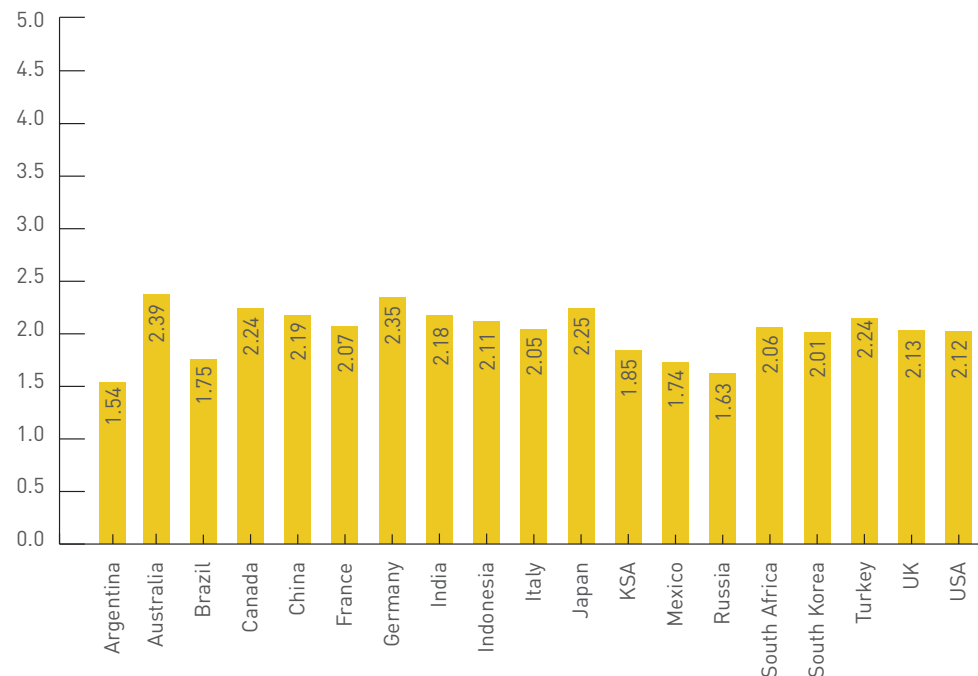


## Processes by Individual G20 Countries\*

When we examine the Processes scores across the G20 Countries, the Asia-Pacific region countries have scored higher than the other regions in the world. This is evident in the Processes score of Australia (2.39), Japan (2.25), and China (2.19) that have achieved higher Processes scores. Trade participants in these countries have some level of internal processes, however these processes need further integration in order to be optimally efficient.

HICs such as Germany (2.35), Canada (2.24), United Kingdom (2.13), and the United States (2.12) have also achieved higher Processes scores. Trade participants in these countries have long invested in vertical in-house systems to optimize their processes and the level of handling of the shipment within their jurisdictions.

On the other hand, MICs in South America such as Brazil (1.75), Mexico (1.74), and Argentina (1.54) have scored lower among the G20 Countries.



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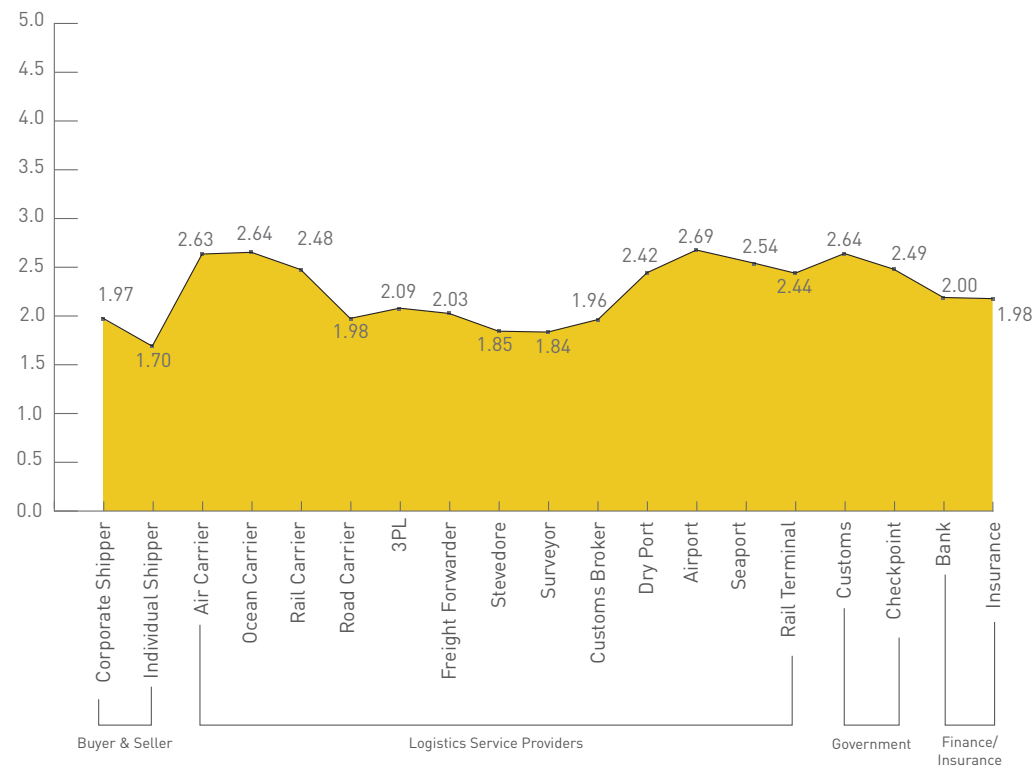


### Processes by the 19 Clusters Across the G20 Countries

The results illustrate the comparative strengths among the 19 clusters related to the adoption of systems when handling a shipment from the shelf of a seller to the shelf of a buyer. A score from 0 – 2.5 indicates the efficiency of vertical systems adopted to handle horizontal processes, whereas a score between 2.5 and 5 indicates the adoption of efficient vertical and horizontal processes to meet internal vertical requirements and the needs of global and national trade which are horizontal in nature.

Customs scored 2.64 which is among the highest of the 19 trade industry clusters in the G20 Countries. This is primarily due to availability of the National Single Windows, which are national portals that function as a “messaging hub” for importers, customs brokers, and government agencies. Seaports and airports play a major role in the movement of shipments and cargo in the G20 Countries. Several investments have been made throughout the G20 Countries in the e-Port systems and the infrastructure development of ports to handle the flow of goods, which contributed to the higher scores of Airport (2.69) and Seaport (2.54). Moreover, the internal processes and internal escalation methods necessary to handle the large amount of cargo per year in the G20 Countries are reflected in the scores of Ocean Carrier (2.64), Air Carrier (2.63), and Dry Port (2.42).

The handoff of shipments between trade participants remains a challenge across the G20 Countries. Currently close to 95% of the businesses and trade participants across the G20 Countries use manual processes to handle the shipment in their jurisdictions, which contribute to unnecessary delays and lead to higher costs of logistics in some countries.



## Processes Indicators

The following chart indicates the predominant processes in place within specific industry cluster classes, based upon responses to processes questions asked during the survey.

	Buyers/Sellers	LSPs	Finance/Insurance	Government	Overall G20 Nations
Vertical in-house software system used	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf customized	Off-the-shelf customized	Off-the-shelf not customized
How quickly do you become aware of domestic or global changes that impact your current processes?	8-30 Days	8-30 Days	8-30 Days	8-30 Days	8-30 Days
Time required to implement an external change, domestic or global, that affects your process output	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks
How frequently do you re-key data due to processes adopted?	61 - 80%	61 - 80%	61 - 80%	41-60%	61 - 80%
How quickly does your process identify errors when they occur anywhere in the pipeline?	Within 2-7 days for some of my shipments	Within 2-7 days for some of my shipments	More than 7 days for some of my shipments	Within 2-7 days for some of my shipments	Within 2-7 days for some of my shipments
Management process adopted to ensure optimal internal business requirements are met	No system	Partially automated System with no escalation Process	Partially automated System with no escalation Process	Partially automated System with no escalation Process	Partially automated System with no escalation Process
Management process adopted to ensure contractual obligations are met with the 19 clusters	No system	Partially automated System with no escalation Process	Partially automated System with no escalation Process	Partially automated System with no escalation Process	No system
Time required to identify the cause of a process breakdown, domestic or global	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks
Time required to address the cause of a process breakdown, domestic or global	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks	2-4 Weeks

## Findings Impact

The survey indicates that most of the 19 clusters in the G20 Countries do not know about changes occurring within their pipelines for up to 30 days on average limiting their ability to cope with changing requirements of Buyers, Sellers, Countries, Industries, Finance, and Insurance (BSCIFI) documentation requirements. Implementation of these changes in their internal processes can take an additional 2-4 weeks. Identifying any errors in their internal processes in the trade pipeline can take on average 2 to 4 weeks. Addressing domestic or overseas breakdowns in the trade pipeline requires typically 2 to 4 weeks. Furthermore, most of the respondents indicate that they must manually re-key up to 80% of shipment data.

Taken together, these factors indicate substantial potential costs in terms of time, money, and quality. They have several notable effects upon both the country's current trade process performance and its future prospects. A selection of these effects is listed as follows:

## Buyers and Sellers

- ▶ No shelf-to-shelf optimization possible - This requires automated systems for monitoring activity completion, and automated communication between trade participants. The absence of processes limits throughput which necessitates earlier expansion to accommodate growth.
- ▶ Unpredictable shipment flow - Manual communication is inherently inconsistent, which contributes to production delays throughout the trade pipeline. Absence of processes leads to excessive non-value added costs like storage and handling, as well as misallocated resources due to the inconsistency in scheduling the next activities in cargo movement.
- ▶ Limited growth potential - Lack of efficient processes makes it difficult to respond to new economic demands and market opportunities. Manual processes between clusters leads to excessive reliance upon the efficiency of scarce personnel resources. When such resources are available, their productivity level varies, which in turn leads to inefficiency and leaves few resources to expand new partner relationships and new market opportunities.

## LSPs

- ▶ Missed revenue opportunities - Customer requirements take time and are processed manually, which risks losing business to more automated competitors.
- ▶ Reduced margins - Lack of automated processes prevents dynamic service/price/transit time comparisons. Static pricing and routing guides do not allow price adjustments based on forecasted equipment needs, customer bookings, or available space. The results are lower sales margins and return on assets.
- ▶ Shipment handoffs are highly inefficient as a result of limited process management automation, differing technology capabilities across participants, and a lack of integration as shown by the high re-keying rate.

## Finance & Insurance

- ▶ The partially-automated processes adopted throughout the G20 Nations trade pipelines limit visibility to finance and insurance underwriters, which increases their risk and in turn increases premiums and financial costs.
- ▶ The manual processes adopted will also limit financial institutions' ability to integrate in the trade lane pipeline as a prerequisite to providing bill consolidation service, a major market that all financial institutions worldwide are seeking.

## Government

- ▶ Inadequate adopted processes can result in lack of visibility across the supply chain pipelines, which increase cargo security risk and decrease the ability to intercept counterfeit goods, in addition to minimized ability to collect proper Customs duties.

## Recommendations

Compared to what 21<sup>st</sup> century technology can make possible, G20 Countries have the opportunity to transform what could be perceived as a less than favorable Processes evaluation into a major competitive edge, by establishing a new benchmark for process excellence. G20 Countries' societies are driven to succeed; their leadership has proven the ability to do so by formulating economic strategies aimed at diversifying their economies. However, they lack the right tools to enable G20 Citizens, companies and organizations to achieve their full potential. The advantage is that at present, there are few adopted systems or processes to uphold digitization across the G20.

An agile process that boosts vertical and horizontal efficiency will reduce data redundancy while providing for full data validation, thus minimizing human error. In the event of errors or anomalies, agile technology-driven processes enable rapid responses to changes or unforeseen events occurring anywhere in the trade pipeline. Last, but not least, such processes provide oversight of the trade participants to ensure that their performance is in alignment with their business obligations.

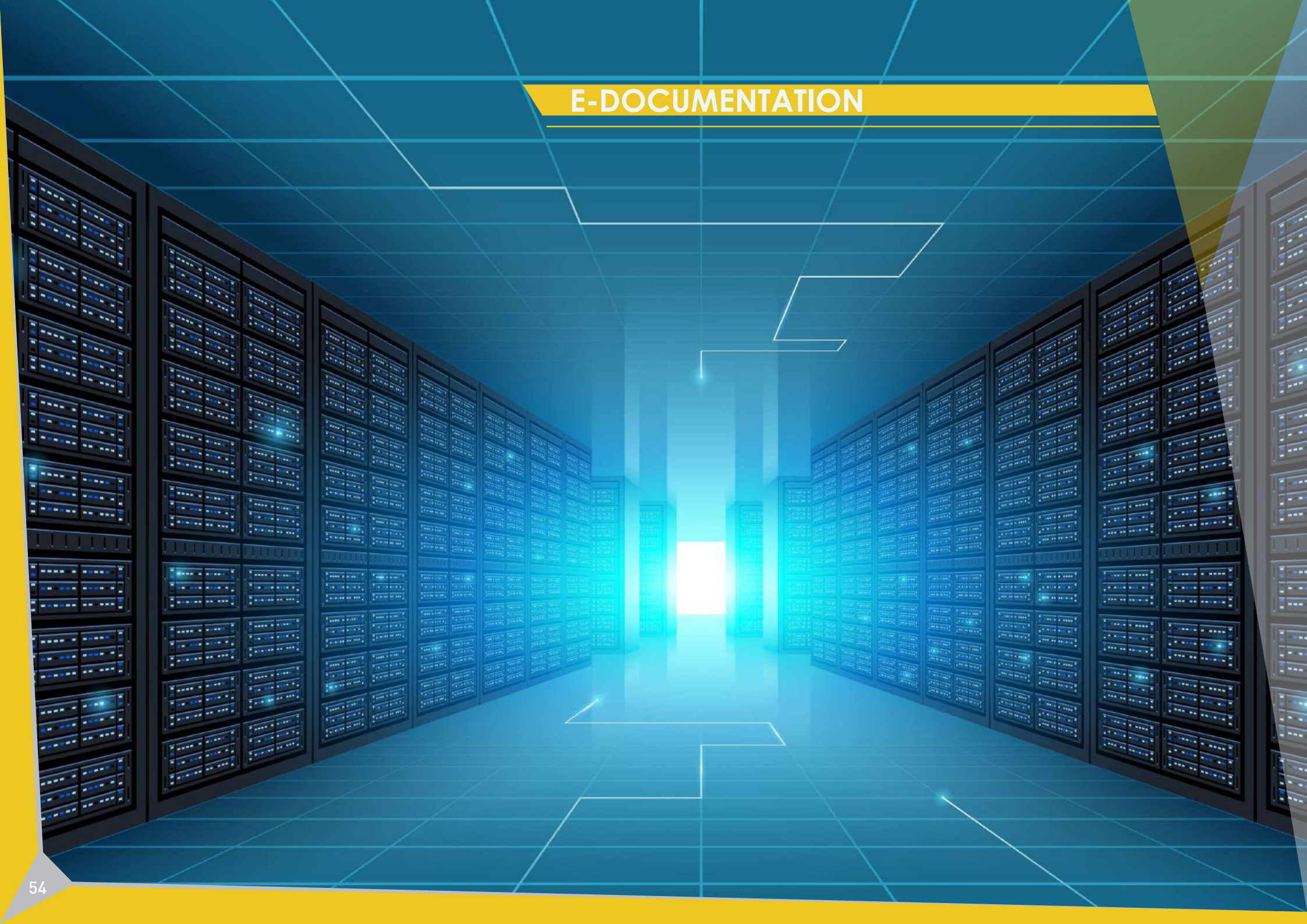
It is no longer enough that trade participants be efficient within their own vertical systems. To perform at optimal efficiency, the 21<sup>st</sup> century trading environment demands that every participant in the trade lane pipeline has the capability to become immediately aware of any issues, changes, or unforeseen events affecting the pipeline they are involved with, either nationally or globally. A process that enables the required horizontal efficiency described earlier in this section, coupled with real-time integration, will deliver powerful advantages to G20 Countries' trade-related industries, and enhance their positions as global trade leaders.

1. The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT): Simple, Transparent and Effective Processes for Global Commerce, New York and Geneva, p. 4, 2005.
2. World Trade Organization Economic Research and Statistics Division: Using Supply Chain Analysis to Examine the Costs of Non-Tariff Measures (NTMs) and the Benefits of Trade Facilitation Staff Working Paper ERSD-2012-02, pp. 20-21, pp. 27-28, 15 February 2012.
3. Asian Development Bank: Designing and implementing trade facilitation in Asia and the Pacific, p. 48, 2009.
4. APEC Business Advisory Council (ABAC): Working Towards Sustainable Growth for All, p.11, 2011
5. Address by the Secretary General of ICAO Mr. Raymond Benjamin to the World Customs Organization (WCO) Council, Brussels, 24 June 2011.

"It is no longer enough that trade participants be efficient within their own vertical systems. To perform at optimal efficiency, the 21<sup>st</sup> century trading environment demands that every participant in the trade pipeline has the capability to become immediately aware of any issues, changes, or unforeseen events affecting the horizontal pipeline they are involved with."  
— Global Coalition for Efficient Logistics (GCEL)



# E-DOCUMENTATION



# E-Documentation

**E**-Documentation is a series of electronic documents created to expedite the flow of a shipment from shelf to shelf by meeting the Buyer, Seller, Country, Industry, Finance and Insurance (BSCIFI) documentation requirements.

## What Is the Meaning of E-Documentation?

E-Documentation, or electronic documentation, is one of the defining aspects that distinguish an advanced system of trade from one that relies on less efficient methods. E-Documentation is defined as the creation, storage, and transmittal of necessary data related to a shipment or trade participant in a purely electronic form. Presently, E-Documentation is not used to its full potential. It is limited to a point-to-point environment where information is shared only from one data provider to one data receiver at a time. The 21<sup>st</sup> century E-Documentation standard is based on maximization of point-to-world integration—achieving an accurate, validated, and efficient E-Documentation environment encompassing all the 19 clusters' trade transactions. This results in maximum trade efficiency, thus expediting shipment flow and reducing costs.

## When and How is E-Documentation Used?

E-Documentation is typically submitted through either a web-based portal or through EDI, depending upon the systems available in a particular country or organization. These documents contain information shared among the 19 clusters in the trade pipelines, including but not limited to:

### Export Process Generated Documents

- ▶ Shipping forms and documents
- ▶ Certificates of origin
- ▶ Insurance certificates
- ▶ Packing lists
- ▶ Export documents
- ▶ Commercial invoices
- ▶ Export packing lists
- ▶ Pro forma invoices
- ▶ Transportation documents
- ▶ Bills of lading for air, ocean, rail, or truck
- ▶ Shipper's Export Declarations (SED)

- ▶ Export compliance documents
- ▶ Export licenses
- ▶ Destination control statements
- ▶ Other certificates for shipments of special goods
- ▶ Certificates of analysis
- ▶ Certificates of free sale
- ▶ Dangerous goods certificates
- ▶ Fumigation certificates
- ▶ Health certificates
- ▶ Ingredients certificates
- ▶ Inspection certificates
- ▶ Pre-shipment inspection certificates
- ▶ Weight certificates
- ▶ Other export-related documents
- ▶ Consular invoices
- ▶ Dock receipts and warehouse receipts
- ▶ ISPM 15 (Wood Packaging) Markings
- ▶ Shipper's letters of instruction
- ▶ Temporary shipment documents

### Import Process Generated Documents

- ▶ Power of attorney certificates
- ▶ Arrival notices
- ▶ Bills of entry
- ▶ Import licenses
- ▶ Customs bonds

### Cargo Security Related Documents

- ▶ Importer security filings
- ▶ Pre-shipment cargo manifests
- ▶ Air cargo security filings

## Trade Finance and Insurance Related Documents

- ▶ Letters of credit
- ▶ Transfer documents
- ▶ Insurance documents
- ▶ Commercial documents
- ▶ Insurance claims and resolutions
- ▶ Collateral documents
- ▶ Purchase orders
- ▶ Requests for quotation
- ▶ Freight booking requests and confirmations
- ▶ Invoices and proofs of delivery for sale of goods
- ▶ Storage, detention ,and demurrage
- ▶ Value-added services

Currently, most trade documents are handled by traditional methods such as print, fax, email and postal mail in a point-to-point environment. This environment does not enable data to be validated. According to APEC studies, 70% of data provided by one cluster to the next is redundant. Manual processes mean that 100% of data must be re-keyed every time, increasing the chance for data errors.

### Why is E-Documentation Important?

E-Documentation is extremely important; many studies validate the trade efficiency and cost savings achieved when E-Documentation is fully utilized. However, E-Documentation has not yet reached its full potential since the participants in the 19 clusters mainly rely on phone, fax, paper, and email to exchange information with their direct trading partners. In order to achieve its maximum efficiency and benefit, E-Documentation must expand beyond the initially intended objective; documentation exchange must be among all 19 clusters in the pipeline. The optimal E-Documentation environment will enable business excellence throughout the trade pipeline, including meeting BSCIFI documentation requirements.

The 21<sup>st</sup> century trade efficiency requirement calls for two dimensions of E-Documentation:

- a) E-Documentation related to BSCIFI requirements.
- b) E-Documentation exchange related to business transactions between the service providers within the supply chain.

Once the above is achieved, we will have the following three foundations for data optimization in both categories:

### I. Data Accuracy and Validity

### II. Data Efficiency

### III. Rapid New Requirement Response

#### I. Data Accuracy and Validity

Data is continuously pre-populated, minimizing keystrokes, thus reducing the chance of human error and maximizing the ability to flag data anomalies. Furthermore, data is continuously validated from multiple sources (19 clusters) in the same trade lane pipeline during the course of their interaction with the shipment. As information is cross-checked against historic data as well as current activity data shared throughout the pipeline, errors or anomalies will be quickly identified and addressed.

#### II. Data Efficiency

Accurate and validated data is efficiently assembled from different clusters throughout the shipment process and made available in real time throughout the pipeline. This will help accelerate shipment movement to meet the requirements of the real-time environment.

#### III. Rapid New Requirement Response

The point-to-world environment will reduce the time needed to publish and reinforce new BSCIFI documentation requirements. The wealth of dynamic, validated data, available in the point-to-world environment, will satisfy the majority of new BSCIFI requirements by automatically populating the newly required data elements. If the new data element does not already exist within the point-to-world environment, end users will be proactively prompted to provide the missing information during the course of doing business on a real-time basis.

### Who Has Validated the Importance of E-Documentation?

E-Documentation benefits to trade efficiency have been broadly recognized by organizations worldwide as a means of reducing costs, leading to increased trade efficiency which spurs economic growth. The following represents only a glimpse of those benefits:

**United Nations Conference on Trade and Development (UNCTAD):** "Trade facilitation could result in savings to traders and consumers of 2 to 3% of the value of traded goods."<sup>1</sup>

United Nations Economic Commission for Europe (UNECE): "Information is crucial for efficiency and security of the SC [Supply Chain]...Efficiency of documents and related procedures has a key impact on transaction costs, times and risks... A saving of one day in shipping time is worth 1%, ad valorem, of the manufactured goods."<sup>2</sup>

**APEC:** “When paperless trading technologies are fully extended to all intra-APEC merchandise trade, the cost savings are likely to be substantial. For example, a three per cent average reduction in the cost of imported items (which appears to be a conservative estimate) to intra-APEC trade would involve gross savings in excess of USD 60 billion when extended to total intra-APEC merchandise trade.”<sup>3</sup>

**APEC:** “The cost of providing paper-based documents for cross-border trade is a major expense to traders. Complex documentation can also be intimidating and discourages many small firms from participating in cross-border trade. Removing the requirement to produce paper-based documents for trade in the APEC region is expected to lead to considerable economy-wide savings, direct savings to traders in the form of lower compliance costs and a number of indirect, and less easily definable savings, such as the ability to move goods faster, the opportunity to participate in agile production networks and lower inventory costs.”<sup>4</sup>

#### Where Does E-Documentation Apply and How Important Is It to the Public and Private Sectors?

E-Documentation is vital to meet the requirements of the BSCIFI entities. In order to briefly present how important E-Documentation can be in meeting their requirements, we have divided the BSCIFI into the following two groups:

#### Private – Buyers/Sellers, LSPs, and Finance/Insurance

- ▶ Qualifications – The dynamic visibility of certifications and business transaction documentation can help expedite qualification of product and service providers by potential buyers as well as finance and insurance institutions.
- ▶ Contract Obligations – The ability to transform contract obligations into E-Documentation and then to electronic metrics, thus setting the foundation for performance monitoring based on contract obligations of product and service providers. Furthermore, this ensures during the pre-planning stage that the movement of shipments fulfils finance and insurance requirements.
- ▶ Business Transactions – The ability to create, validate, and make documents available in real-time will enable a rapid and appropriate course of action within the trade pipeline.
- ▶ Payment Transactions – The ability to access all related documents and dynamically cross-check them through multiple sources will expedite payments and ensure their accuracy.
- ▶ Auditing – Storage of comprehensive business transaction documentation in an electronic form with ease of access and flexible sorting will facilitate accurate and expeditious auditing processes.

#### Public – Customs and Border Protection Agencies

- ▶ Compliance – Dynamically populating accurate and validated data, optimizing the process of meeting compliance requirements.
- ▶ Rapidly Meeting New Requirements – The point-to-world environment will allow the distribution of new requirements in real time, thus facilitating rapid compliance. The availability of comprehensive, validated current and historical data related to the 19 clusters and the shipment flow from shelf to shelf permits the dynamic population of the new data requirements. If data is not already available within the environment, the submitter will be prompted to fulfil the appropriate data requirement.

The 21<sup>st</sup> century E-Documentation standard will have significant positive impact on a number of areas in the trade lane pipeline, including the following:

- ▶ Reduce labor costs
- ▶ Reduce shipment delays
- ▶ Reduce inventory and carrying costs
- ▶ Reduce border crossing delays
- ▶ Reduce carbon footprint
- ▶ Reduce landed Domestic and International costs
- ▶ Increase speed of finance and insurance processes
- ▶ Increase speed of Customs clearance
- ▶ Increase interception of counterfeit products
- ▶ Increase Customs duties collection
- ▶ Maximize capacity utilization of present logistics infrastructure

#### Findings - Data

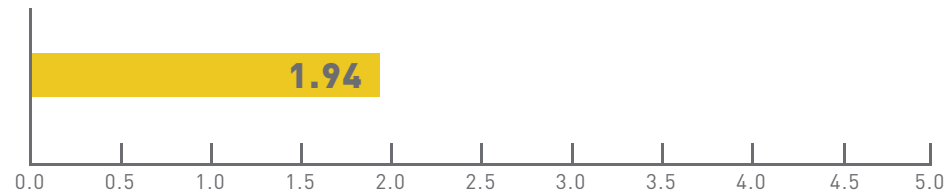
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data re-keying in potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal efficiency.

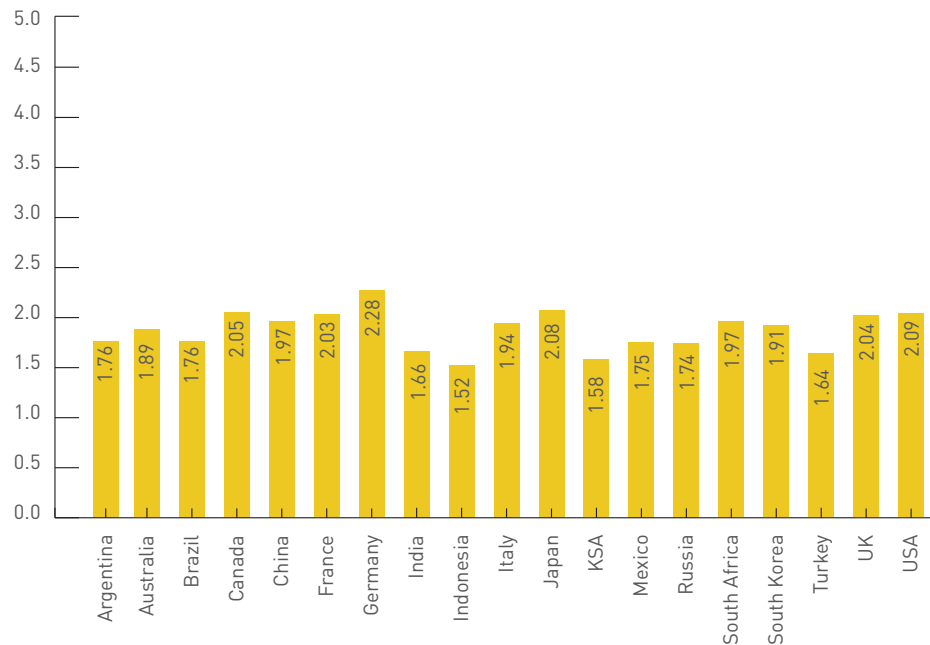
## G20 Countries' Overall E-Documentation Score

The overall national E-Documentation level represents aggregate data compiled from responses provided by the 19 clusters. Given that a score of 5 indicates optimal efficiency, 1.94 indicates the use primarily of paper-based systems across the G20 Countries for trade documentation. Several efforts have been put in place by different G20 Countries such as the national single windows to submit and capture shipment documentation electronically representing a step toward electronic documentation.



## E-Documentation by Individual G20 Countries\*

Germany scored the highest in E-Documentation among G20 Countries with a score of 2.28. The scores of HICs in North America (United States 2.09 and Canada 2.05), in Europe (United Kingdom 2.04, France 2.03, and Italy 1.94) as well as Asia-Pacific (Japan 2.08, Australia 1.89, and China 1.97) are fairly consistent; these higher scores are mainly due to the presence of the National Single Windows in these countries, which promote E-Documentation capabilities for the trade participants in these countries to submit shipment documentation electronically to government organizations and port authorities. Consistently lower scores are also found in Argentina (1.76), Brazil (1.76), Mexico (1.75), Russia (1.74), India (1.66), and Turkey (1.64) which means that when E-Documentation capability is presented to these countries, they can significantly improve their efficiency and reduce costs.



\*The G20 Nations Case Study is comprised of two groups. The Case Study for Group I was completed in 2013 and included Australia, India, Indonesia, Kingdom of Saudi Arabia, and Turkey. The Case Study for Group II was completed in 2016 and included the remaining G20 Countries of Argentina, Brazil, Canada, China, France, Germany, Italy, Japan, Mexico, Russia, South Africa, South Korea, the UK, and the USA. Since the G20 Leaders have adopted the Digital Economy as a key policy directive and emphasized the importance of digitally empowering SMEs, the Case Study for Group II surveyed a relatively higher percentage of SMEs than Group I to capture their voice. This resulted in lower efficiency scores for Group II countries relative to Group I countries. Hence, to ensure comparability of the scores across these two groups, the scores of Group II countries were normalized upwards.

## E-Documentation by the 19 Clusters Across the G20 Countries

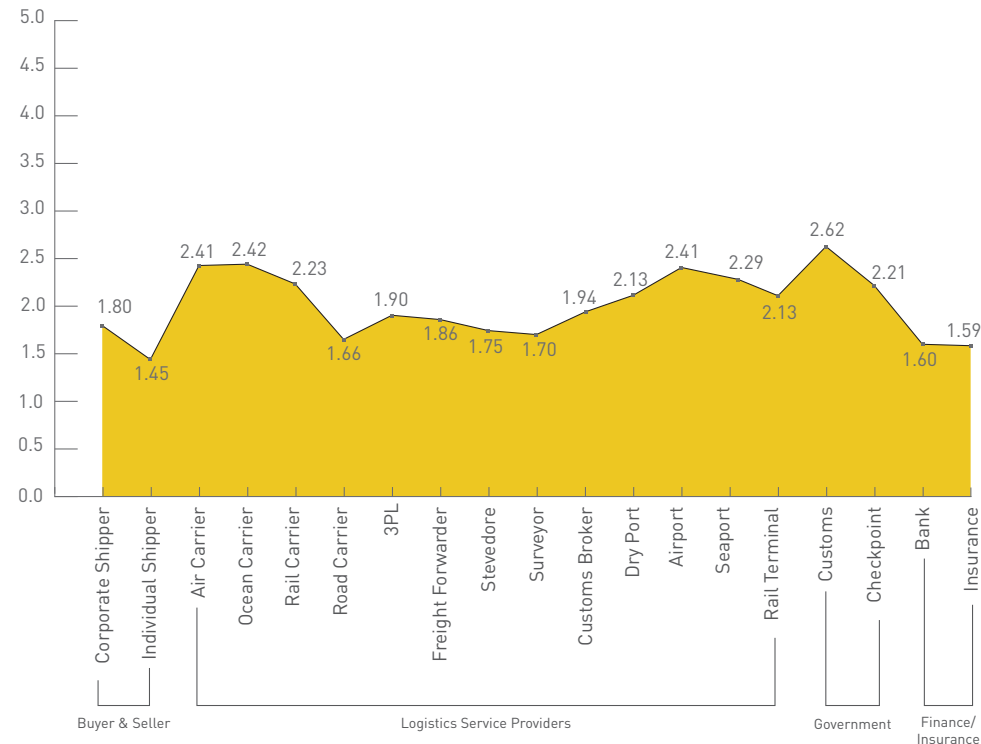
The scores below illustrate the adoption of electronic documentation by the 19 clusters, in place of manual/paper methods. It is important to mention that the 0 to 2.5 range represents use of handwritten documentation; the 2.5 to 5 range represents the use of electronic means for the creation, production, and handing-off of documents among all participants in the trade pipeline.

Customs throughout the G20 Countries received the highest score of 2.62 due to the use of the National Single Windows in the different G20 Countries.

It is worth noting that the carriers and infrastructure organizations across the G20 have higher E-Documentation capability than the rest of the trade participants. This is evident in the scores of Ocean Carrier (2.42), Air Carrier (2.41), Airport (2.41), Seaport (2.29), Rail Carrier (2.23), Dry Port (2.13), and Rail Terminal (2.13). These organizations have developed web-based portal systems to allow the electronic submission of some of the shipment data electronically.

Banks (1.60) and Insurance (1.59) had received lower E-Documentation scores in comparison with the remaining trade participants, which indicate limited shipment-related E-Documentation capacity linked to the trade pipeline.

Today, across the G20 Countries close to 80% of the shipment data must be re-entered whereby, 94.9% of these documents are exchanged by postal mail, phone, fax, or email. Furthermore, manual methods of creating, populating, and submitting documentation increases errors, delays shipments, and increases waiting times at ports of entry which all leads to higher logistics costs.



## E-Documentation Indicators

The following chart provides predominant indicators of the level of E-Documentation based upon average responses to some of the E-Documentation questions asked during the survey.

	Buyers/Sellers	LSPs	Finance/ Insurance	Government	Overall G20 Nations
Shipping forms data entry method	Manually typed	Manually typed	Manually typed	Automatically populated from internal system with 75% Human Intervention	Manually typed
Man-hours needed to populate domestic shipment documents	31 - 120 mins	31 - 120 mins	2 - 4 hours	2 - 4 hours	31 - 120 mins
Man-hours needed to populate international shipment documents	2 - 4 hours	2 - 4 hours	2 - 4 hours	2 - 4 hours	2 - 4 hours
% Domestic shipment documents rejected/returned due to errors	10%	10%	10%	10%	10%
% International shipment documents rejected/returned due to errors	10%	10%	10%	10%	10%
% Domestic shipments delayed due to missing documents	10%	10%	10%	10%	10%
% International shipments delayed due to missing documents	10%	10%	>20%	10%	10%
% Shipment data re-entered due to incompatibility	61-80%	61-80%	61-80%	41-60%	61-80%
Domestic shipping documents distribution method	Email	Email	Email	Email	Email
International shipping documents distribution method	Postal Mail / Fax	Email	Postal Mail / Fax	Email	Email
Data validation level	Occasional validation	Occasional validation	Occasional validation	Some validation	Occasional validation
% Of trade pipeline participants that offer E-Documentation submission	≤ 20 % of Trade Partners	≤ 20 % of Trade Partners	≤ 20 % of Trade Partners	21-40% of Trade Partners	≤ 20 % of Trade Partners
Number of shipping forms submitted electronically through web portal or integration	No Forms	1-2 Forms	No Forms	3-5 Forms	1-2 Forms

## Findings Impact

Documentation exchanged between trade pipeline participants across the G20 Countries are primarily created manually, with an average of 61-80% data redundancy and only occasional validation. As a result, close to 10% of the G20 Countries' domestic and international shipments are delayed and rejected due to incomplete and improper documentation.

The following are some of the potential impacts and limitations represented by this situation:

- ▶ Personnel Inefficiency - Manual documentation is an ineffective way to deploy the labor force to its full potential, preventing workers from being used efficiently to attain optimal productivity.
- ▶ Excess Cost - Improper or missing documentation has the potential to delay shipments, including Customs clearance. The result is increased domestic and international trade costs, including inventory carrying costs.
- ▶ Physical Infrastructure Inefficiency – Border crossing congestion caused by inaccurate or delayed documentation erodes proper capacity utilization of the existing physical logistics infrastructure. This results in unnecessary infrastructure expansion at very high cost in terms of land and capital.
- ▶ Increased Carbon Footprint – Excessive emissions caused by congestion at border crossings and points of entry resulting from missing or delayed documentation increases the carbon footprint.
- ▶ Service Industry Limitations – Manual processes and lack of full validation can result in increased underwriting risks, which increase requirements, thus resulting in delays and additional costs in obtaining proper financial services and insurance coverage.
- ▶ Customs Limitations – Lack of proper validation can decrease collection of appropriate Customs duties and minimize the opportunity to intercept counterfeit goods.

## Recommendations

The migration from paper to paperless documentation known as E-Documentation has been universally recognized as being vital to trade efficiency. Many attempts have been made by leading organizations to implement comprehensive E-Documentation solutions. The emphasis of these efforts has been focused upon a subset of what E-Documentation should achieve: The electronic submission of documents mainly to meet country and industry requirements. While this is an excellent first step, this strategy by itself has proven to be insufficient.

The 21<sup>st</sup> century E-Documentation process transforms the inefficient 61-80% data redundancy into the foundation needed for a full E-Documentation environment: This data represents the common denominator information that constitutes the Universal Data Elements (UDE), the minimum data required to maximize the efficiency of a shipment when crossing from shelf to shelf across all the 19 clusters' jurisdictions.

As previously indicated, the 21<sup>st</sup> century E-Documentation environment provides significant benefits to all participants in the trade pipeline. The full utilization of E-Documentation provides an immediate incentive to all 19 clusters, enabling them to produce accurate and validated documents in a highly efficient manner while dynamically prompting them to rapidly meet new requirements. In achieving the above, we will take a vital step towards ensuring a vibrant, prosperous 21<sup>st</sup> century global economy.

1. United National Conference on Trade and Development (UNCTAD), "Fact Sheet 5", United National International Symposium on Trade Efficiency (17-21 October 1994), Geneva, cited in Walkenhorst and Yasui
2. UNECE, "Aligned Trade Documents for Efficient Trade: Migrating from Paper to Digital Paper," United Nations Electronic Trade Documents, Bangkok, Thailand, May 2007.
3. APEC Business Advisory Council, Report to APEC Economic Leaders, Working Towards Sustainable Growth For All, Yokohama, Japan, p. 50, 2010
4. APEC Op. Cit., 2001 p. 18.



TRACKING & VISIBILITY

# Tracking & Visibility

**T**racking & Visibility is the final indicator of a job well done throughout the trade pipeline. Optimal Tracking & Visibility is necessary in order to have good control over what, when, where, and who is responsible when mishaps occur, providing the ability for a prompt and appropriate course of action.

## What is the Meaning of Tracking & Visibility?

Tracking & Visibility is defined as the ability to obtain real-time information regarding a shipment's location and movements.

- ▶ Tracking mainly refers to goods in transit between locations.
- ▶ Visibility mainly refers to idle goods at a specific location.

Tracking & Visibility is particularly important to indicate the time and duration that a shipment is in the jurisdiction of a specific cluster for purposes of planning and accountability. Tracking & Visibility is optimal when all participants have real-time visibility throughout the entire trade pipeline.

## When and How Is Tracking & Visibility Used?

Tracking & Visibility involves two broad classes of information:

**I. Tracking** – When the shipment is in transit on conveyance. Information provided consists of tracking data generated during each part of a shelf-to-shelf shipment, typically obtained through Global Positioning System (GPS) or Radio Frequency Identification (RFID) technology. GPS is primarily of use during periods of transit by air, rail, road, and sea. RFID is used to automatically record when a shipment departs from or arrives at each location on its route, and to capture cargo status information. Tracking information could include:

- ▶ Actual times of departure and arrival.
- ▶ Cargo sensor data that provides:
  - ▶ Temperature over time (for temperature-controlled goods).
  - ▶ Tampering detection.
  - ▶ Excessive vibration detection, etc.

**II. Visibility** – When the shipment is idle within a cluster's jurisdiction. Some essential visibility information includes:

- ▶ Contractual obligation information
- ▶ Times to perform and complete activities, i.e.:
  - ▶ Advanced shipping notice (ASN)
  - ▶ Forecasted time to complete activities
  - ▶ Actual hand-off time
- ▶ Shipment counts, weights and dimensions
- ▶ Shipment condition information
- ▶ Shipment incident information

The 21<sup>st</sup> century trade efficiency standards require that the full potential of technology be used to maximize the capabilities of present-day Tracking & Visibility. At the same time, it must minimize the technology requirements to achieve this, making Tracking & Visibility available at zero cost to the end user. But how?

This can be accomplished through two main solutions that 21<sup>st</sup> century technology makes possible today:

- a) An open platform that allows multiple tracking technology providers to 'plug in', making their services available through a single interface, since one container's journey can involve multiple tracking devices (e.g. truck/ship/truck, with separate GPS devices for each)
- b) Minimizing tracking technology requirements (point solutions) and associated costs by maximizing on the real-time, continuous visibility of business activity involved in the trade pipeline based on Contracted, Forecasted, and Actual time when performing specific activities throughout the shelf-to-shelf shipment flow

When promoting Tracking & Visibility as an essential element of trade efficiency and security, it is essential that we enhance its reliability globally, and make it cost-accessible to all end users.

### Why is Tracking & Visibility Important?

There are three primary reasons why Tracking & Visibility is an essential element of trade efficiency:

**Planning Capability:** A plan is limited by the data used to create it. If that data is incorrect, incomplete, or defined in ways that limit its use, the plan effectiveness can suffer. Tracking and real-time data visibility that is validated by multiple clusters in the same trade pipeline has the detail needed to expedite trade financing, reduce insurance premiums, and optimize operations. Furthermore, patterns of archived information provide additional opportunities for process improvement as well as for identifying points of vulnerability that require contingency plans. Full visibility makes lean operations more than just a strategic plan, but an achievable objective.

**Improved Execution:** Tracking & Visibility shared in real time enhances timely execution of activities in an efficient manner, as well as optimizes cooperation among clusters. It will also enable advance alert management systems, and trigger rule-based contingency plans.

**Enhanced Competitiveness:** Shipment visibility improves trade efficiency and transparency, thereby strengthening business operations and boosting competitiveness in a world where globalization is the dominant theme.

### Who Has Validated the Importance of Tracking & Visibility?

As shown in the following statements, a consensus of leading trade organizations worldwide has affirmed the importance of Tracking & Visibility to increasing trade efficiency, spurring economic growth and enhancing cargo security:

**World Trade Organization Economic Research and Statistics Division:** "Technological improvements in shipping [...] and the electronic tracking made possible by bar codes on containers, have induced a secular reduction in costs associated with international transport over time."<sup>1</sup>

**United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP):** "Producers are looking for transport services that are frequent, reliable, punctual, and secure and that offer tracking services, competitive transit times and costs, regardless of the mode of transport or route taken to move the goods between places."<sup>2</sup>

**The Organisation for Economic Co-operation and Development (OECD):** "Investments in some of the components of trade logistics are trade-enhancing for countries at all levels of development. This is true for improvements in customs administration, tracking and tracing, and logistics competence."<sup>3</sup>

**Oakridge National Laboratory:** "There is no automated shipment tracking system that reaches across the supply chain transporters during the life of a shipment. Better said, supply chain partners lose visibility when tracked shipments exit their system. EDI merely allows a smoother documentation handoff at a partner-to-partner level. The supply chain owner has no visibility of the shipment as it moves between multiple transporters, nor is there any universally adopted system in the commercial sector that provides this level of visibility."<sup>4</sup>

### Where Does Tracking & Visibility Apply and How Important Is It to the Public and Private Sectors?

Tracking & Visibility is important to all 19 clusters in the trade pipeline. This section indicates a few areas of particular significance, as well as some of the benefits resulting from effective Tracking & Visibility:

#### Buyers/Sellers and LSPs

- ▶ Disruption Responsiveness – Disruptions are rapidly communicated through alerts to all clusters, enabling rerouting, resource re-allocation, or other contingency measures as needed.
- ▶ Performance Monitoring – LSP performance can be readily monitored, tracked over time, and used to calculate projected performance levels.
- ▶ Supply Chain Extension – Improved visibility reduces risk when sourcing products from increased distances.
- ▶ Delivery Predictability – Tracking enables JIT delivery and reduced inventory levels.
- ▶ Forecast Monitoring – Comparison of forecasts and contractual obligations vs. actual shipment, passage, and delivery times aids in cluster performance assessment.
- ▶ Infrastructure Scheduling – Tracking enables optimized scheduling of physical infrastructure and labor within all clusters, as well as contingency planning.

#### Finance

- ▶ Financial Monitoring – Lenders can monitor use of loaned funds through real-time monitoring of contract, forecast, and actual data, validated by third parties directly linked to transaction events.
- ▶ Asset Recovery – Tracking/Visibility capability enables location of assets for rerouting, seizure, or liquidation if necessary.

### Insurance

- ▶ Insurance Cost Reduction – Full transparency to shipment activities cuts insurance costs by reducing underwriting risk.
- ▶ Claim Investigation – Tracking & Visibility capability minimizes insurance claim investigation time and cost by pinpointing shipment locations, identifying locations where damages have occurred, and identifying appropriate jurisdiction.

### Public – Customs and Border Protection Agencies

- ▶ Global Data Visibility – Security is increased through availability of advance shipment data and shelf-to-shelf dynamic visibility at all points throughout the pipeline.
- ▶ Expedited Customs Clearance – Transparent, dynamic access to complete and accurate documentation in advance of arrival enables rapid clearance through Customs and appropriate duty payment.
- ▶ Food Safety – This is the ability to rapidly contain food disease outbreaks.
- ▶ Agile Emergency Response – Rapid identification of the nature, scale, and location of emergency events facilitates rapid and measured response.

### Findings - Data

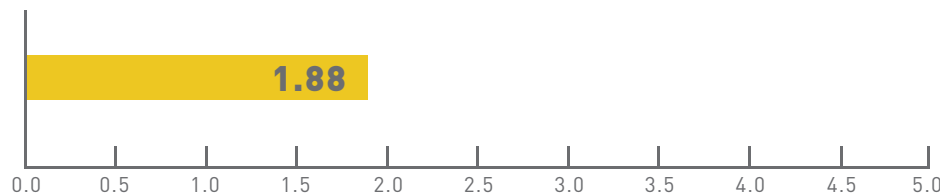
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests on technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score at most 2.5. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability

### G20 Countries' Overall Tracking & Visibility Score

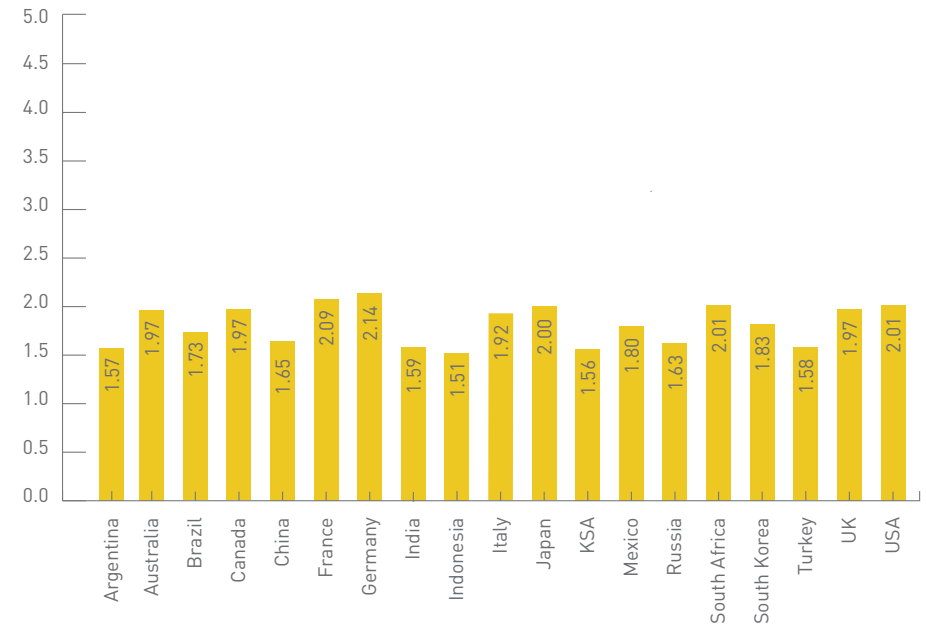
The overall G20 Tracking & Visibility level is 1.88, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility performance.



### Tracking & Visibility Score by Individual G20 Countries\*

When we look at Tracking & Visibility by individual country across the G20 Nations, Germany (2.14) has scored the highest, followed by France (2.09), the United States (2.01), South Africa (2.01), Japan (2.00), Canada (1.97), and the United Kingdom (1.97). These countries have invested in tracking technologies across their trade pipelines through RFID, GPS or other technologies. It is worth noting that the High Income G20 Countries have scored about 10% higher than the other G20 Nations.

The Mid Income G20 Countries have consistent Tracking & Visibility scores. This relatively even distribution indicates that, as with Integration, there is a significant opportunity to increase efficiency when Tracking & Visibility initiatives are adopted across all the G20 Countries.



\*The G20 Nations Case Study is comprised of two groups. The Case Study for Group I was completed in 2013 and included Australia, India, Indonesia, Kingdom of Saudi Arabia, and Turkey. The Case Study for Group II was completed in 2016 and included the remaining G20 Countries of Argentina, Brazil, Canada, China, France, Germany, Italy, Japan, Mexico, Russia, South Africa, South Korea, the UK, and the USA. Since the G20 Leaders have adopted the Digital Economy as a key policy directive and emphasized the importance of digitally empowering SMEs, the Case Study for Group II surveyed a relatively higher percentage of SMEs than Group I to capture their voice. This resulted in lower efficiency scores for Group II countries relative to Group I countries. Hence, to ensure comparability of the scores across these two groups, the scores of Group II countries were normalized upwards.

## Tracking & Visibility by the 19 Clusters Across the G20 Countries

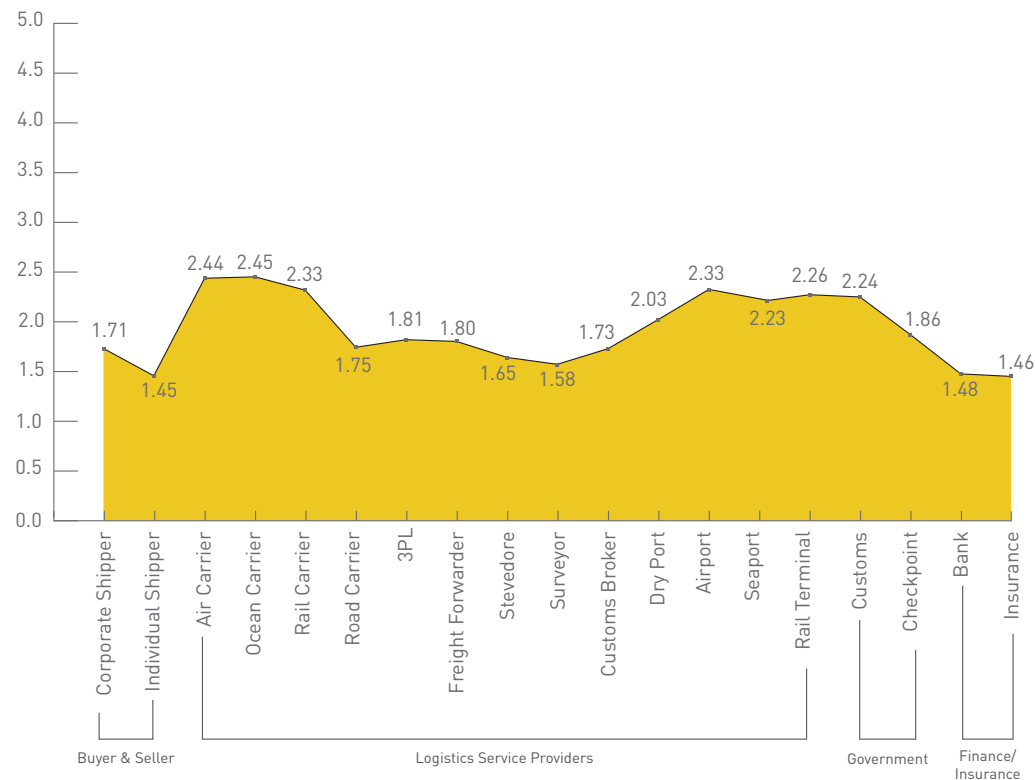
These scores indicate the ability to track and have visibility of the shipment as it crosses the 19 clusters' jurisdictions. Scores of 2.5 and below indicate Tracking & Visibility capabilities that are limited to a national level; while the range from 2.5 to 5 represents shelf-to-shelf global Tracking & Visibility, which is required in order to meet the 21st century trade efficiency standard.

Carriers have received the highest Tracking & Visibility efficiency scores among the 19 trade industry clusters across the G20 Nations. This is evident by the efficiency levels of the Ocean Carrier (2.45), Air Carrier (2.44), and Rail Carrier (2.33). Infrastructure organizations such as Airport (2.33) and Seaport (2.23) have also achieved higher T&V scores with Airport and Seaport scoring 2.33 and 2.23 respectively. These trade participants have invested internally in necessary technologies to track shipments within their jurisdictions.

In contrast, Bank (1.48) and Insurance (1.46) scores indicate limited Tracking and Visibility capability to the shipments they finance and insure.

Corporate Shippers (1.71) score indicates limited visibility of shipments. This low score in relation to the other clusters, has implications for all trade participants, since lower visibility results in increased risk and thus higher insurance costs and reduced access to trade finance.

It is also worth noting that large organizations across the G20 Nations have scored close to 17% higher Tracking & Visibility scores than the Small and Medium sized organizations.



## Tracking & Visibility Indicators

The following chart provides indicators concerning G20 Nations Tracking & Visibility level based upon average responses to some of the questions asked during the survey.

	Buyers/Sellers	LSPs	Finance/Insurance	Government	Overall G20 Nations
When do you start having visibility of your shipment?	Only when shipment is at my jurisdiction	Hours before shipment reaches my jurisdiction	Only when shipment is at my jurisdiction	Hours before shipment reaches my jurisdiction	Hours before shipment reaches my jurisdiction
At what location do you have shipment visibility?	At my jurisdiction and In transit	At my jurisdiction and In transit	At my jurisdiction and In transit	At my jurisdiction and In transit	At my jurisdiction and In transit
Door-to-door tracking technology	None	Some of my shipments RFID/GPS; not all of the time	None	Some of my shipments RFID/ GPS; not all of the time	Some of my shipments RFID/ GPS; not all of the time
# Tracking system providers used	None	1-10	None	1-10	1-10
# System interfaces used to track shipments	None	Multiple interfaces, various systems, some of my shipments	None	Multiple interfaces, various systems, some of my shipments	Multiple interfaces, various systems, some of my shipments
How promptly do you receive an alert on your shipment?	Within Hours for some of my shipments domestically	Within Hours for some of my shipments domestically	Within Days for some of my shipments domestically	Within Hours for some of my shipments domestically	Within Hours for some of my shipment domestically

## Findings Impact

Maximum shipment efficiency is only possible when the shipment is continuously visible to all participants from the time of the buy/sell agreement until it reaches its final destination. This requires integration and data sharing by every pipeline participant. Such integration does not exist today in the G20 Countries, resulting in average respondents having shipment visibility only hours before it arrives or when it enters their jurisdictions.

Banks have indicated that they only have visibility at the time of the buy/sell agreement, and at final delivery, with no validation of any activities in between. Carriers only track a shipment while it is within their jurisdiction. Customs Brokers confirmed that they only have visibility when documents arrive to execute clearance.

The survey data indicates that the majority of respondents only partially track shipments, and do so through minimal tracking provider interfaces. Maximum tracking efficiency requires an Integrated Horizontal System (IHS), whereby all shipments can be tracked door-to-door through a single interface with no hardware requirements.

With the exception of large asset-based carriers, respondents wait for several hours to be alerted that a shipment has been delayed or flagged. Wasted time can result in added cost, increased risk, or compromised security.

G20 Nations Tracking & Visibility levels indicate that additional efforts are required to achieve the 21<sup>st</sup> century digital economy standards. G20 Nations 1.88 rating indicates that significant steps are required in order to realize the full benefits that advanced Tracking & Visibility can provide to the country's prosperity and security. The 1.88 rating indicates the following:



### Current Environment in the G20 Nations - Limited Transparency

The meaning of limited transparency is that Tracking & Visibility capabilities are limited in scope, and that dynamic shipment location and movement information is unavailable to the majority of clusters within the trade pipeline. The main problems caused by this environment are that business competitiveness is limited and security is compromised without this essential information. For example:

- ▶ Buyers are unable to verify the location and status of goods in transit—limiting JIT capabilities, requiring higher inventory levels, and increasing costs.
- ▶ LSPs are prevented from efficiently evaluating labor performance or productively allocating equipment and infrastructure.
- ▶ Banks are subject to increased risk, which requires them to raise the cost and limit the availability of finance.
- ▶ Insurance firms are forced to raise premiums in response to increased risk, potentially pricing coverage beyond the reach of SMEs.
- ▶ Border security officials are unable to identify and flag suspect shipments, vessels, or cluster participants in advance, losing the ability to take appropriate steps before shipments reach a country's borders.

### Current Environment in the G20 Nations - Limited Planning Capability

The current environment in the G20 Countries limits the ability to plan, which hampers forecasting necessary for efficient trade. The main problems caused by this environment are that plans are based upon partial information and assumptions—resulting in poor resource allocation, inaccurate time estimates for job completion, and thus greatly reduce efficiency.

### Recommendations

Recommendations stated in the Integration section suggest establishment of point-to-world integration, whereby all trade participants would share shipment information through a horizontal trade platform. As detailed below, this initial step makes Tracking & Visibility possible.

### Establish an Integrated Horizontal System (IHS)

An IHS provides maximum visibility to all shipments globally through a single interface and enables performance monitoring of every participant in the shipment process. This is achieved by capturing five dimensions of time across all pipeline participants, as follows:

- ▶ Contracted Time – Based on contractual obligations within the buy/sell agreement, an IHS dynamically defines the time allotted to perform a specific quantity of work.
- ▶ Forecasted Time – The estimated time to complete the work under current conditions when the shipment enters each of the 19 clusters' jurisdictions.
- ▶ Real Time – The actual time to complete assigned tasks.
- ▶ Inbound Handover Time – The time of handover from one participant to another, which confirms the "receiving time"
- ▶ Confirmation of the Outbound Handover – The time of handover from one participant to another, which confirms the 'delivery time'.

By capturing these five dimensions of time for all 19 clusters while tracking all shipment movement data, optimal shipment visibility can be achieved at no cost and without the use of hardware devices.

Tracking & Visibility requires optimum global visibility provided through a single platform as follows:

- ▶ The IHS single user interface must track multiple shipments.
- ▶ Tracked shipments must be subject to no blind spots.
- ▶ Should proprietary systems fail, the IHS must provide firms and their customers with necessary visibility.
- ▶ IHS enhances tracking service providers' solution efficiency and makes it available globally through a single user interface.
- ▶ The IHS must be accessible at no cost in order to ensure universal accessibility and usage.

It is necessary that the IHS adopt an open-platform strategy to enable ease of integration with systems already in use.

1. World Trade Organization Economic Research and Statistics Division: Using Supply Chain Analysis to Examine the Costs of Non-Tariff Measures (NTMs) and the Benefits of Trade Facilitation Staff Working Paper ERSD-2012-02, Yokohama, Germany, pp. 11-12, 2012.
2. UNESCAP: Toward An Asian Integrated Transport Network, p.56, 2007
3. Organisation for Economic Co-operation and Development (OECD): To What Extent Are High-Quality Logistics Services Trade Facilitating, OECD Trade Policy Working Paper No. 108, p.19, 2011.
4. Oakridge National Laboratory, Submitted to: Institute of Nuclear Materials Management, 51st Annual Meeting: ORNL Intelligent Freight Initiative: Enhanced End-to-End Supply Chain Visibility of Security-Sensitive Hazardous Materials, p. 8, 2009.



“Optimal Tracking & Visibility is necessary in order to have proper control over the what, when, where, and who is responsible when shipment mishaps occur — and Tracking & Visibility is the final indicator of a job well done throughout the trade pipeline.”  
— Global Coalition for Efficient Logistics (GCEL)



# COMPETENCE



# Competence

A single underperforming person operating within an interdependent trade pipeline environment could have a major impact on the efficiency of the entire trade pipeline. In the trade environment, human competence must be considered as one of the highest priorities toward achieving optimal efficiency.

## What is Competence?

Competence in general is the quality of being physically and intellectually well qualified. In the trade environment, however, Competence is achieved when a defined obligation is met on time, with optimal quality and at minimum cost.

## Who Defines the Metrics for Competence in Trade?

The metrics for Competence are determined by contractual obligations between a trade participant and the other 17 clusters (excluding government).

## Why is Competence Essential Across the Trade Pipeline and How Can It Be Achieved?

Shipments move in an Interdependent Pipeline Process Environment (IPPE) across multiple participants' jurisdictions (the 19 clusters). Optimum door-to-door efficiency is mainly dependent on everyone performing their business obligations efficiently. If one person causes a delay or makes mistakes, everyone else in the pipeline may be adversely affected. The bottom line is that the maximum efficiency for a particular shipment is determined by the least efficient participant in the pipeline.

The 21<sup>st</sup> century trade efficiency environment proposes three main factors as a foundation to ensure Competence across the IPPE:

- I. Tools** – The combination of software and hardware provided to perform a specific task at the highest quality, optimum time, and minimum cost
- II. Training** – Knowledge transfer to optimize the use of the tools provided within a continuous improvement process (KAIZEN)
- III. Dynamic Monitoring** – Transforming contractual obligations (Quality, Time, and Cost) into electronic metrics. This is necessary to dynamically monitor performance based upon three dimensions of time:

- a. CONTRACTUAL TIME** - The initially pre-established time and quality standards to perform a specific task
- b. FORECASTED TIME** - The projected time for completion, provided by the participant when starting a task execution
- c. ACTUAL TIME** - The actual completion time of a task, reported by the task performer and validated by subsequent IPE participants

Furthermore, real-time monitoring includes a scalable accountability process that allows dynamic escalation of operational incidents from the personnel on the ground through all management levels, as needed for prompt resolution of issues and improvement of performance. In other words, Competence can be enhanced by implementation of the following formula:

**TOOLS + TRAINING + DYNAMIC MONITORING = COMPETENCE**

## Who Has Validated the Importance of Competence?

Many organizations worldwide from both the public and private sectors have agreed on the importance of Competence to trade efficiency:

**UNESCAP:** "Other measures for enhancing the professionalism and competence of logistics service providers include the establishment of minimum standards and codes of conduct for logistics service providers at the national level, sharing of knowledge and experiences among logistics service providers in the region, and establishment of sustainable training and capacity building programs at the national, sub regional and regional levels."<sup>11</sup>

**World Bank:** "The quality and competence of core logistics service providers is also an important aspect of overall country performance."<sup>12</sup>

**World Economic Forum:** "Despite the massive investments needed in ports, airports, roads, trucks, ships and airplanes, the logistics industry is essentially a people business. It is estimated that around a quarter of all costs are staff related. It is therefore essential that the industry attract high caliber employees at all levels [...] With growing complexity in managing supply chains and changing demands, people issues are taking precedence. The government and private entities need to combine forces to create focused, sustained skilling and training programmes."<sup>13</sup>

**Malaysia Logistics Directory:** “Despite the positive outlook, it has been cautioned that the country’s fragmented logistics landscape could be detrimental to the industry’s competitiveness. In a recent study, it was revealed that logistics as a percentage of total sales in Malaysia is the second highest among ASEAN countries at around 17%, after Indonesia (19%). Meanwhile, the ratio is the lowest in Singapore at approximately 8%. The high logistics cost in Malaysia is due to the inefficiency of operations caused by insufficient support of facilities and technological infrastructure. Other factors that could hamper the growth of the industry are insufficient supply of skilled professionals, lack of security measures and lack of emphasis on value-added services.”<sup>14</sup>

**Journal of Competitiveness:** “Another implication of this study is that logistics competence and tracking & tracing variables, which have negative coefficients in discriminant function, enable countries to be classified as high competitive group. To improve the logistics competence, the public and private sector must be considered together on a national basis. (...) Thus, while the logistics infrastructure and Customs are the essential factors for joining the high-competitive group, competence and the tracking & tracing are the core competencies for sustaining the competitive advantage.”<sup>15</sup>

### Where Does Competence Apply to the Public and Private Sectors?

In other sections, we have named specific areas where particular elements applied to various business and governmental entities. Competence, however, is different from all other elements since it is related to the individuals operating behind the software and hardware across the spectrum of trade. In other words, since people are the common denominator of all elements discussed and all efficiencies desired, human Competence advancement will lead to improving all elements of the 21-6-EI. This achieves the required 21<sup>st</sup> century trade efficiency.

### Findings - Data

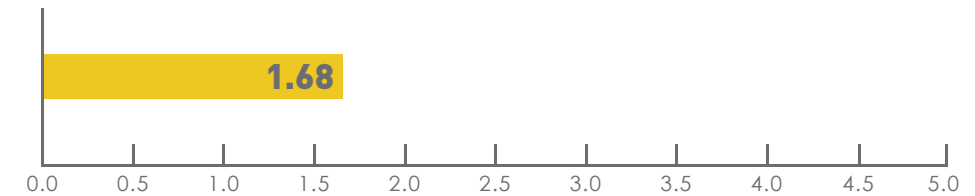
Competence Efficiency scale in brief:

**Level 1=** Absence of effective Competence processes and measurement methods within a trade lane pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to automate its contractual obligations into operational metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher.

**Level 5=** Optimal and complete Competence processes and measurement methods within a trade lane pipeline.

### G20 Countries' Overall Competence Score

The overall national Competence level across the G20 Nations is 1.68. Given that a score of 5 indicates maximum efficiency, the G20 Nations score indicates a relatively low level of Competence and an opportunity for G20 Countries to leverage their workforce to achieve significant improvement.



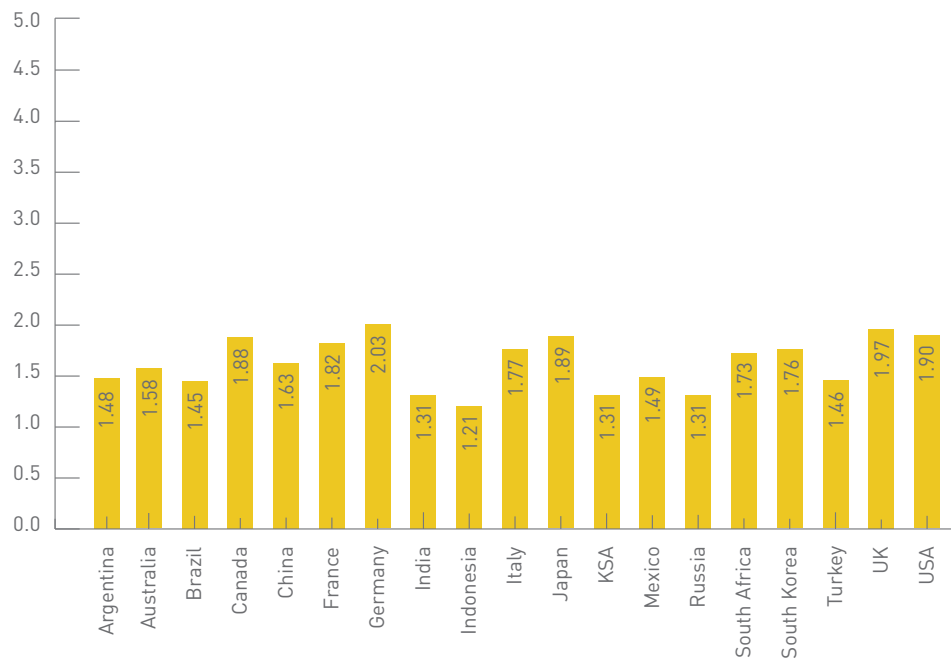
### Competence Score by Individual G20 Countries\*

High Income G20 Countries in North America (United States 1.90, Canada 1.88), Europe (Germany 2.03, United Kingdom 1.97), and Asia (Japan 1.89) have scored higher than the Mid Income G20 Countries. These economies have invested in training their workforce across their trade pipelines as well as providing them with necessary tools to monitor job completion based on contractual obligations and escalate when necessary.

There are a comparatively even Competence scores across the remaining G20 Countries which indicates an opportunity to increase the Competence level across all G20 Nations through providing proper tools to train, monitor and ensure job completion.

It is worth noting that the European region has scored the highest competence score among G20 Nations followed by the Americas, Asia then Middle East & Africa.

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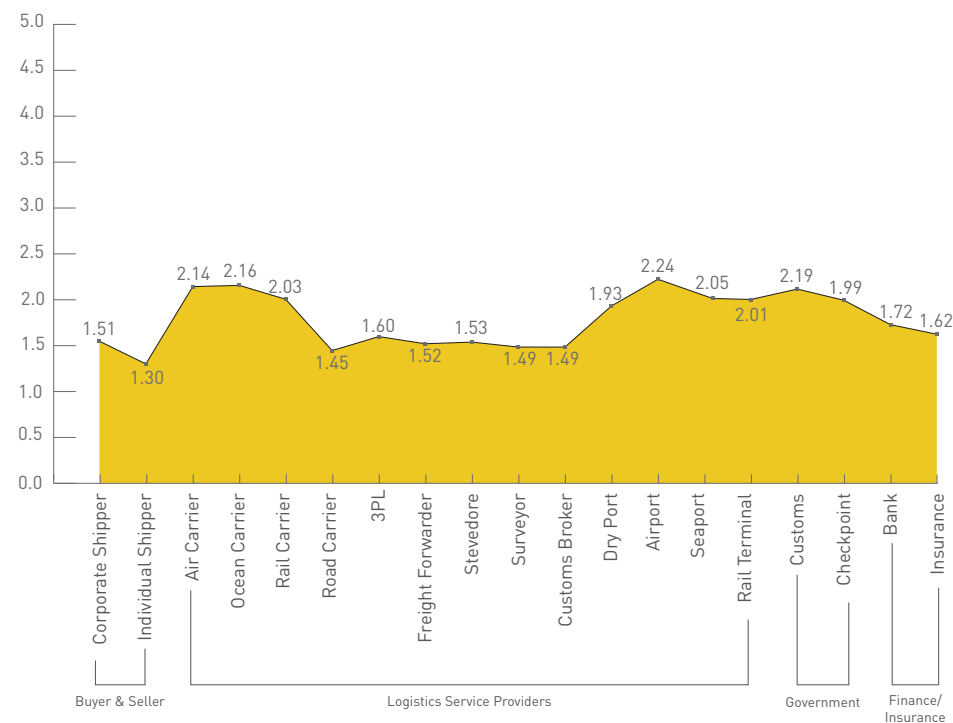
### Competence by the 19 Clusters Across the G20 Countries

These scores illustrate the comparative strengths of the 19 clusters in regard to their level of Competence as per the 21-6-ETEI standard. It is important to note that the range between 0 - 2.5 indicates that a cluster's Competence is vertically oriented with manual tools, training, and performance-monitoring processes adopted within its own jurisdiction. The range between 2.5 - 5.0 depicts that a cluster's Competence is both vertically and horizontally oriented with automated tools to monitor the performance of other participants in the shipment pipeline.

Carriers have the highest Competence score followed by infrastructure providers and then government organizations. This is evident by the efficiency levels of Airport (2.24), Customs (2.19), Ocean Carrier (2.16), Air Carrier (2.14), and Seaport (2.05). These participants have made some investment in training employees and in implementing tools to monitor internal activities.

It is also worth noting that large organizations have scored close to 20% higher than the Small and Medium enterprises (SMEs) in terms of Competence scores across the G20 Nations.

As we have indicated, in the Interdependent Pipeline Process Environment (IPPE), if one entity causes delays or makes mistakes, everyone else in the trade pipeline may be adversely affected. The survey indicates that in the G20 Countries, the lack of horizontal performance monitoring capability projects a high probability of incidents that can adversely affect entire trade pipeline. The lack of technology adoption and the inability to monitor contract obligations and validate job completion, as well as poor escalation when necessary across the 19 clusters is reflected in the low Competence scores across the G20 Countries' trade participants.



## Competence Indicators

The following chart provides indicators as to G20 Nations Competence level based upon average responses to the questions asked during the survey.

	Buyers/Sellers	LSPs	Finance/Insurance	Government	Overall G20 Nations
Employees receiving training to improve their skills	Few employees some of the time	Few employees some of the time	Few employees some of the time	Few Employees All of the time	Few employees some of the time
System used to transform contract obligations into electronic metrics to monitor the performance of internal employees	No system	No system	Off-the-shelf not customized	Off-the-shelf not customized	No system
System used to transform contract obligations into electronic metrics to monitor the performance of the 19 clusters	No system	No system	No system	Off-the-shelf not customized	No system
System used to validate internal job completion based on contractual obligations	No system	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf not customized
System used to validate external job completion (19 clusters) based on contractual obligations	No system	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf not customized	No system
System used to escalate internally when contract obligations are not met	No system	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf not customized	Off-the-shelf not customized
System used to escalate externally with the 19 clusters when contract obligations are not met	No system	No system	No system	Off-the-shelf not customized	No system

## Findings Impact

It is important to restate that Competence is optimized when the proper tools are provided to perform a specific duty, when training is provided to use the tools efficiently, and when a performance monitoring mechanism with escalation capabilities for accountability is implemented.

In this assessment, only 12.7% of the respondents indicated the use of Enterprise Resources Planning systems for enhancing Competence, and the majority of the clusters surveyed have limited tools to transform contract obligations into electronic metrics, to validate job completion, and to escalate issues both internally and externally with the 19 clusters. The majority of respondents had some training for their employees. There was limited visibility of their employees' performance when handling shipments within their own vertical environments. They have limited visibility of trade partners or logistics service providers within their own vertical environments. Furthermore, minimal escalation processes are in place to improve their employees' performance.

In other sections, we have named specific areas where findings can adversely affect the 19 clusters. Once again, this section is different, as Competence is the common denominator between all elements and the 19 clusters. Therefore, when the Competence score is low, this has a potential negative impact on all elements and all 19 clusters. In other words, the findings' impact of the other elements can be worsened, and the negative effects can be increased by low levels of Competence.

## Recommendations

G20 Nations and the entire world seek to increase trade efficiency as one of the means of spurring trade and sustaining economic growth. Multiple parties have launched initiatives towards that very purpose. Trade efficiency is not just about how much money is invested, what expensive tools are used, or what agreements are reached; it is about people performing their tasks with the proper tools in a synchronized and monitored environment. Unless they are competent in their work, optimum efficiency cannot be reached.

For reasons previously discussed, shipment efficiency within trade pipelines tends to be very inconsistent as shipment cross multiple clusters' jurisdictions and countries. Furthermore, cultural and economic differences can amplify this inconsistency. In light of this reality, the question remains: How can Competence be optimized within the trade lane pipeline globally door-to-door, thus increasing the quality of goods and services and delivering "Just-in-Time" logistics while driving down costs?

The four steps described below are the proposed roadmap in order to improve the Competence of the 19 clusters in G20 Countries, and the world:

### **I. Minimize Standardization Requirements**

Enable the transfer of essential trade information through use of Universal Data Elements (UDEs), minimizing the need for standardization. This is difficult to achieve today without point-to-world integration.

### **II. Establish Point-To-World Integration**

Enable dynamic visibility of all shipment data to all participants within the trade lane pipeline.

### **III. Transform Contractual Obligations into Electronic Metrics**

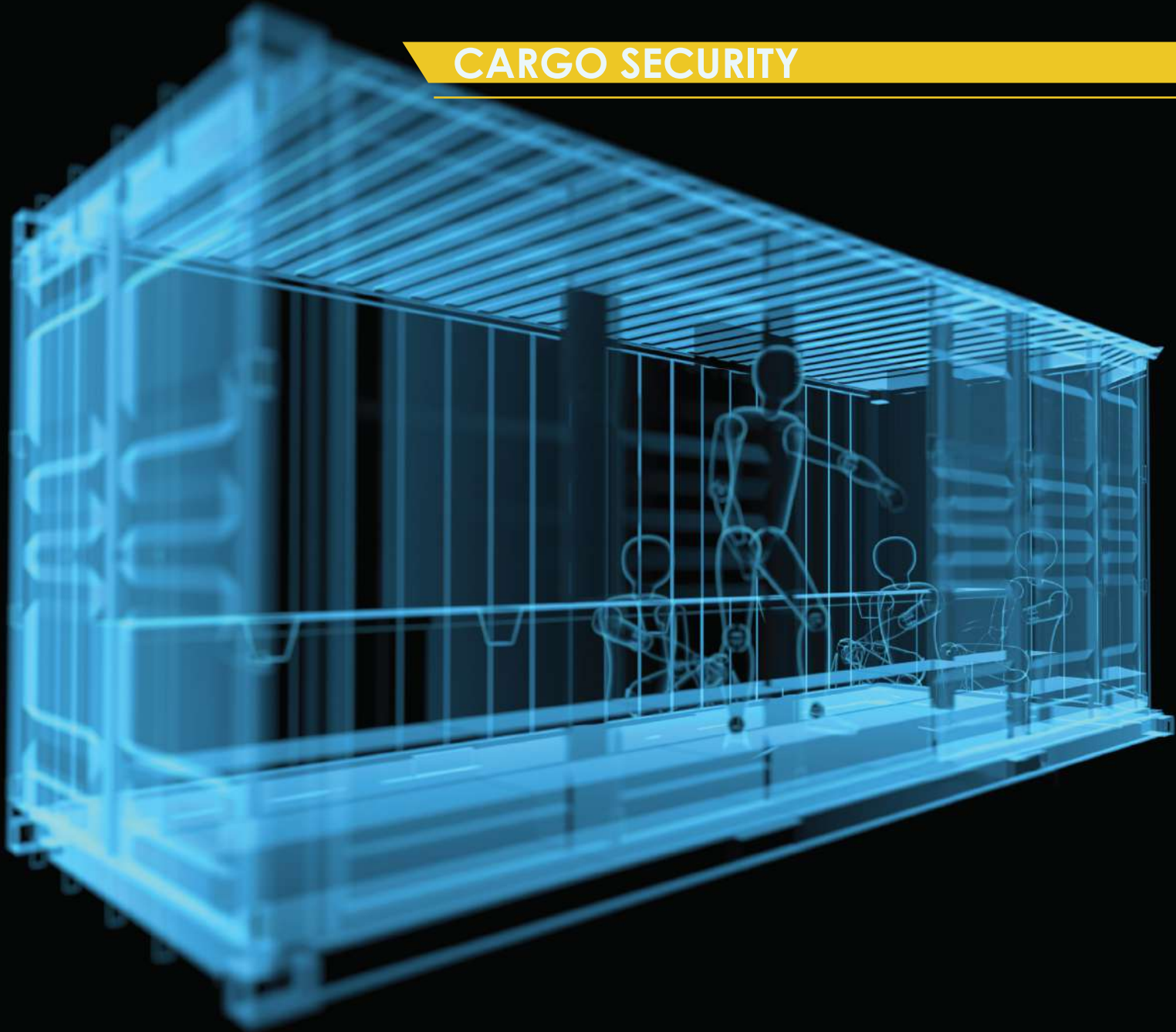
Enable dynamic assessment of cluster performance on a case-by-case basis using contractual obligations as the benchmark for Competence, facilitating performance monitoring based upon Contracted, Forecast, and Actual Times, with a scalable accountability process that allows escalation of operational incidents.

### **IV. Enable Universal Accessibility**

Provide access to the proposed system, metrics, and tools required to achieve 21-6-ETEI Competence standards to every user worldwide at no cost. These must be delivered by a trusted technology network, offsetting any geopolitical monopolistic concerns and data privacy.

1. UNESCAP: Economic and Social Commission for Asia and the Pacific, Expert Group Meeting on Preparations for the Ministerial Conference on Transport, p. 7, Bangkok, 14 and 15 July 2011.
2. World Bank: Connecting to Compete: Trade Logistics in the Global Economy, The Logistics Performance Index and its Indicators, p.14, 2010.
3. World Economic Forum: Industry Agenda- Outlook on the Logistics and Supply Chain Industry 2012, Global Agenda Council on Logistics and Supply Chains 2011-2012, June 2012, p.24, p.27.
4. Malaysia Logistics Directory 2011/2015, p.8, 2011
5. Journal of Competitiveness, Issue 4, 2011: Analyzing the Dependency Between National Logistics Performance and Competitiveness: Which Logistics Competence is Core for National Strategy? pp. 15-18, 19 December 2011.

## CARGO SECURITY



# Cargo Security

Governments around the world consider Cargo Security to be of vital importance in their efforts to protect their citizens, borders, and economies. For example, if one cargo container exploded, in addition to the damages that this would cause in terms of human life and property, the whole trade lane would be shut down. The damages would be massive, inventories would pile up, ports would be choked, investments would be lost, and free trade agreements would be jeopardized. Finally, the reopening of the trade lane would be risky: Until today, there is no real transparency in global cargo to ensure that no more explosives are on the way.

## What is the Meaning of Cargo Security?

Cargo Security is defined as the establishment and uniform practice of policies and procedures that secure the flow of commerce against acts of terrorism.

## How Can Cargo Security Be Achieved?

It is very difficult to fully eliminate the threat of cargo terrorism. Despite the world's best efforts, there will always be some lingering degree of risk in the security arena. However, we can establish a solid Cargo Security platform that will allow us to continually enhance our security measures, thus greatly reducing the probability of a malicious act of terrorism against the flow of commerce. This Cargo Security platform would leverage the trade efficiency platform to simplify and optimize the 19 clusters' compliance. The implementation strategy for this security platform consists of three tiers: Compliance, Trade Pipeline Monitoring, and Proactive Response.

### Tier 1: Compliance

Compliance consists of two components: Regulatory Compliance and Adherence to Voluntary Initiatives. Regulatory Compliance consists of activities conducted in accord with government security regulations, such as documentation and advance manifesting. Voluntary Initiatives to promote and enhance Cargo Security have emerged at both the national/regional and international levels. Compliance of present Cargo Security data must be enhanced and compliance processes must be simplified.

### Tier 2: Trade Pipeline Monitoring

Monitoring is achieved through access to validated, real-time data visibility of the global flow of commerce. The data owner must authorize the visibility to their proprietary data generated during the normal course of business activities. Data must be dynamically checked against official sources. The real-time monitored information enables implementation of:

- ▶ Enterprise Monitoring Processes – The ability to monitor and dynamically flag suspicious shipments based on a trade Pipeline participant's historic and current behavior.
- ▶ Shipment Monitoring Processes – The ability to track shipments based on shipment events, combined with GPS, RFID, and IHS tracking from shelf to shelf, allowing dynamic flagging of suspicious shipments based on data anomalies, errors, and shipment flow deviations.

### Tier 3: Proactive Response

Validated, real-time visibility of shipment data must provide the capability to:

- ▶ Dynamically synchronize and coordinate Cargo Security activities between security agencies from around the world, amplifying the effectiveness of Cargo Security response.
- ▶ Detect and eliminate threats as far away as possible from the borders of the targeted country.

We can eliminate single point of security failure by creating four synchronized layers of security starting from:

- I. Intelligence – Must dynamically flag suspicious shipments based on pre-set criteria, alerting of origin port authorities to re-inspect shipments prior to loading.
- II. Coast Guard – Must enable coast guards to create “virtual fencing” around a nation's borders, whereby the approach of a single suspicious conveyance automatically provides authorities with the means to pinpoint and inspect potential threats while the conveyance is still off-shore.

III. Border Crossing – Must dynamically provide border crossing authorities with all necessary real-time information regarding the history of the clusters involved in the flow of the shipment from shelf to shelf and regarding the contents and movements of each shipment, enabling rapid interception of suspicious shipments.

IV. In-Country – Must dynamically monitor every shipment within the country (national cargo visibility), alerting local authorities to any deviation from manifested routing, stoppage, or destinations, thus enabling their rapid interception or investigation of wayward shipments and vehicles.

### Why is Cargo Security Important?

The importance of Cargo Security cannot be overestimated; it is a matter of major concern to every nation in the world, and these concerns have resulted in infrastructure investments, new regulations, the addition of Cargo Security requirements to trade agreements, and costly training programs. However, a single successful attack on a major transportation hub could put the entire trade of a country in jeopardy. Nevertheless, Cargo Security initiatives require a balanced economic approach that seeks to enhance security while increasing trade efficiency. Safety must be the first priority, but overly stringent requirements stand to cause significant harm by restricting commerce and discouraging trading activity. Within this balanced framework, there are two primary reasons why Cargo Security is an essential element of trade efficiency:

#### I. Enhanced Supply Chain Security

Real-time dynamic validation of participant-related and shipment-related data against domestic and foreign security databases aids in the proactive analysis of deviations, mismatches, or other anomalies to flag dangerous or suspicious shipments. The heightened security protects both the physical well-being of participants in the shipment pipeline and the supply chain itself from costly or even catastrophic disruptions.

#### II. Expedited Clearance

Automatic electronic submission of pre-populated security data enables faster movement through customs and border crossings by ensuring that security information is accurate, complete, formatted, and delivered in the most effective and efficient manner to all appropriate participants in the shipment process, including governments and Customs organizations. Point-to-world integration helps a shipper to be Cargo Security compliant on a global basis, thus minimizing the possibility of cargo flow disruption.

### Who Has Validated the Importance of Cargo Security?

A broad range of international organizations have attested to the importance of Cargo Security to the well-being of international trade and the global economy:

**WORLD BANK:** “In the post-September 11 environment, cargo security also looms large as an important border management issue in which coordination is key. Although increased attention to border security is understandable, it is important to be aware of the costs it imposes on the private sector and thus its potential to inhibit international trade. It is clearly preferable from an economic welfare point of view for security requirements to be implemented in the most efficient, timely, and cost-effective way possible. Results from the LPI survey suggest that operators in countries with high-quality logistics environments appear to be relatively well placed to adapt to new security requirements, but the same is not true of operators in logistics constrained environments.”<sup>1</sup>

**OECD:** “Sea-going vessels can be the vector for, or target of, attacks. They can also serve to facilitate other attacks and/or raise revenue for terrorist organisations. The principal risk factors related to shipping – cargo, vessels, people and financing – are also linked to the broader risk of major disruptions in world trade and increased economic costs linked to heightened security. It is important that governments address all of these risks with broad-based security policy responses, since simply responding to threats in isolation to one another can be both ineffective and costly.”<sup>2</sup>

**UN:** “Transport and logistics services are becoming ever more crucial for remaining competitive in international trade and globalized production. At the same time, new security requirements pose additional challenges for shippers and transport service providers, especially in developing countries. Consequently, transport and trade facilitation designed to ensure a secure and efficient trade environment plays a fundamental role for developing countries in their efforts to promote international trade.”<sup>3</sup>

**UNESCAP:** “It is clear that many people depend on international trade for their livelihoods, meaning that security of international trade is directly linked to economic security. For this reason, trade security is synonymous with economic security. In summary, the purpose of trade security is not simply to prevent trade from being used as a tool for terrorists, but also to provide a safe, legal and efficient environment for trade in goods and services.”<sup>4</sup>

### Where Does Cargo Security Apply & How Is It Important to the Public & Private Sectors?

Cargo Security applies to every shipment that moves as well as to any enterprise involved in the movement of the shipment and any physical location that it crosses. Since any shipment may be subject to terrorist infiltration, Cargo Security is of vital importance to all nations and peoples, as the lack of adequate security can present a threat to our lives and to our economies.

### Findings - Data

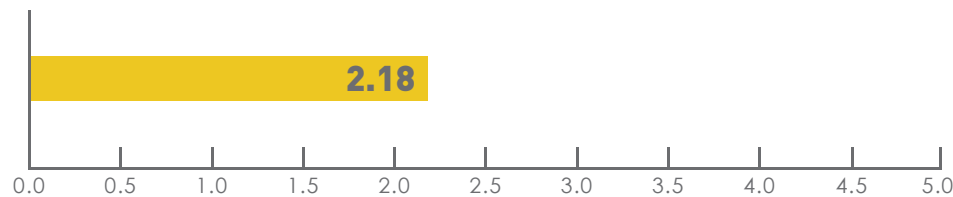
Cargo Security efficiency scale:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests on its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at most.

**Level 5** = Presence of effective Cargo Security procedures.

### G20 Countries' Overall Cargo Security Score

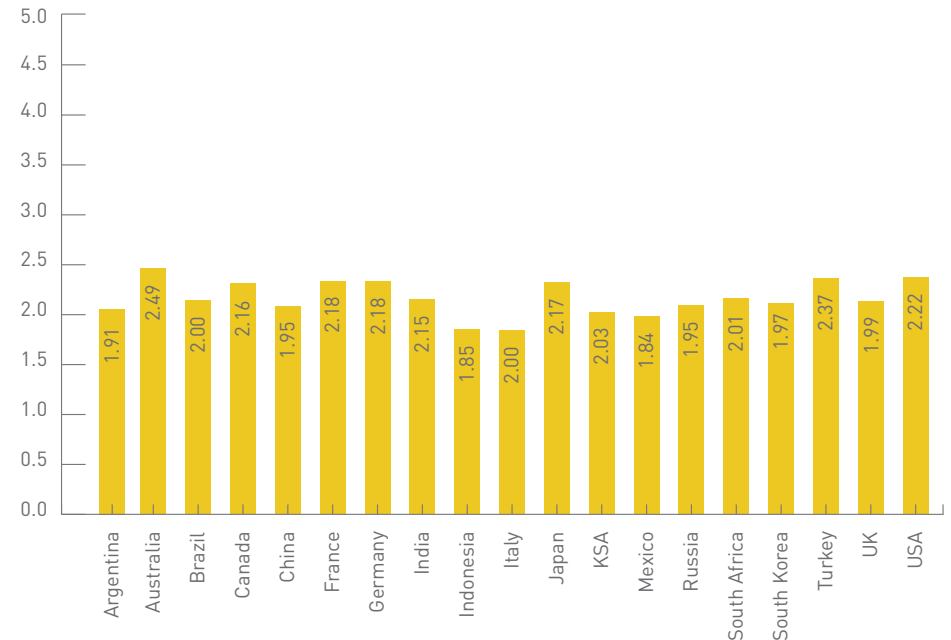
The overall G20 Countries' Cargo Security level represents aggregated data compiled from all participants surveyed across all G20 Nations. Given that a score of 5 indicates maximum implementation of cargo security measures, the score of 2.18 indicates the need for additional emphasis on Cargo Security.



### Cargo Security Score by Individual G20 Countries\*

Looking at Cargo Security efficiency levels across the G20 Countries, we see that there is some level of consistency. These relatively even scores indicate that implementation of new measures across all G20 Countries can be efficiently accomplished. The higher scores achieved in Australia (2.49) and United States (2.22) are due to tightened cargo security regulations and the role of Customs and Border Protection in securing these countries' borders.

In addition, the Cargo Security scores in Germany (2.18), France (2.18), Japan (2.17), and Canada (2.16) are due to the high value of goods shipped from these countries, such as automotive, electronics, petroleum, coal, fertilizers, etc. which require additional security measures providing higher visibility for ports and government authorities.



\*The G20 Nations Case Study is comprised of two groups. The Case Study for Group I was completed in 2013 and included Australia, India, Indonesia, Kingdom of Saudi Arabia, and Turkey. The Case Study for Group II was completed in 2016 and included the remaining G20 Countries of Argentina, Brazil, Canada, China, France, Germany, Italy, Japan, Mexico, Russia, South Africa, South Korea, the UK, and the USA. Since the G20 Leaders have adopted the Digital Economy as a key policy directive and emphasized the importance of digitally empowering SMEs, the Case Study for Group II surveyed a relatively higher percentage of SMEs than Group I to capture their voice. This resulted in lower efficiency scores for Group II countries relative to Group I countries. Hence, to ensure comparability of the scores across these two groups, the scores of Group II countries were normalized upwards.

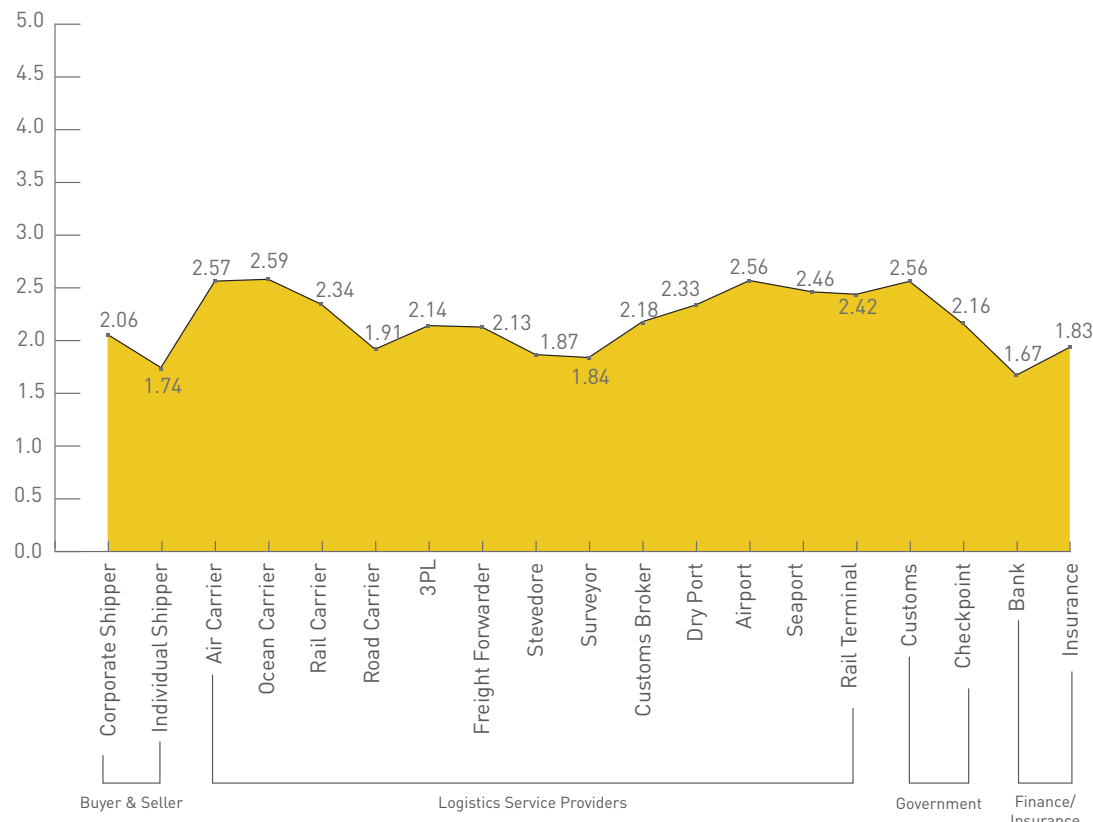
### Cargo Security by the 19 Clusters Across the G20 Countries

The results illustrate the comparative strengths among the 19 clusters related to the adoption of Cargo Security. It is important to note that the range between 0-2.5 indicates security measures at the national level, while the 2.5-5.0 range implies compliance with international regulations and voluntary initiatives as well as the visibility to monitor, flag, and respond to shipments before arrival.

Relatively moderate Cargo Security scores appear with services at government-controlled and infrastructure-intensive clusters such as Ocean Carrier (2.59), Air Carrier (2.57), Airport (2.56), Customs (2.56), Seaport (2.46), Rail Terminal (2.42), and Rail Carrier (2.34).

Large organizations in the trade pipelines are more aware of Cargo Security measures nationally and internationally, and provide more security related shipment data than the SMEs. Across most G20 Countries, trade participants use the National Single Windows for Customs clearance, which allows higher visibility for ports and government authorities.

In addition, G20 Countries need an Innovative approach that can extend their capabilities by connecting horizontally all systems participating in their global value chains to improve Cargo Security at national, regional, and global levels.



## Cargo Security Indicators

The following chart provides indicators as to G20 Nations Cargo Security level based upon average responses to the questions asked during the survey.

	Buyers/Sellers	LSPs	Finance/Insurance	Government	Overall G20 Nations
% of trading partners and LSPs asking about cargo security-domestically or globally	≤20% of trading partners	21-40% of trading partners	≤20% of trading partners	21-40% of trading partners	21-40% of trading partners
Knowledge of trading partners' enterprise activities	Occasionally informed	Occasionally informed	Occasionally informed	Occasionally informed	Occasionally informed
Knowledge of trading partners' shipment activities	Occasionally informed	Occasionally informed	Occasionally informed	Occasionally informed	Occasionally informed
Method of exchanging shipment information with government agencies	Through a 3rd party/ agent	Through a 3rd party/ agent	Postal Mail/Fax/ Email	Government Agency Portal/Through a 3 <sup>rd</sup> party	Through a 3rd party / agent
Completeness of shipment security information within internal jurisdiction/control	51-75% Complete	51-75% Complete	≤50% Complete	51-75% Complete	51-75% Complete
Completeness of shipment security information within external trading partners' jurisdiction/control	≤50% Complete	≤50% Complete	≤50% Complete	51-75% Complete	≤50% Complete

## Findings Impact

Less than 20% of trade participants surveyed across the G20 Nations are mindful of cargo security, as evidenced by the responses from shippers and 3PLs who load the freight, banks and insurance companies who underwrite the trade, and checkpoints where shipments cross the border. The primary method used by LSPs to exchange shipment information with government agencies is through a third party agent and other trade partners use email/phone/fax. These manual methods lack the necessary shipment data completeness and validation to provide full visibility to the G20 Nations government and intelligence agencies to expedite Customs clearance and minimize port and border crossing congestion. The information provided about cargo security nationally and internationally is about 51-75% complete. There is no security information available about clusters involved in handling the shipment. Clusters have limited means of ensuring the integrity of the other trade participants' security measures, who they are receiving shipments from, or transferring shipments to.

The various National Single Window developed by the different G20 Countries are the only official portal that bridges the information gap between the private and the public sectors. However, these single windows are presently designed to receive Customs clearance data but not security compliance data.

## As a result, today:

- ▶ Cargo Security compliance information is submitted to the government only upon request.
- ▶ Information submitted is not validated against other sources.
- ▶ When problems occur in the Cargo Security compliance process, the security agencies have no automated mechanism for proper response.

Conclusion: Viewed in their entirety, these findings indicate a further opportunity to enhance Cargo Security across the G20 Nations.



"Transport and trade facilitation designed to ensure a secure and efficient trade environment plays a fundamental role for developing countries in their efforts to promote international trade...Trade security is synonymous with economic security."  
— United Nations

## Recommendations

The world today is headed towards rebalancing of the global economy. This means that high and mid income countries will conduct more business and trade with each of their low income countries. However, all countries are vulnerable to terrorist activities due to diminished access to advanced security technologies and systems, and inadequate implementation of security standards, among other factors.

Many Cargo Security efforts worldwide, to date, have relied upon the participating organizations to increase their vigilance, effectively acting as extensions of official state security agencies. As the assessment results demonstrate, however, this approach does not work, as these responsibilities do not match with business capabilities of private sector trade participants. That said, it is possible to leverage these clusters capabilities to accomplish the desired level of security through establishment of an Integrated Horizontal System (IHS) with point-to-world integration capability. Cargo Security requires a baseline horizontal system that facilitates trade efficiency while supporting security processes. The information generated and validated by participants through the normal course of business will increase the effectiveness of security measures, providing necessary data to officials without any additional burden upon the private sector participants.

1. World Bank: Connecting to Compete 2010 Trade Logistics in the Global Economy, p. 18, 2010.
2. OECD: Security in Maritime Transport Risk Factors and Economic Impact, Maritime Transport Committee, p. 7, July 2003.
3. United Nations Conference on Trade and Development, Trade and Transport Facilitation: Building a Secure and Efficient Environment for Trade, p. 12, 6 April 2004.
4. United Nations Economic and Social Council; Economic and Social Commission for Asia and the Pacific: Trade Facilitation and the New Security Environment: Issues For Developing and Least Developed Countries in the Asian and Pacific region, Committee on Managing Globalization, Third Session, part 1, p.6, 12-14 September 2006.

## OUR SHARED COMMITMENT



## Our Shared Commitment

GCEL's proudly stated mission, "Connecting the Strengths of the World Community - Creating Well Being Across Humanity" embodies the spirit of our organization's commitment to service. As a nonprofit Public-Private Partnership, we have earned the trust of more than 156 countries through their Pan Regional Organizations, 26 IGOs/NGOs, as well as the world's leading finance, insurance and technology firms who together serve more than 60% of the world's GDP. We are working together with our members and partners to initiate a new era of global prosperity through the realization of a long-held vision: the delivery of the Digital Economy.

This report presents the G20 Nations current trade efficiency status, enumerating areas for improvement and illustrating how these countries can leverage the Digital Economy to establish a solid foundation for the near future and decades to come. It is the first fulfillment of the following nine commitments to the G20 Citizens. We will:

- ▶ Present the G20 Nations Case Study Report outlining areas for trade efficiency improvement and highlighting the impact of the 21<sup>st</sup> Century Digital Economy era, the foundation for future prosperity. - **Completed**
- ▶ Share our findings with the G20's industries, outline areas for trade efficiency improvement, describe the Digital Economy Platform (DEP), and present the tools to achieve its realization. - **Completed**
- ▶ Implement the Benchmark Trade Lanes (BTL) in the four regions of the world — Americas, Asia, Europe, and Middle East & Africa — to deliver the desired trade efficiency through the DEP. - **In Progress**
- ▶ Prepare G20 Nations Commerce, Finance, Insurance, and Technology (CFIT) firms for their participation in building the global DEP deployment network. This represents our commitment to the equal opportunity program, ensuring that all qualified CFIT firms will have the knowledge needed to successfully participate in the DEP deployment.
- ▶ Conduct BTL Showcase Events in the four regions of the world. These will represent the trigger points for the selected CFIT firms called Gateways with a combined manpower of 2.6 million serving 60% of the world's GDP coupled with the global viral marketing among all businesses to achieve the deployment of the DEP to 60% of the business-to-business marketplace by 2030.

- ▶ Provide the DEP at no cost to every citizen. We are committed to ensuring that the Platform shall be equally available to all nations and to enterprises of all sizes, with no barriers to participation.
- ▶ Ensure that the DEP will be available to every G20 country organization following completion of the four BTLs.
- ▶ Prevent DEP Monopolization. A global solution can only work when it remains free from dominance by any corporation or nation; there will be an equal opportunity for all to participate in the ownership, governance, deployment and use of the DEP.

By working together, we will prompt a fundamental shift that creates a new era of shared prosperity through increased efficiency. By applying the knowledge gained through the G20 Nations Case Study Report to the formulation and execution of purpose-driven, tangible solutions to today's efficiency challenges, we lay the groundwork for a brighter future for the G20 Nations and the world.

*The Global Coalition for Efficient Logistics*

January 2018

## ABOUT GCEL



## About GCEL

Based in Switzerland, GCEL is a nonprofit Public-Private Partnership, which has developed a comprehensive solution to the multiple problems that make the global logistics industry highly inefficient. GCEL's members and supporters include governments, IGOs/NGOs, and leading Commerce, Finance, Insurance, and Technology (CFIT) companies around the world. GCEL is currently funded for the benefit of all through the generous support of public/private organizations around the world. The key to GCEL's approach is its unique Global Structural Formula (GSF) that bridges the gap between governments and the private sector, allowing each to do what it does best. GCEL's HumaWealth Program will deploy the 21<sup>st</sup> century Digital Economy Platform and will provide the roadmap to achieve real, sustainable global economic growth. This Program will be deployed in a way that provides a solution that is truly global, open, and equitable to all organizations and all regions of the world—based on partnership, rather than competition, and available free of cost to all potential users throughout the world.



# G20 Nations Findings

Argentina	92
Australia	106
Brazil	120
Canada	134
China	148
France	162
Germany	176
India	190
Indonesia	204
Italy	218
Japan	232
Kingdom of Saudi Arabia	246
Mexico	260
Russia	274
South Africa	288
South Korea	302
Turkey	316
United Kingdom	330
United States	346

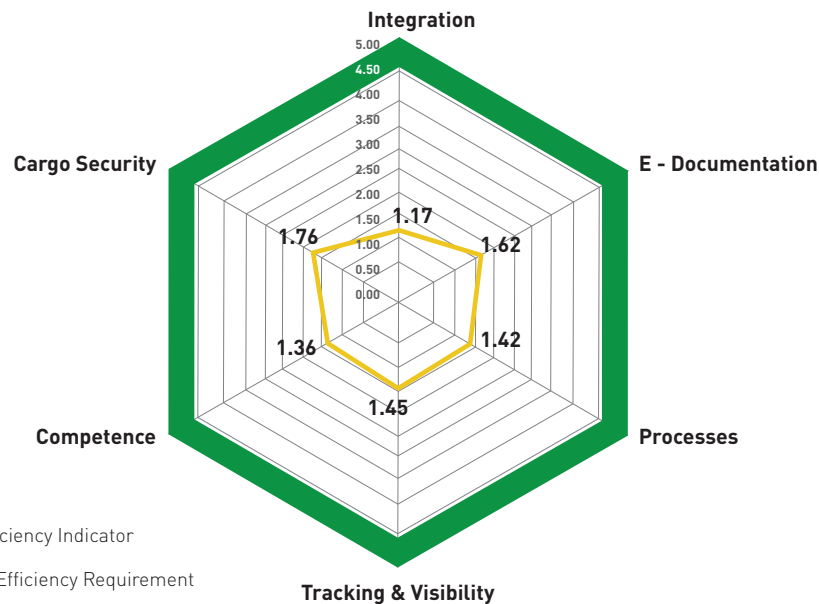


## Argentina's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Argentina's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Argentina Shipment and Trade Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Argentina SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Argentina SEA Report recommendations, Argentina can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 27.3 billion, placing Argentina at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 56 billion and create 2.6 million jobs by 2030, meeting the economic ambitions of Argentina.

### Argentina's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



Argentina Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

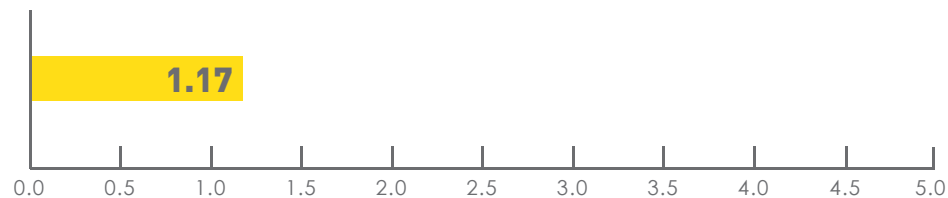
Integration Efficiency scale in brief:

**Level 1** = Absence of effective integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, using in-house vertical systems, without horizontal integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective integration and communication systems, low degree of data redundancy.

## Argentina's Overall Integration Score

This represents the aggregate data on a national level from the nineteen trade clusters surveyed in Argentina. Collectively they have scored 1.17 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



In Argentina, businesses are looking for closer coordination among supply chains so that they can realize just-in-time inventory levels. However, such effort requires integration of disparate applications and data formats across all the participants in the trade pipelines. This Integration score of 1.17 is relatively low compared to that of the other G20 Nations despite Argentina's investment in the SIM (Malvina Information System), launched in 2014 to meet the desires of the businesses in Argentina to build integrated supply chains. With the leadership of Customs in collaborating with industry to provide an efficient and consistent approach to improve the electronic facilitation of trade through its planned launch of the National Single Window system of VUCEA in the near future, a sustained focus on integration is necessary for Argentina to significantly improve its overall Integration score.

## Integration by Economic Zone

The most urbanized, industrially advanced, and export-oriented Pampas-AMBA (1.31) zone scored the highest on Integration. The Pampas-AMBA region accounts for 40% of the country's manufacturing and a third of the nation's GDP, and includes the country's busiest port of Buenos Aires. This zone is also home for the La Plata Free Trade Zone (FTZ), the most popular and busiest FTZ in Argentina. The Northwest-Sierras Pampeanas (1.18) zone, currently the fastest growing region with more recent expansion into automotive industry to augment its traditional sugar cane production, scored second on Integration. There is a moderate difference of 7.4% between the highest and lowest scores, indicating a uniform opportunity to increase economic integration of all the zones.

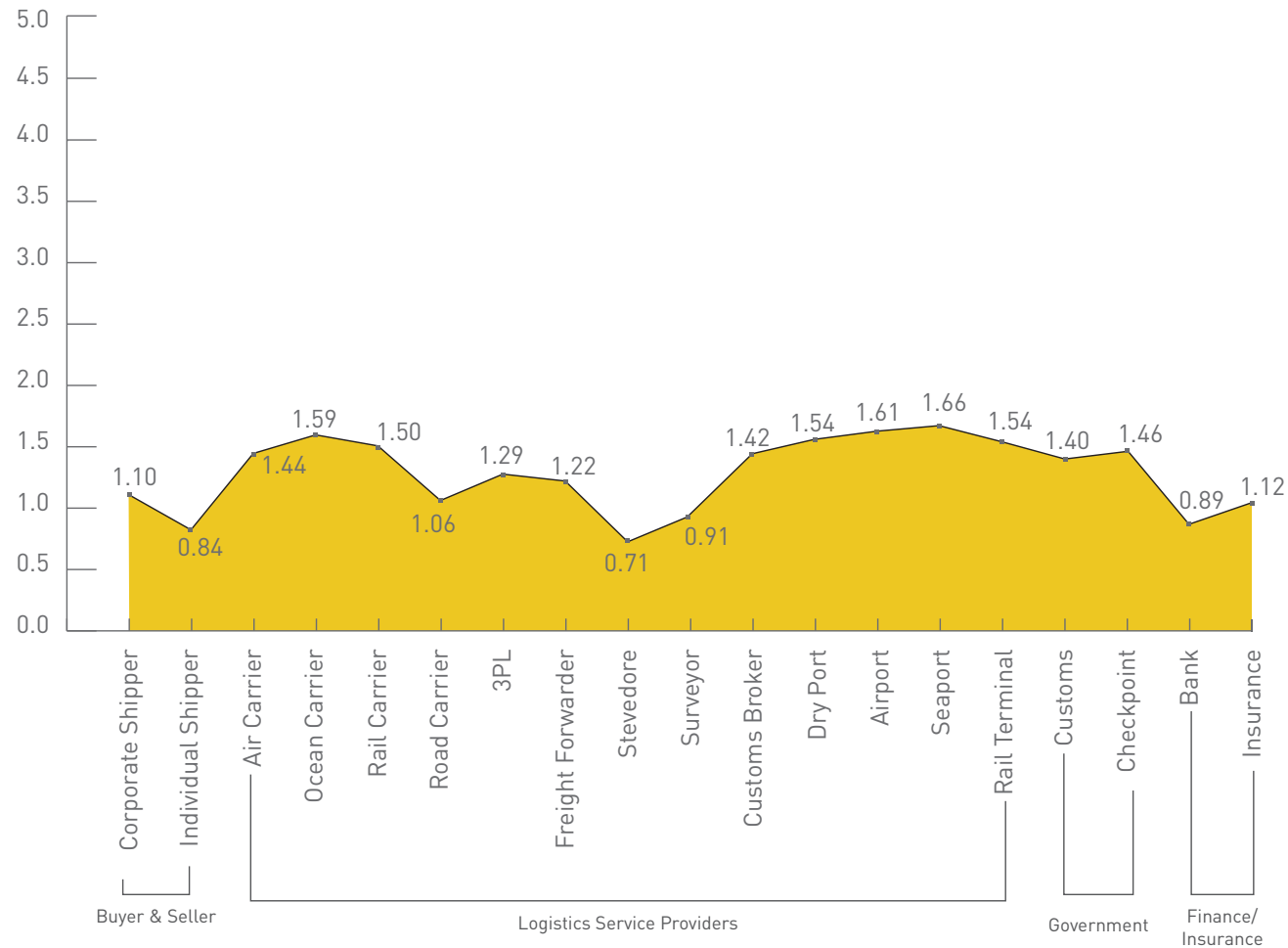
The other three regions, with their heavy reliance on agricultural produce and food processing industries, scored at the lower end on Integration.

When the right innovation, coupled with Integration across the trade pipeline, is introduced in the country, all the zones of Argentina can enhance their Integration scores to boost their trade efficiencies.



## Integration Efficiency by Trade Cluster

- 94.8% of trade participants do not have Integrated Systems
- 31–50% of shipment data re-entered in multiple forms
- 98% of communications related to shipments are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

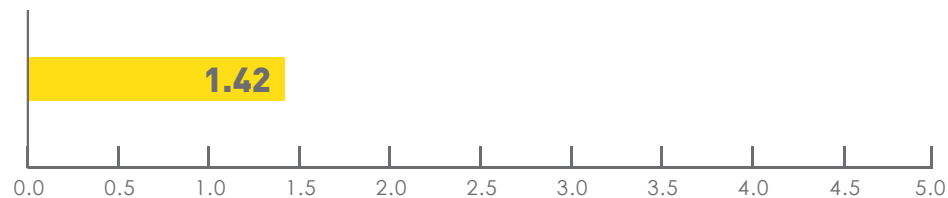
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete processes in a trade lane pipeline.

### Argentina's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Argentina have scored a 1.42 out of a possible 5.0 on the 21-6-ETEI scale.

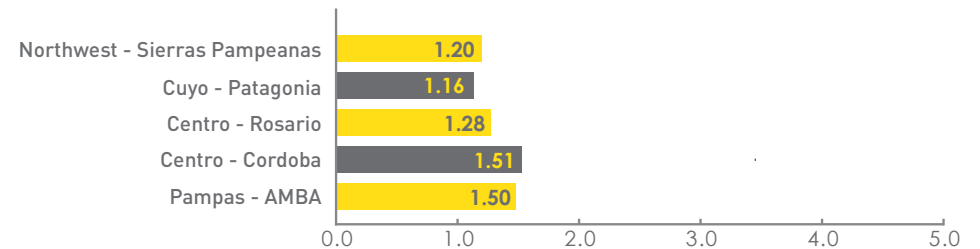


Argentine businesses seek accuracy of delivery as well as speed and consistency when selecting Logistics Service Providers. Hence, it is important for trade participants in Argentina to develop processes that enhance logistics efficiency of its trade pipelines.

### Processes by Economic Zone

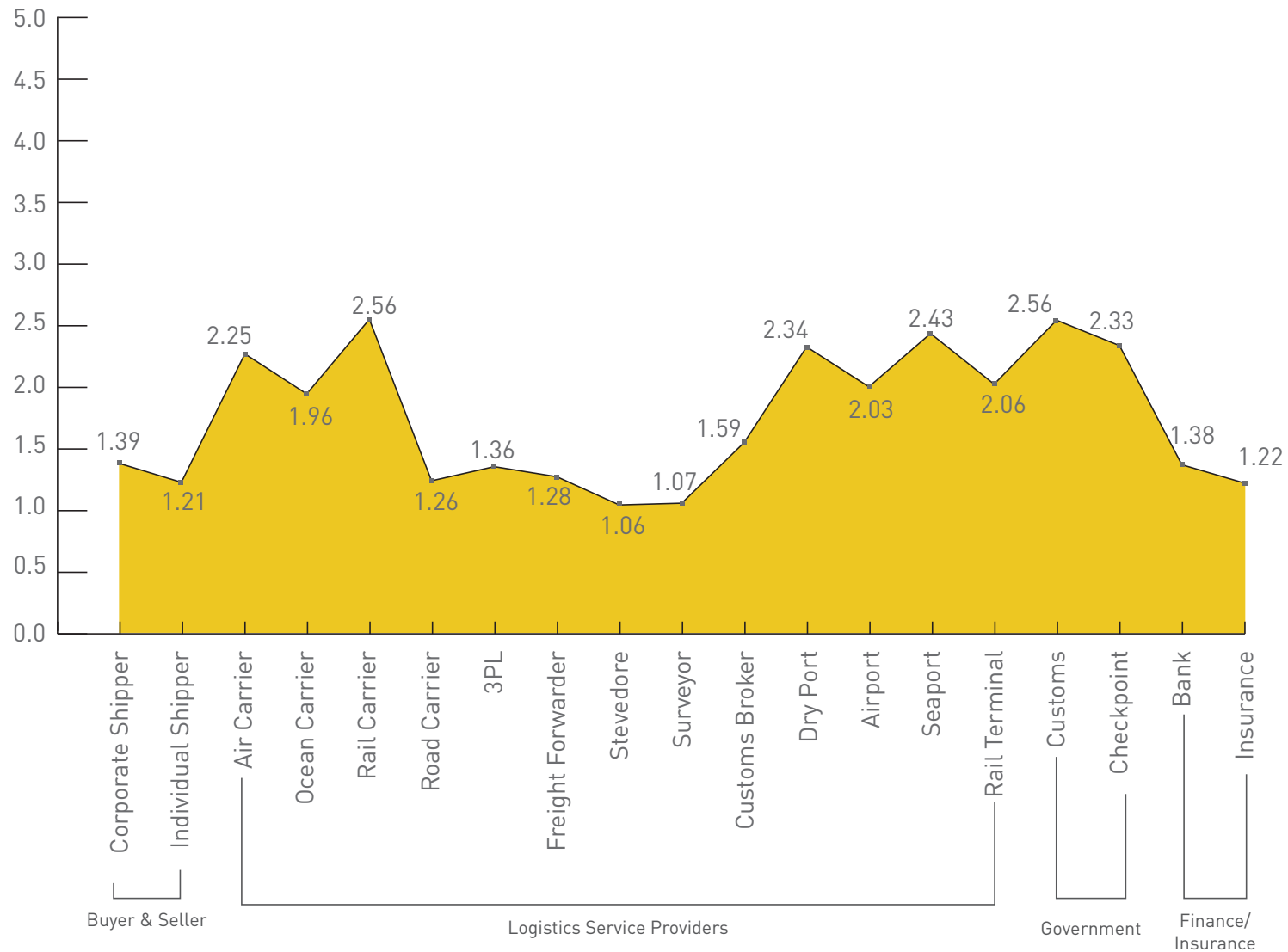
Analyzing the Processes scores by Economic Zone, the Pampas-AMBA (1.50) and Centro-Cordoba (1.51) zones that have significant presence of precision manufacturing activity, such as automobiles and export-oriented food processing, have scored relatively higher on Processes than the other zones. The difference between the highest and the lowest scores is moderate at 7%, suggesting that all the zones are uniformly in need of enhancing their Processes.

For the Processes in Argentina to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across Argentina, further efficiency gains will be achieved in the horizontal processes in all economic zones and will contribute to a further increase in Argentina's overall trade efficiency. With the right innovation, there is a countrywide opportunity to enhance Processes scores across all the regions of the country.



## Processes Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to Processes incompatibility
- 7.3% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- >30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

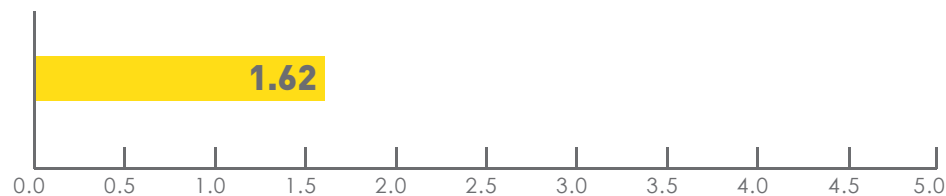
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain at most a score of 2.5.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal efficiency.

### Argentina's Overall E-Documentation Score

The overall national E-Documentation score of Argentina is 1.62, which indicates that some significant steps can be implemented by Argentina to attain an optimal level of E-Documentation capability necessary for it to compete more effectively in global markets.

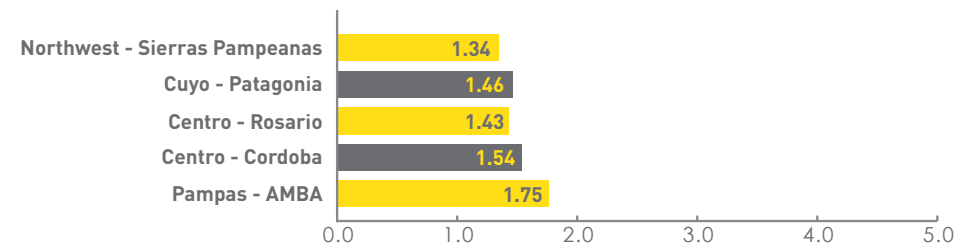


This result is consistent with the observation that with the increased use of the Internet and the adoption of the SIM system of Customs by Argentine businesses, there is a positive shift towards sharing documents electronically.

### E-Documentation by Economic Zone

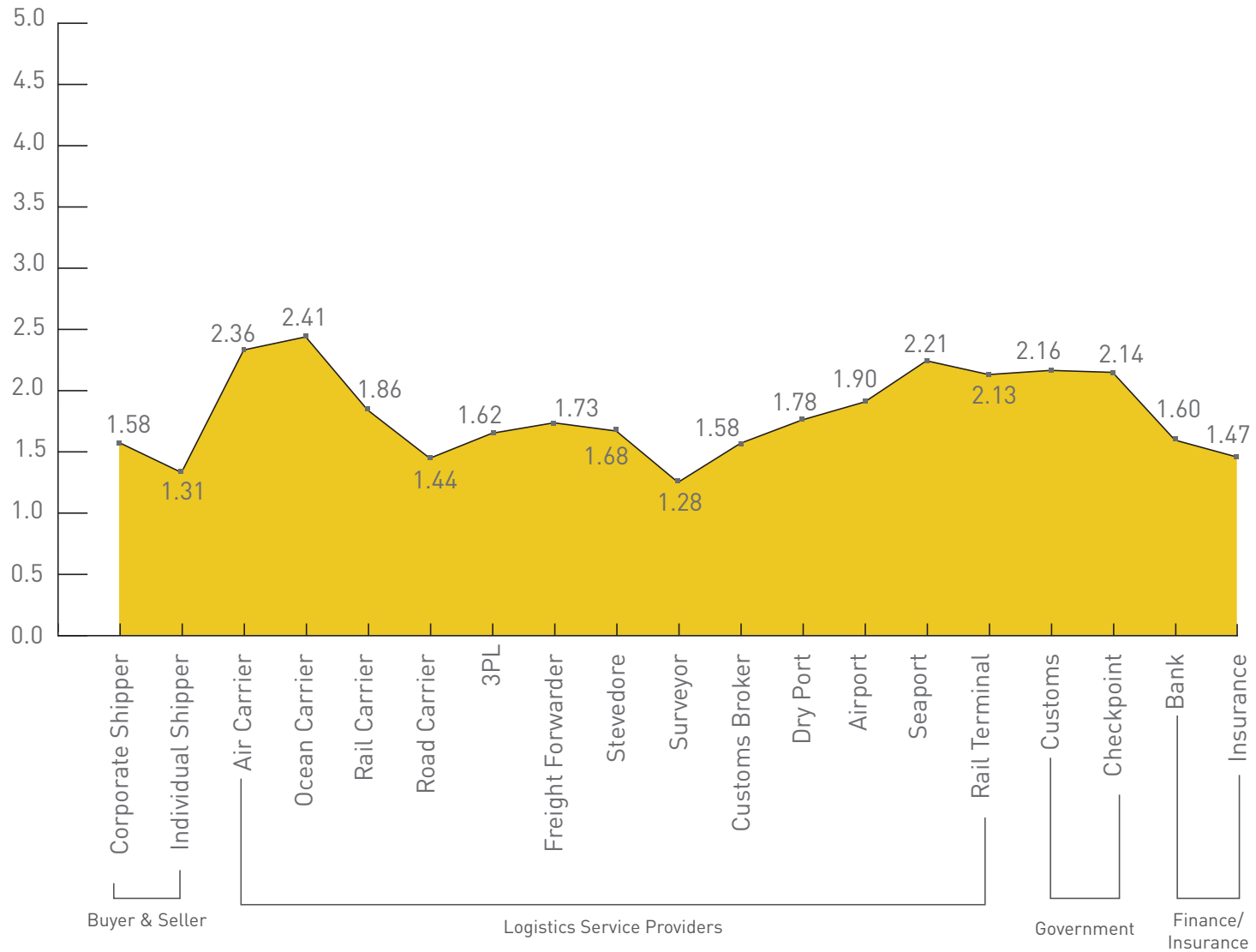
Examining the E-Documentation scores by Economic Zone, we can see that the Pampas-AMBA (1.75) zone, with its advanced manufacturing industries, has scored the highest. The less urbanized Northwest-Sierras-Pampeanas (1.34) zone scored the lowest on E-Documentation. The difference between the highest and lowest scores is moderate at 8.2%, indicating a need to enhance E-Documentation scores across all the zones.

Hence, there is a countrywide opportunity, especially in the less densely-populated zones, to achieve optimal level of efficiencies when an E-Documentation capability is made available across the country.



## E-Documentation Efficiency by Trade Cluster

- 61–80% of data is re-entered due to systems incompatibility, with occasional data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

Tracking & Visibility Efficiency scale in brief:

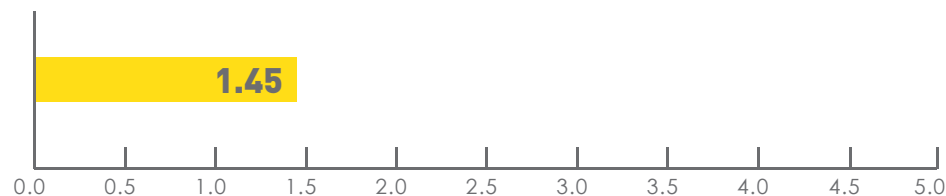
**Level 1=** Little or no Tracking & Visibility capability. A participant that invests on technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5=** Optimum level of global Tracking & Visibility capability.

### Argentina's Overall Tracking & Visibility Score

The overall national Tracking & Visibility level in Argentina is 1.45, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility efficiency performance.

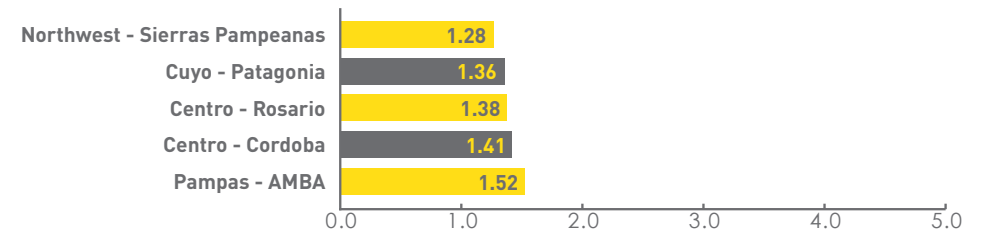
Considering the modest score of 1.45 for Tracking & Visibility, Argentina is headed in the right direction by committing itself to roll out the VUCEA National Single Window at the earliest to further enhance its ability to track and better manage its shipments across the trade pipelines.



### Tracking & Visibility by Economic Zone

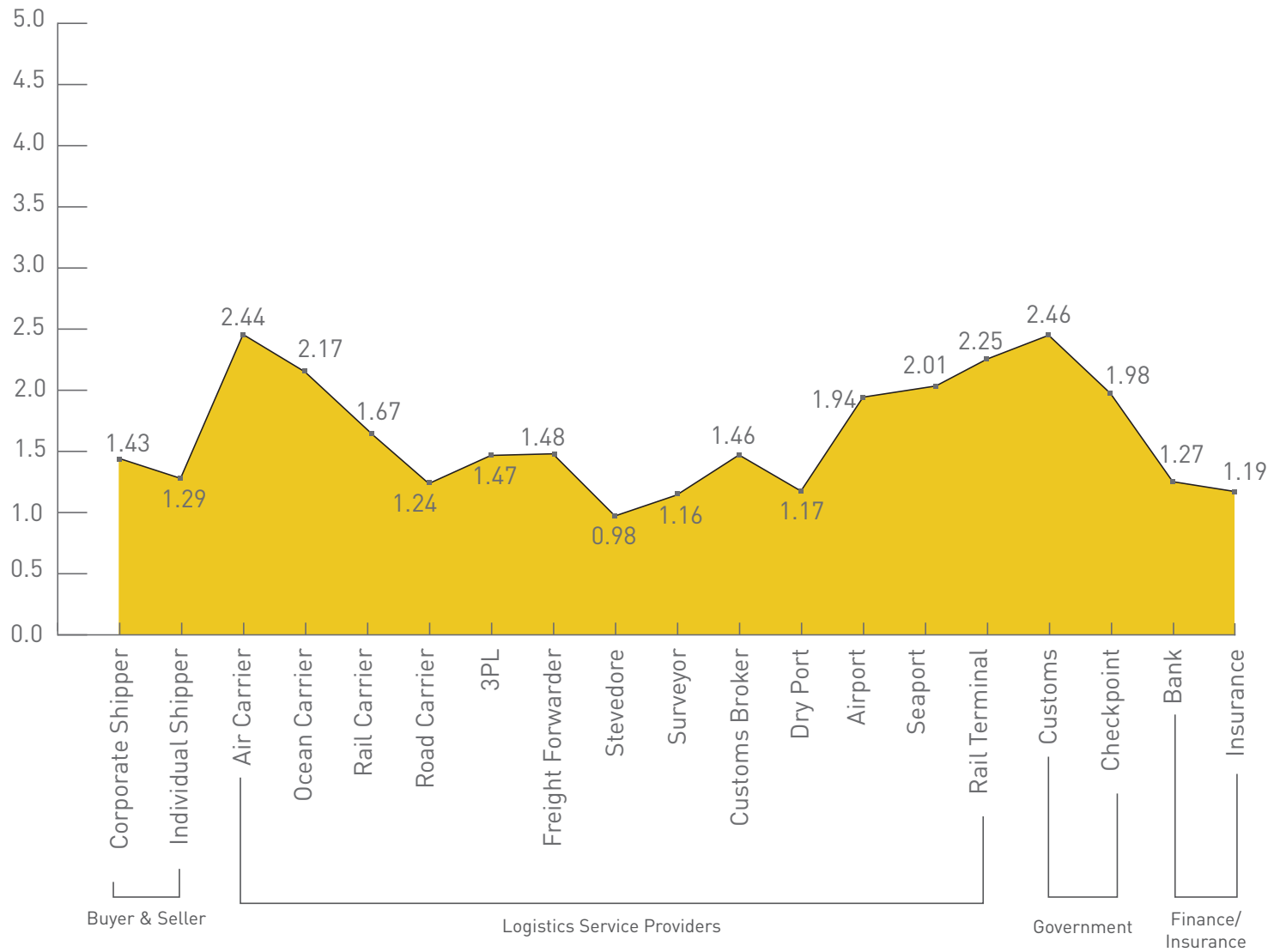
The Pampas-AMBA (1.52) region with the busiest industrial activity and significant export volumes scored the highest on Tracking & Visibility. The difference between the highest and the lowest scores is minimal at 4.8%, indicating a countrywide opportunity to enhance Tracking & Visibility scores.

When the right type of innovation for enhancing Tracking & Visibility is introduced, coupled with increases in Integration and E-Documentation capabilities, Argentina can improve its planning capabilities and reduce operating inefficiencies while enhancing Cargo Security.



## Tracking & Visibility by Trade Cluster

- Some participants involving government use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

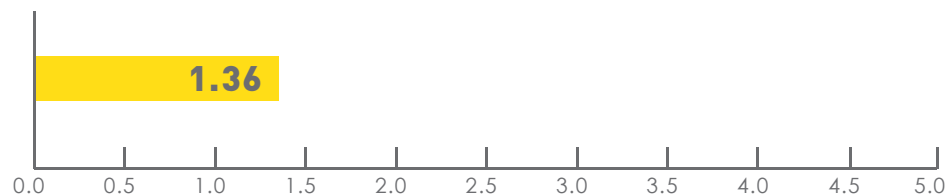
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

### Argentina's Overall Competence Score

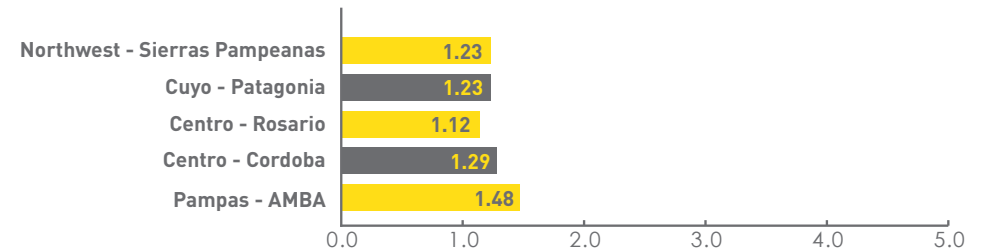
The overall national Competence level in Argentina is 1.36. Given that a score of 5.0 indicates maximum efficiency, Argentina's score indicates a low level of Competence and an opportunity for Argentina to leverage its skilled and talented workforce to achieve significant improvement.



### Competence by Economic Zone

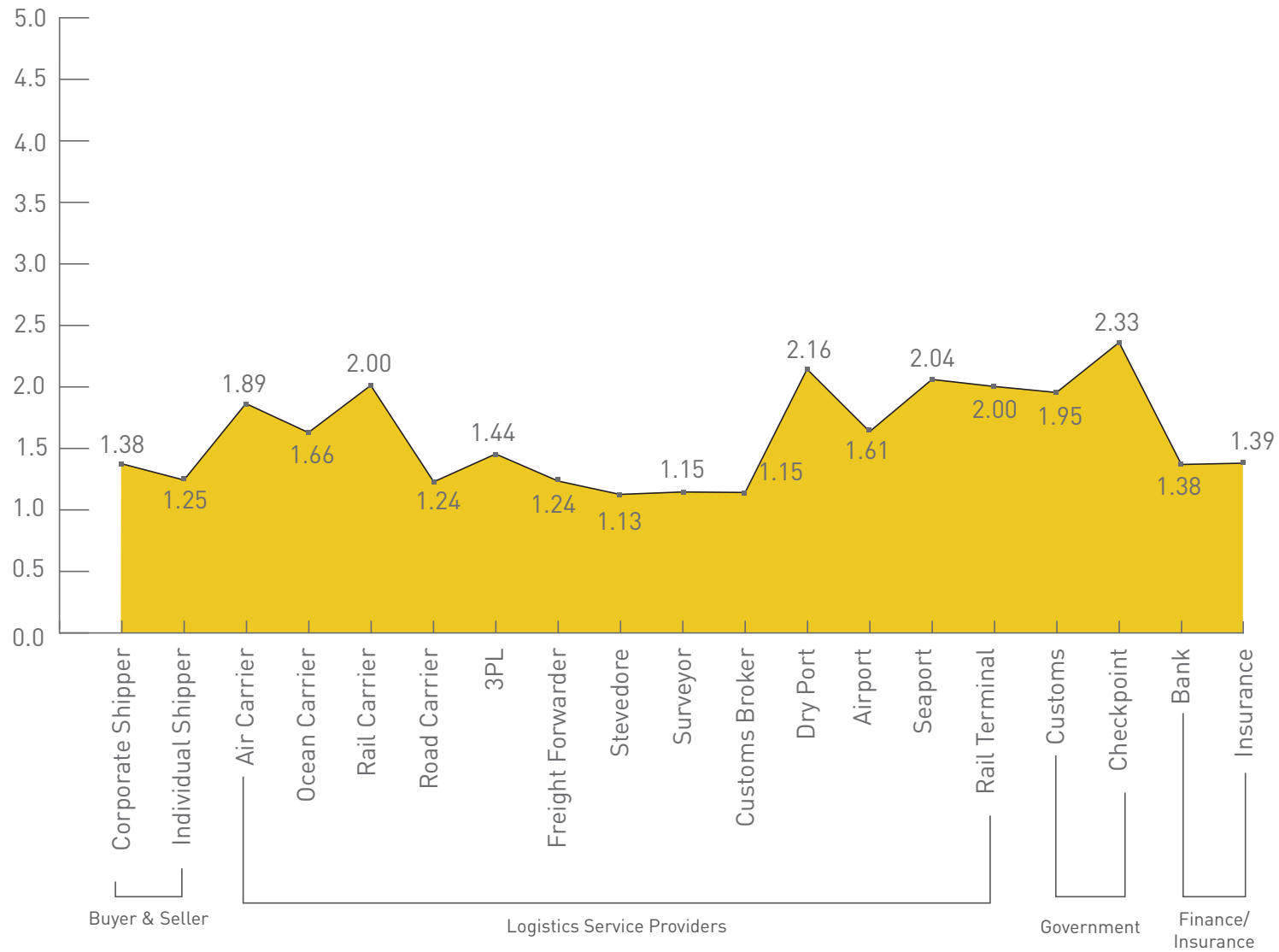
The Competence scores across the regions are consistent with the difference between the highest and the lowest scores being moderate at 7.2%. The highly industrialized and urbanized Pampas-AMBA (1.48) zone scored the highest on Competence, primarily due the concentration of educational institutions that make an educated and well-trained workforce available to businesses. The other zones scored relatively lower, indicating the need for providing training and necessary monitoring tools for its workforce to conduct their work efficiently.

With the use of more advanced tools to transform contractual obligations into electronic metrics to monitor job completion, and to escalate when necessary, the Competence level of employees can be improved to achieve a more superior level across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines across Argentina.



## Competence Efficiency by Trade Cluster

- Government participants train a few employees, some of the time
- Those participants who automated the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

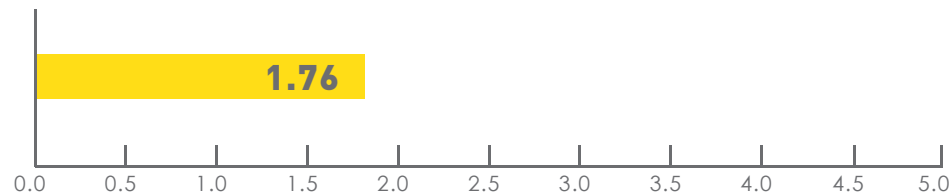
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security efficiency, without any horizontal integration, it can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

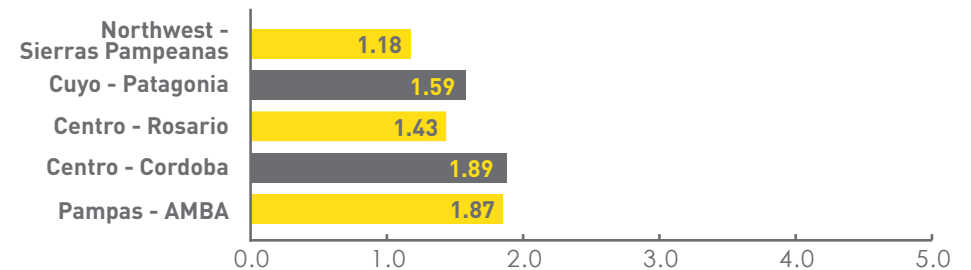
### Argentina's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.76 indicates Argentina's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Argentina's level of Cargo Security nationwide can be improved.



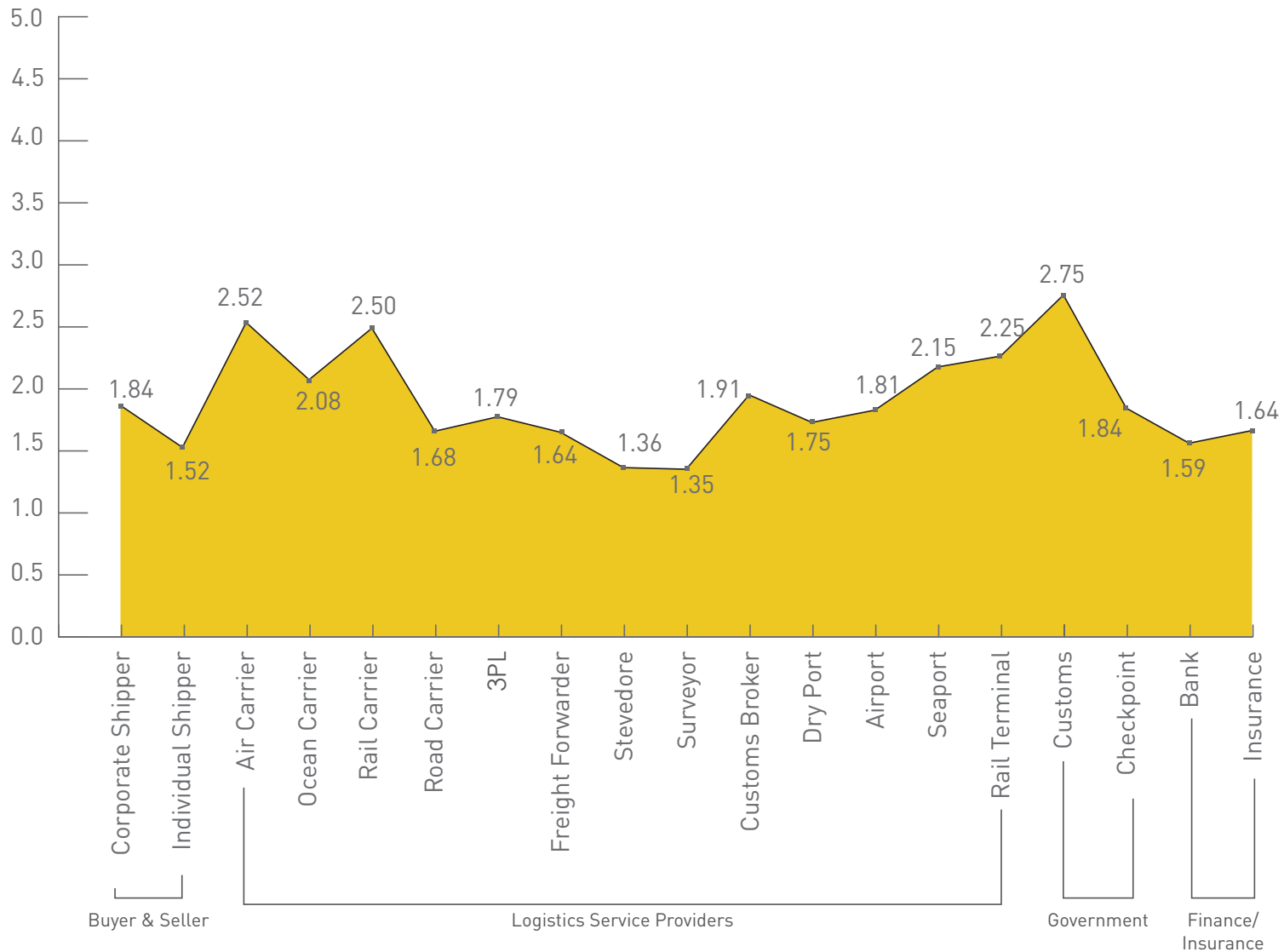
### Cargo Security by Economic Zone

The Centro-Cordoba (1.89) and Pampas-AMBA (1.87) zones, with their export oriented and precision manufacturing industries have scored higher than the other zones. There are significant disparities in the scores among the zones, with the difference between the highest and the lowest scores being high at 14.2%, indicating the need for implementing new measures that can enhance the Cargo Security efficiency across all the zones and positioning Argentina for conducting its trade in global value chains more securely.



### Cargo Security Efficiency by Trade Cluster

- Less than 20% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



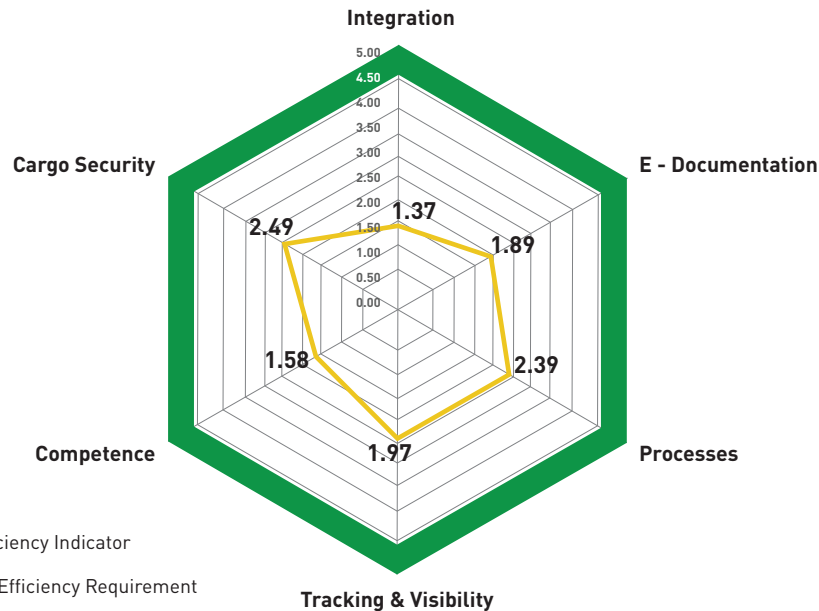


## Australia's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Australia's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Australia Shipment and Trade Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Australia SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon implementation of the Australia SEA Report recommendations, Australia can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 61.6 billion, placing Australia at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 56 billion and create 400,000 jobs by 2030, meeting the economic ambitions of Australia.

### Australia's Trade Efficiency Based on 21st Century 6 Elements Trade Efficiency Indicators (21-6-EI)



# INTEGRATION

## Findings – Data

Integration Efficiency scale in brief:

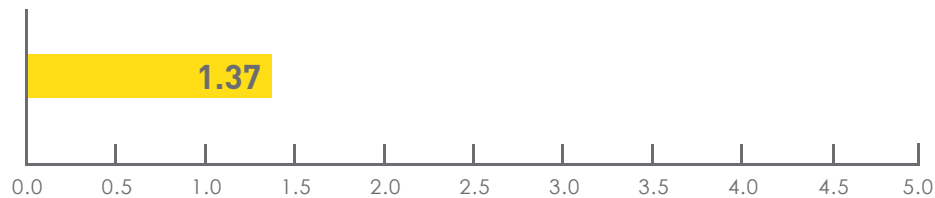
**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/e-mail for communication, and a high degree of data redundancy.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## Australia's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Australia. Collectively they have scored 1.37 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

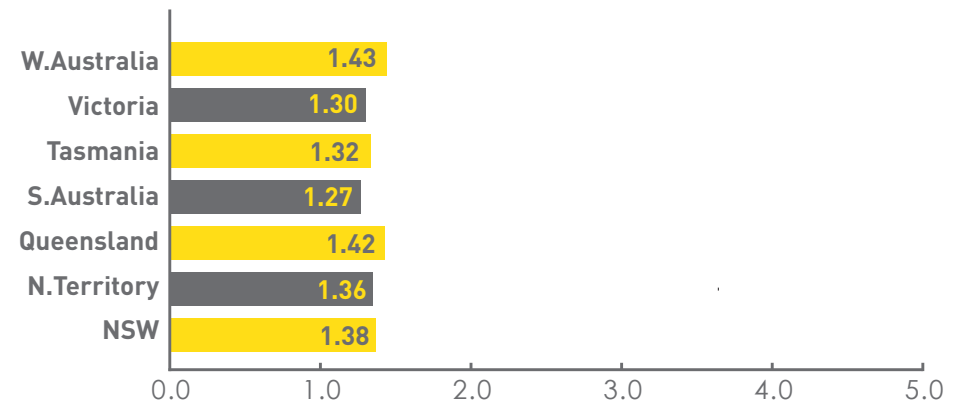
Through the Integrated Cargo Security (ICS), the Australian government has invested in order to integrate its services with the private sector. Implemented in October 2004, ICS is an example of Customs and industry working together to provide an efficient and consistent approach to improve the facilitation of trade. Similar focus on Integration across all the trade participants is necessary to significantly improve Australia's overall Integration score.



## Integration by Economic Zone

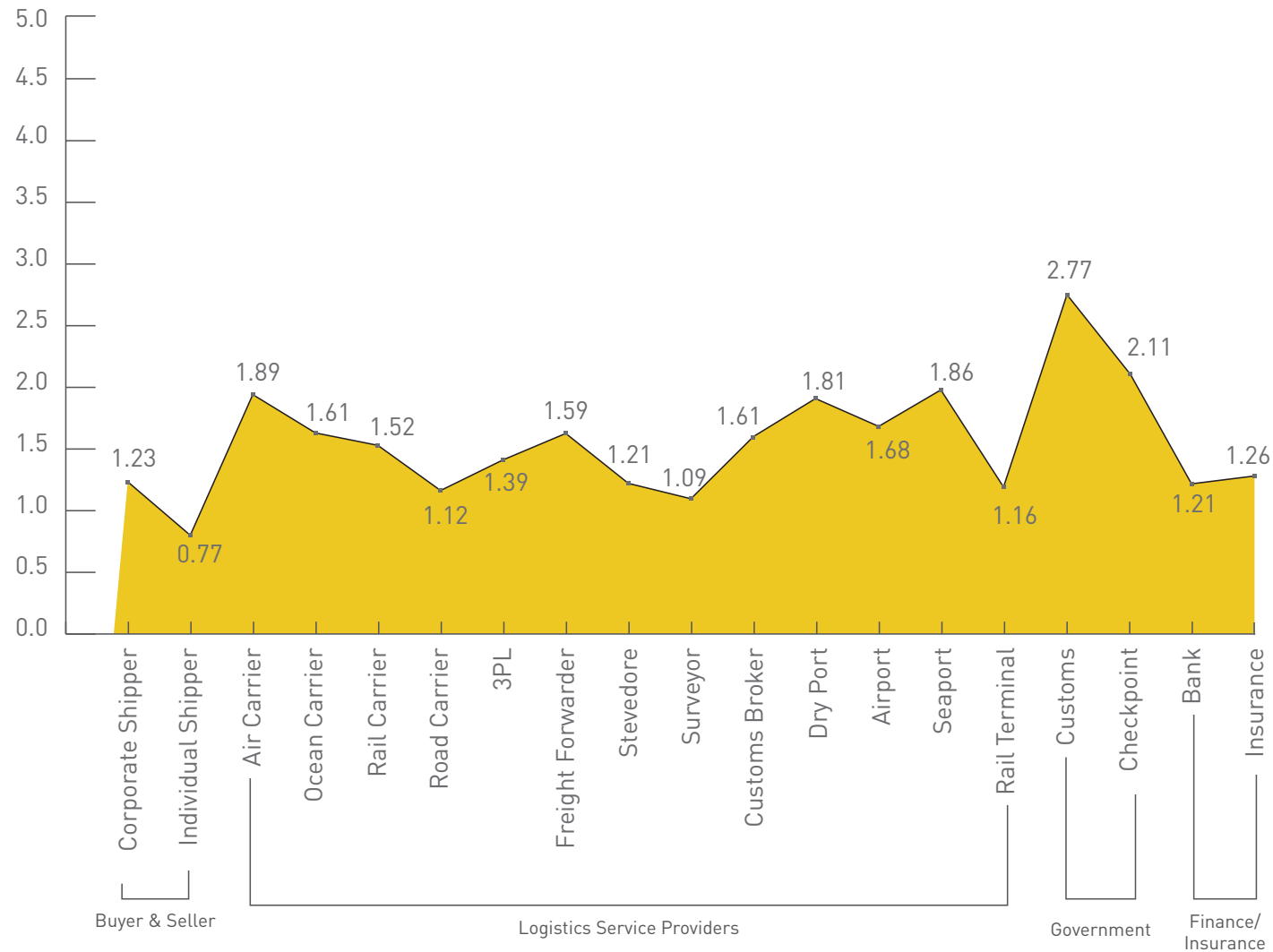
The eastern part of Australia consisting primarily of the NSW (1.38) and Victoria (1.30) zones, is home to the majority of Australia's trade, service and financial industries. It also contains most of Australia's major urban centers. Western Australia (1.43), on the other hand, contains the majority of Australia's natural resources industries, including iron ore, gold, oil and natural gas.

The contrast between these zones has often led to disagreements within the Australian government over economic development policy. Examining the Integration score by Economic Zone, the difference between the lowest and the highest is 3.2%. This equal distribution provides a foundation for all trade participants, regardless of economic zone, to reap the full benefits when the right innovation is introduced to the country.



## Integration Efficiency by Trade Cluster

- 90.8% of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 96.1% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

## PROCESSES

### Findings – Data

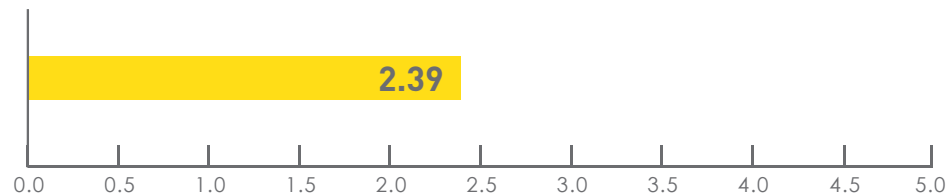
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Australia's Overall Processes Score

The following result represents the overall national Processes score assessing the handling of the shipment flow through the trade pipeline. Collectively, the trade participants in Australia have scored 2.39 out of a possible 5.0 on the 21-6-EETI scale.

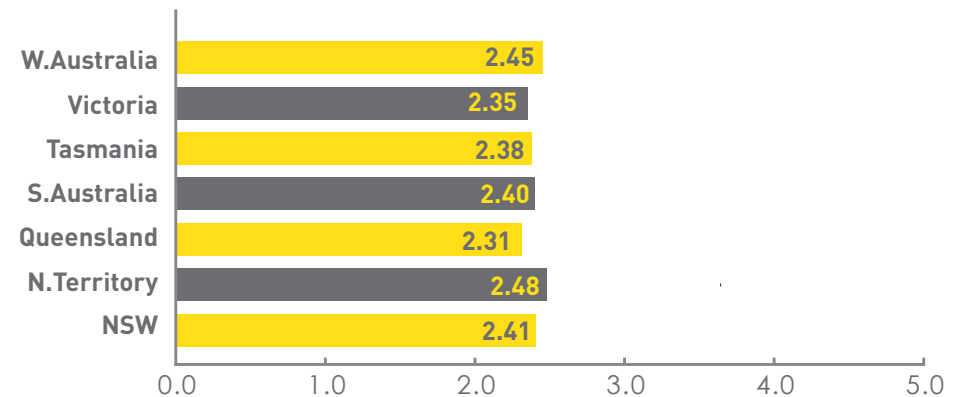


### Processes by Economic Zone

When we look at the Processes scores by Economic Zone, all seven zones show some established processes due to investment in vertical in-house systems. However, because trade is horizontal in nature, the efficiency that can be gained through further vertical investment is very limited.

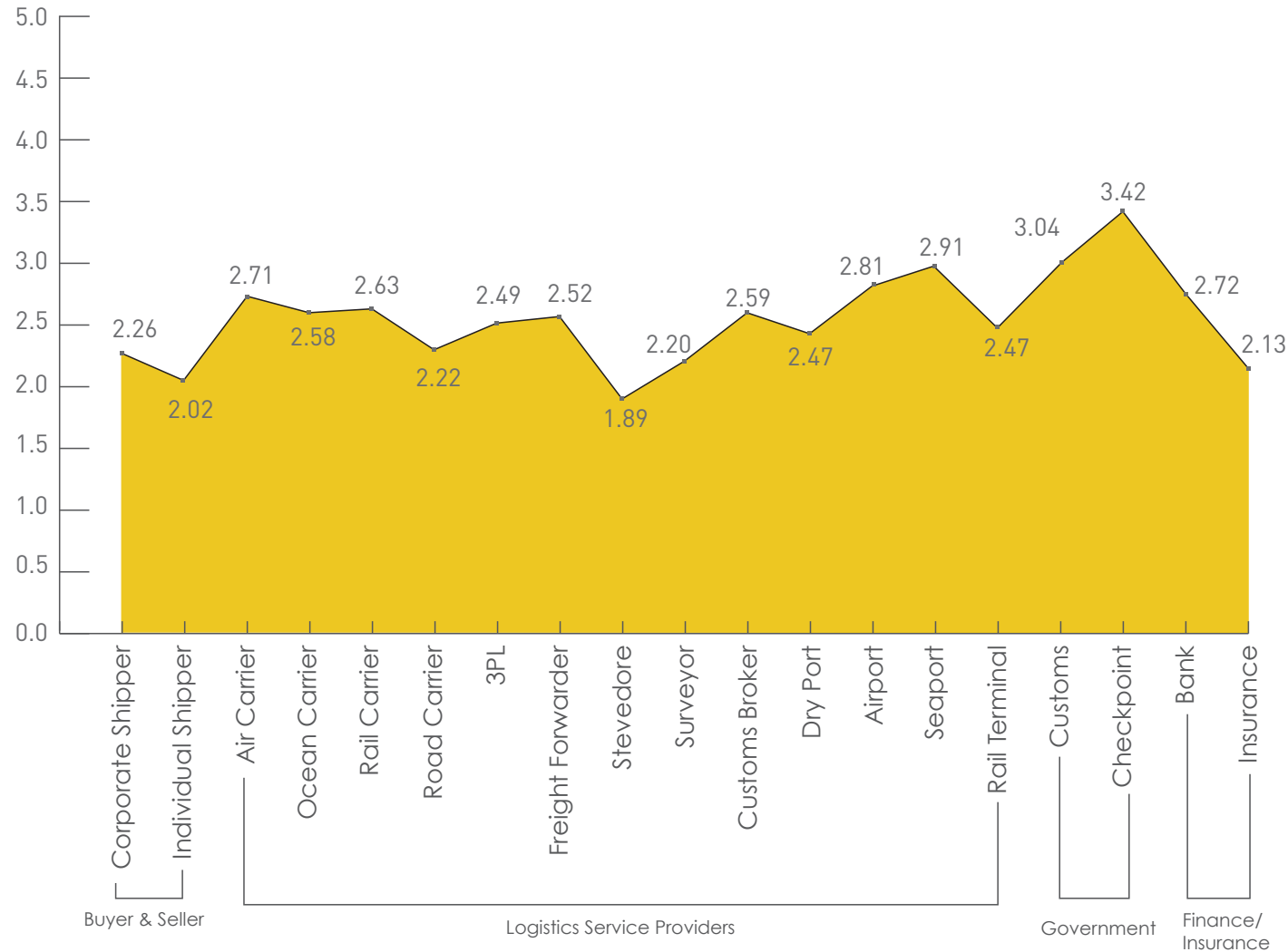
The highest score for Processes in the N. Territory (2.48) zone is primarily due to the presence of agricultural, mining and fuels industries that require well-defined processes. Similarly, the scores in the New South Wales (2.41) and Victoria (2.35) zones are driven by the major seaports, airports, large asset based carriers and international companies concentrated in these zones. These organizations have invested in their vertical processes to optimize the handling of the shipment in their jurisdictions.

The difference between the score of the lowest and the highest zones is 2.8%. These scores provide an ideal starting point for horizontal process optimization across all economic zones.



## Processes Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 7.1% of participants use ERP systems; those firms that automate processes, typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

## E-DOCUMENTATION

### Findings – Data

E-Documentation Efficiency scale in brief:

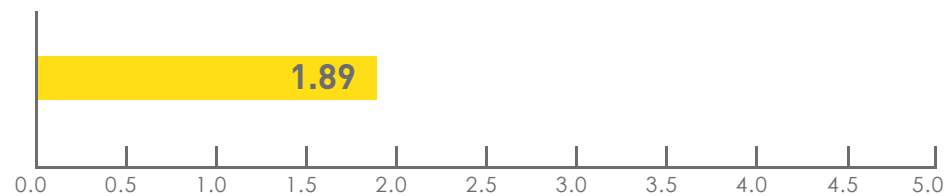
**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal efficiency.

### Australia's Overall E-Documentation Score

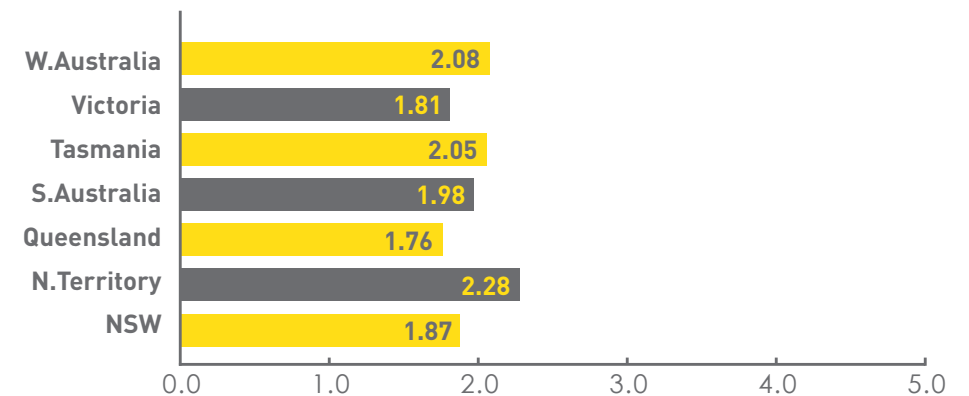
The overall national E-Documentation score in Australia is 1.89, which indicates that some of the 19 clusters are moving from paper to E-Documentation, influenced by the Customs clearance process provided through ICS.

This result is consistent with the observation of the Australian Bureau of Statistics (ABS), which found that the uptake and prevalence of businesses with Internet access has increased significantly in recent years. Further, there is a positive shift towards the placing and receiving of orders online as businesses and consumers become more comfortable with the online environment.



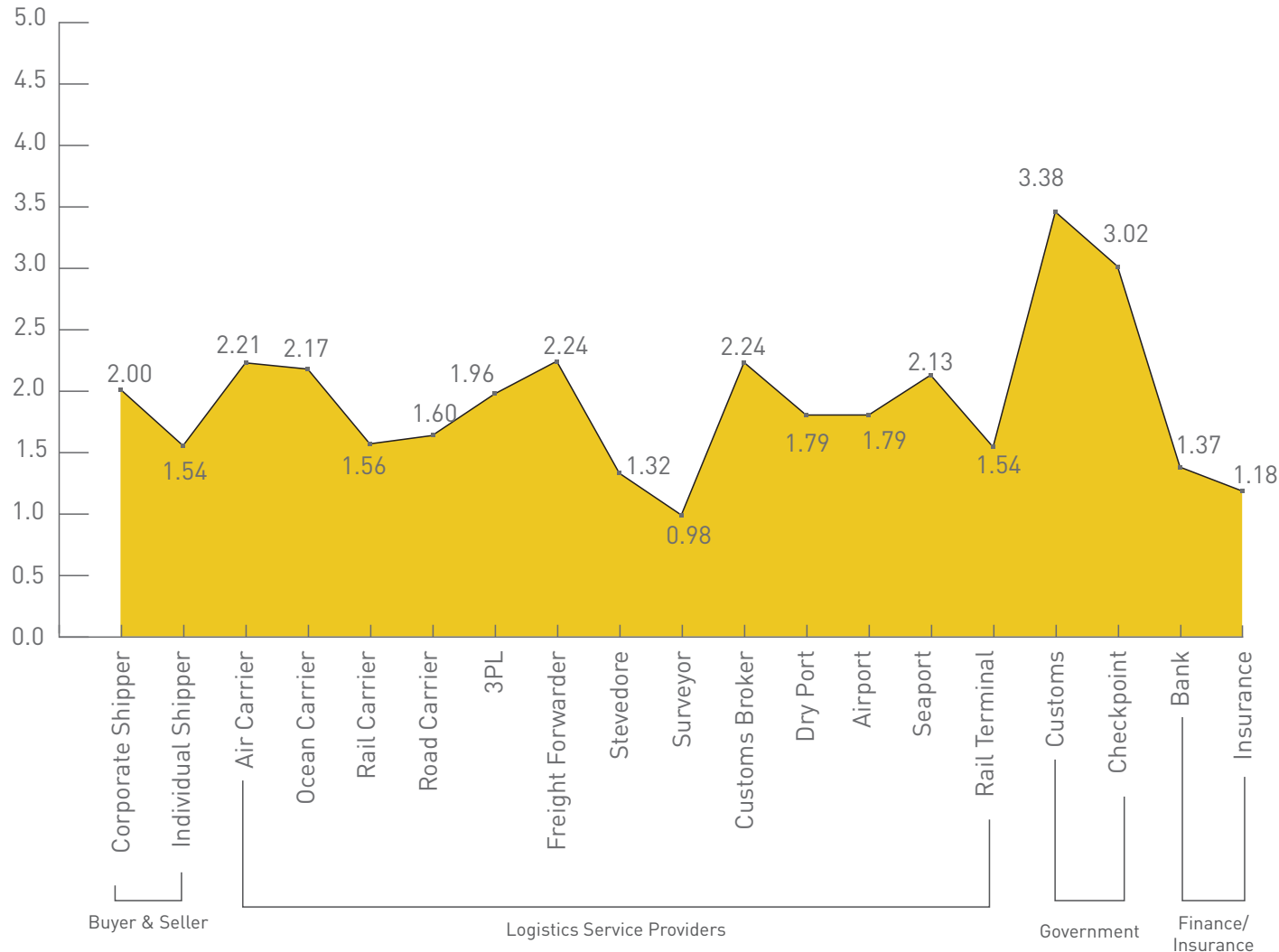
### E-Documentation by Economic Zone

Examining the E-Documentation scores by Economic Zone, the range of difference between the lowest and the highest scores is 10.4%. This consistency across economic zones indicates that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed and adopted.



## E-Documentation Efficiency by Trade Cluster

- ▶ 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ▶ ≤20% of trade participants offer E-Documentation submission to their trade partners



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

## TRACKING & VISIBILITY

### Findings – Data

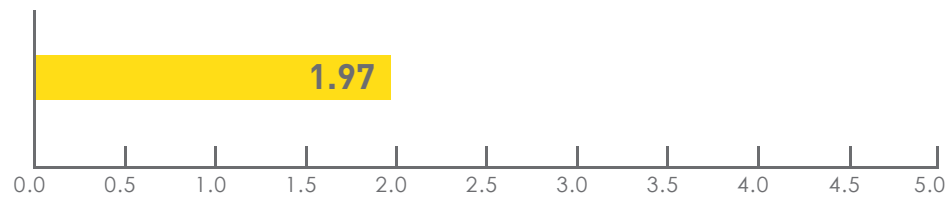
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability.

**Level 5** = Optimum level of global Tracking & Visibility capability.

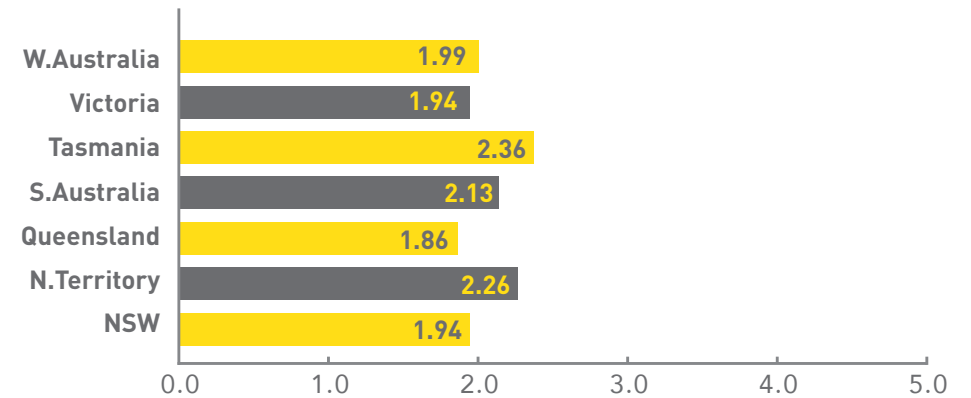
### Australia's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in Australia is 1.97, which indicates that significant steps are necessary in order to attain an optimum level of Tracking & Visibility efficiency performance.



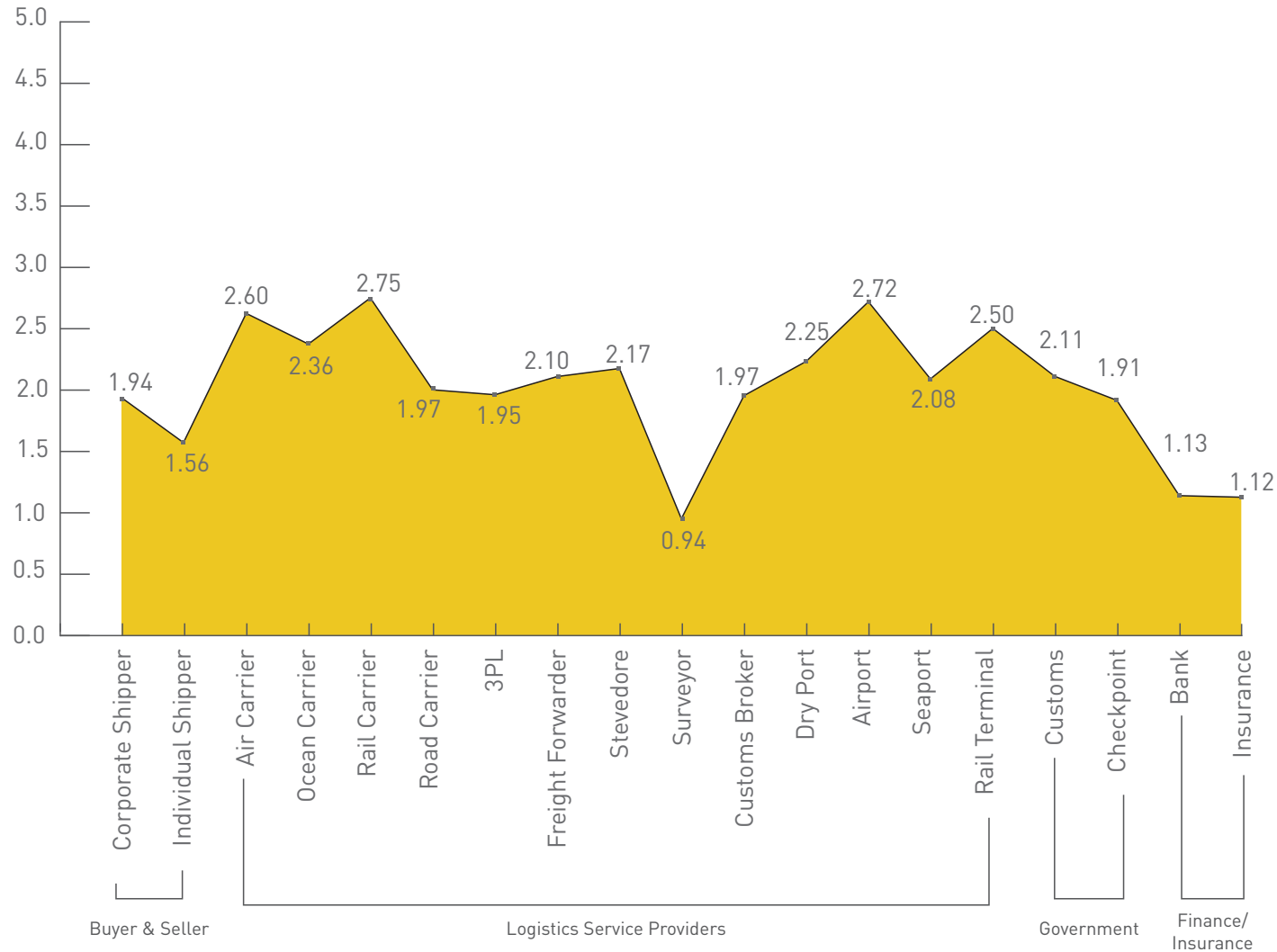
### Tracking & Visibility by Economic Zone

When we look at Tracking & Visibility by Economic Zone, it is apparent that all seven zones are consistent, with the difference between the highest and lowest scores being only 10%. This relatively even distribution indicates that there is a country-level opportunity to improve Tracking & Visibility Efficiency.



## Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

## COMPETENCE

### Findings – Data

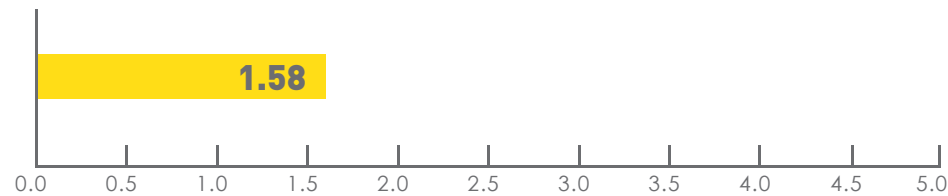
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade pipeline.

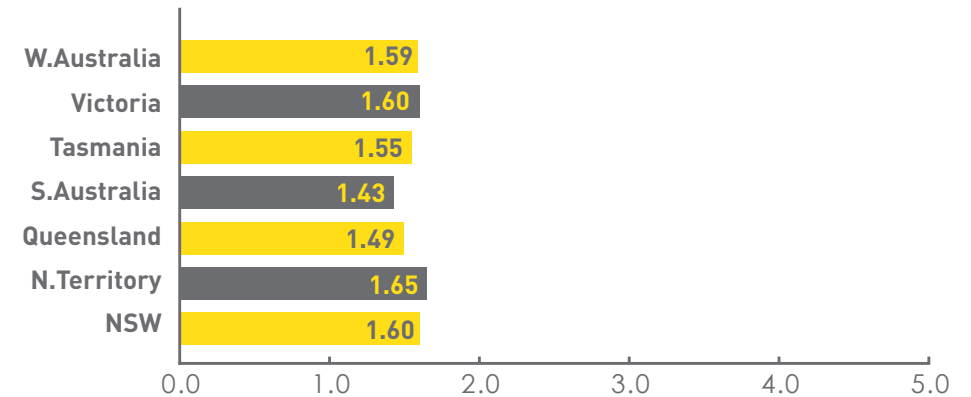
### Australia's Overall Competence Score

The overall national Competence score in Australia is 1.58. Given that a score of 5.0 indicates maximum efficiency, Australia's score indicates a moderately low level of Competence and an opportunity for Australia to leverage its highly skilled workforce to achieve significant improvement.



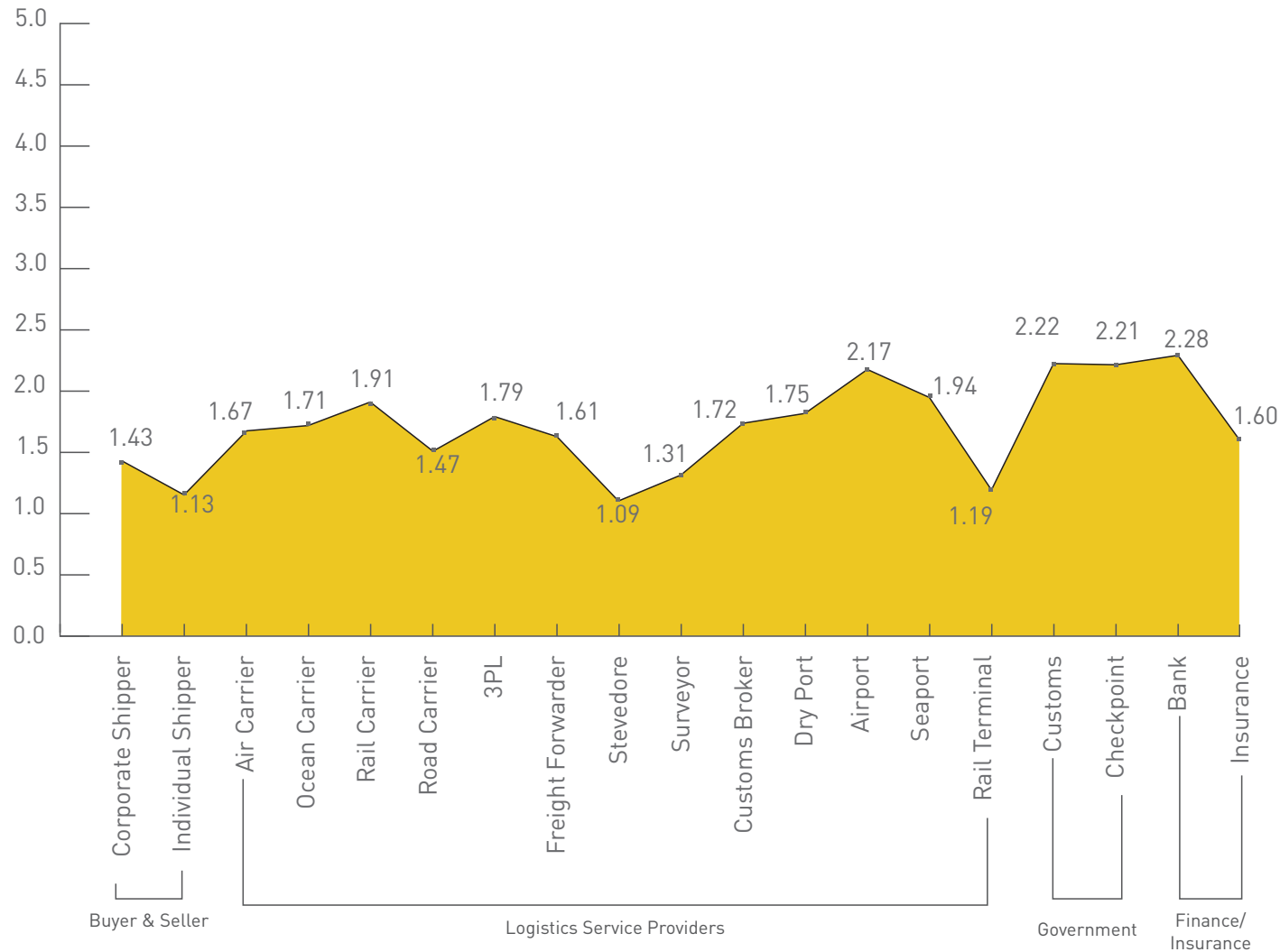
### Competence by Economic Zone

When we analyze the Competence results achieved across Economic Zones in Australia, the range of difference between the lowest and the highest scores is 4.4% . As in other areas, this indicates a comparatively even Competence level across all regions.



## Competence by Trade Cluster

- Participants train a few employees, all of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

## CARGO SECURITY

### Findings – Data

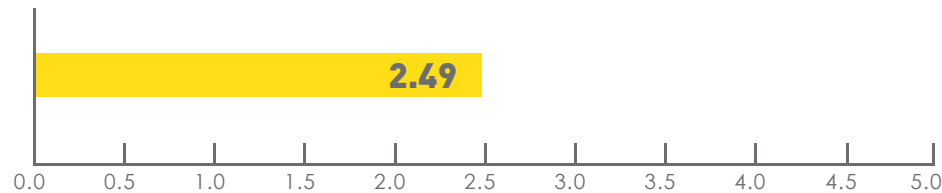
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures.

**Level 5** = Presence of effective Cargo Security procedures.

### Australia's Overall Cargo Security Score

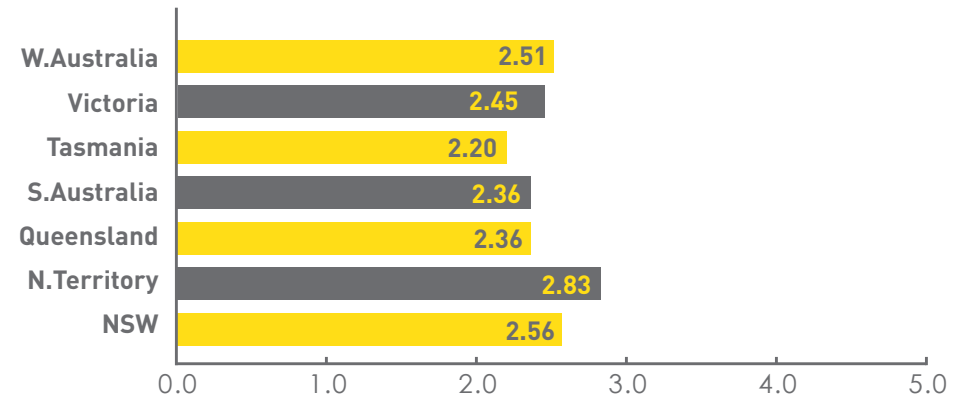
The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of cargo security measures, 2.49 indicates Australia's emphasis on the importance of and investment in improving Cargo Security.



### Cargo Security by Economic Zone

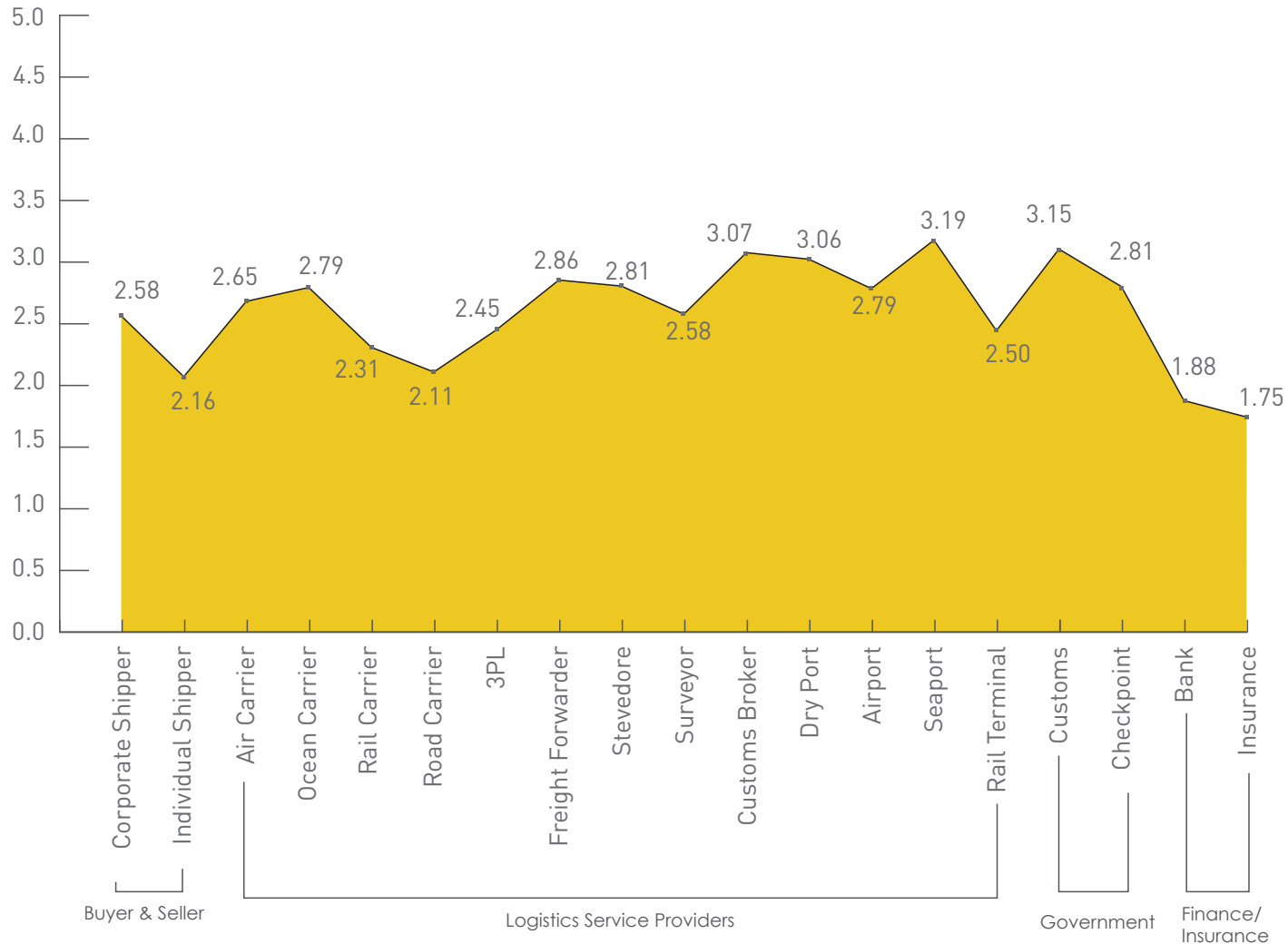
When we look at Cargo Security by Economic Zone, we see that all seven zones are consistent. The difference between the highest and lowest results is 12.6%. These relatively even scores indicate that implementation of new measures across all regions can be efficiently accomplished.

The higher scores in Northern Territory and New South Wales zones reflect the high volume and nature of goods shipped in these regions, such as petroleum, natural gas, chemicals and biotech, which require additional security and availability of shipment security data.



## Cargo Security Efficiency by Trade Cluster

- <20% of trade partners ask for Cargo Security information—domestic or globally
- The shipment security information sent and received is 50-74% complete



\*The Government clusters (Customs and Checkpoints) were not surveyed due to time constraints. Results are indicative of these clusters based on interpolation of the responses of participants who deal with them, as well as Australia's technology investment in Customs E-Services.

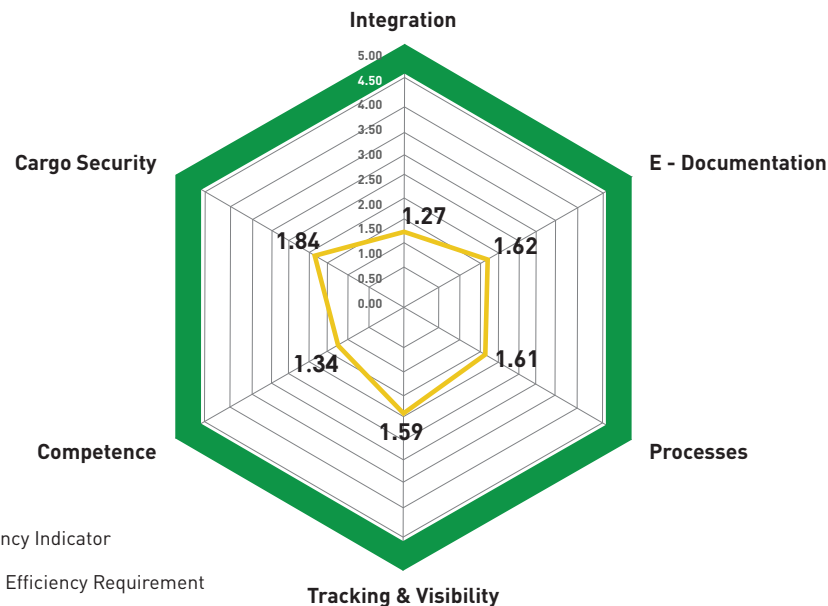


## Brazil's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Brazil's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Brazil Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Brazil SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Brazil SEA Report recommendations, Brazil can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 109.3 billion, placing Brazil at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 202 billion and create 9.5 million jobs by 2030, meeting the economic ambitions of Brazil.

### Brazil's Trade Efficiency Based on 21st Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



## INTEGRATION

### Findings – Data

Integration Efficiency scale in brief:

**Level 1** = Absence of effective integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade participants, a participant can score 2.5 at the most.

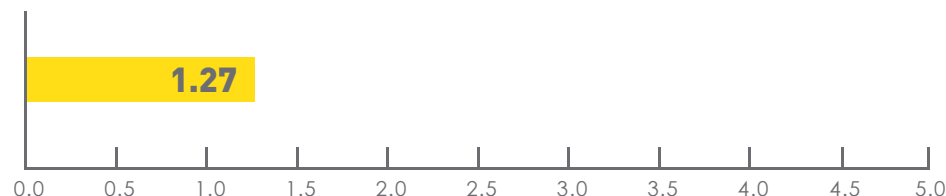
**Level 5** = Presence of effective integration and communication systems, low degree of data redundancy.

### Brazil's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Brazil. Collectively they have scored 1.27 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

In April 2014, the Brazil Secretariat of Foreign Trade (SECEX) launched the National Single Window online portal for international trade operations to unify all systems involved in importing and exporting goods, while streamlining and simplifying customs procedures. Advanced technology adoption has been slow in Brazil though; nearly 92.4% of businesses in Brazil do not have an integrated system and 95.5% of exchanges of shipment data are manual, hindering the economic integration of Brazil both nationally and internationally.

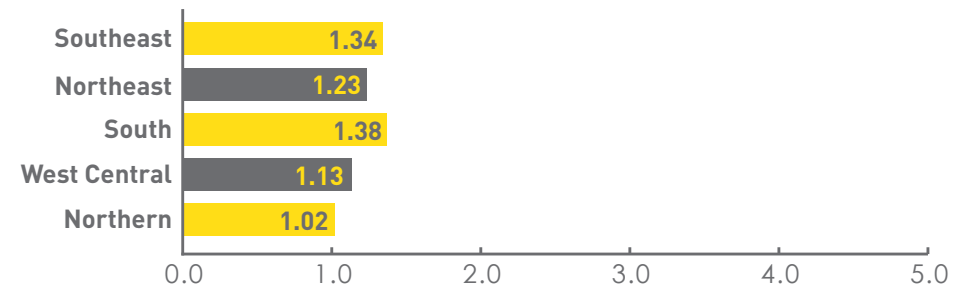
On the other hand, the National Single Window Program is an example of collaboration between Customs and Brazilian businesses to provide an efficient approach to facilitate trade. Similar focus on Integration across all the trade participants is necessary to improve Brazil's overall Integration score.



### Integration by Economic Zone

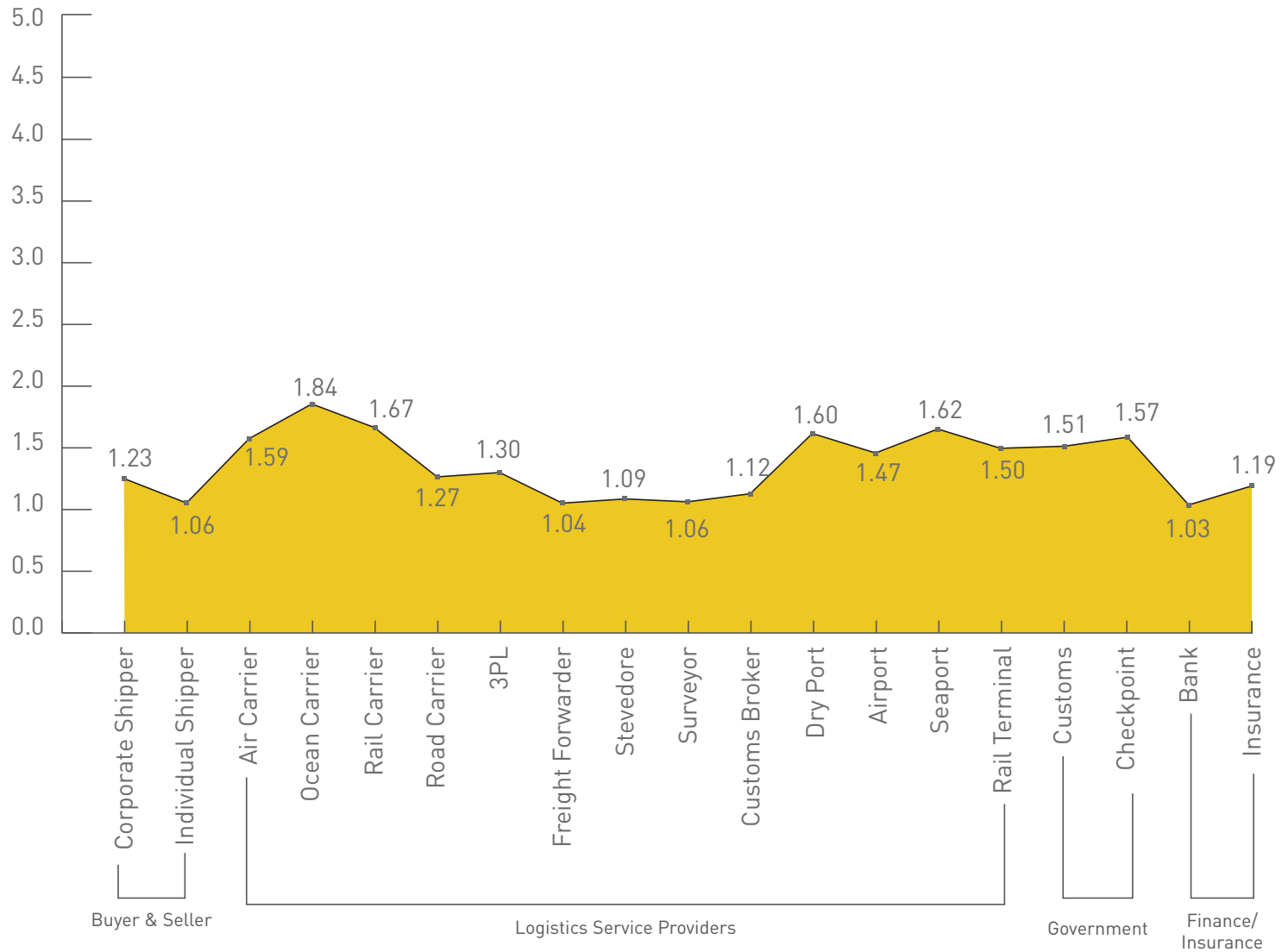
Brazil is the world's largest producer of coffee, sugar cane, orange and soybean. It is also the world's 2nd largest producer of iron, 3rd largest producer of bauxite, the 2nd largest producer of corn and organic foods. In addition, it is the 6th largest producer of motor vehicles, attesting to its advanced manufacturing capabilities. This is evident in the high scores for the South (1.38) and Southeast (1.34) zones that are primarily responsible for this economic activity.

The difference between the scores of the lowest and the highest zones is 7.2% or the 5-point scale which means that when the right innovation is introduced into the country, it can be quickly and evenly adopted across all zones.



### Integration Efficiency by Trade Cluster

- 92.4% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 95.5% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

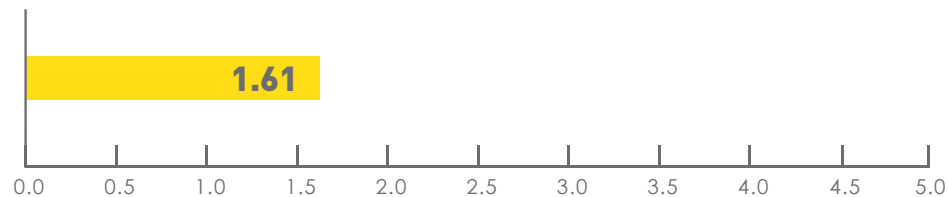
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade lane pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Brazil's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Brazil have scored a 1.61 out of a possible 5.0 on the 21-6-ETEI scale.

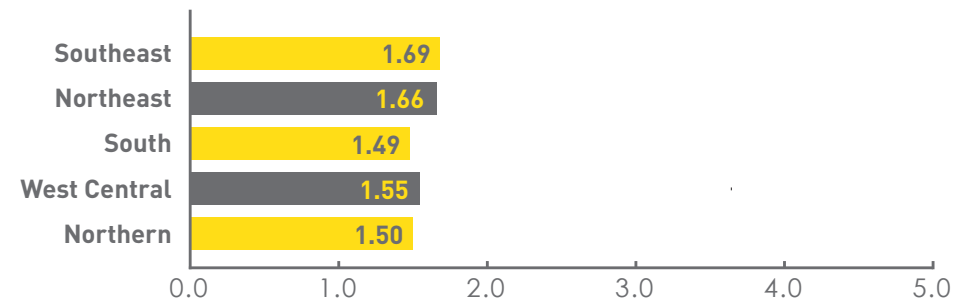


### Processes by Economic Zone

When we analyze the Processes scores by Economic Zone, all five zones seemed to have some established processes for the handoff of shipments between trade participants. However, these processes need further integration in order to be optimally efficient.

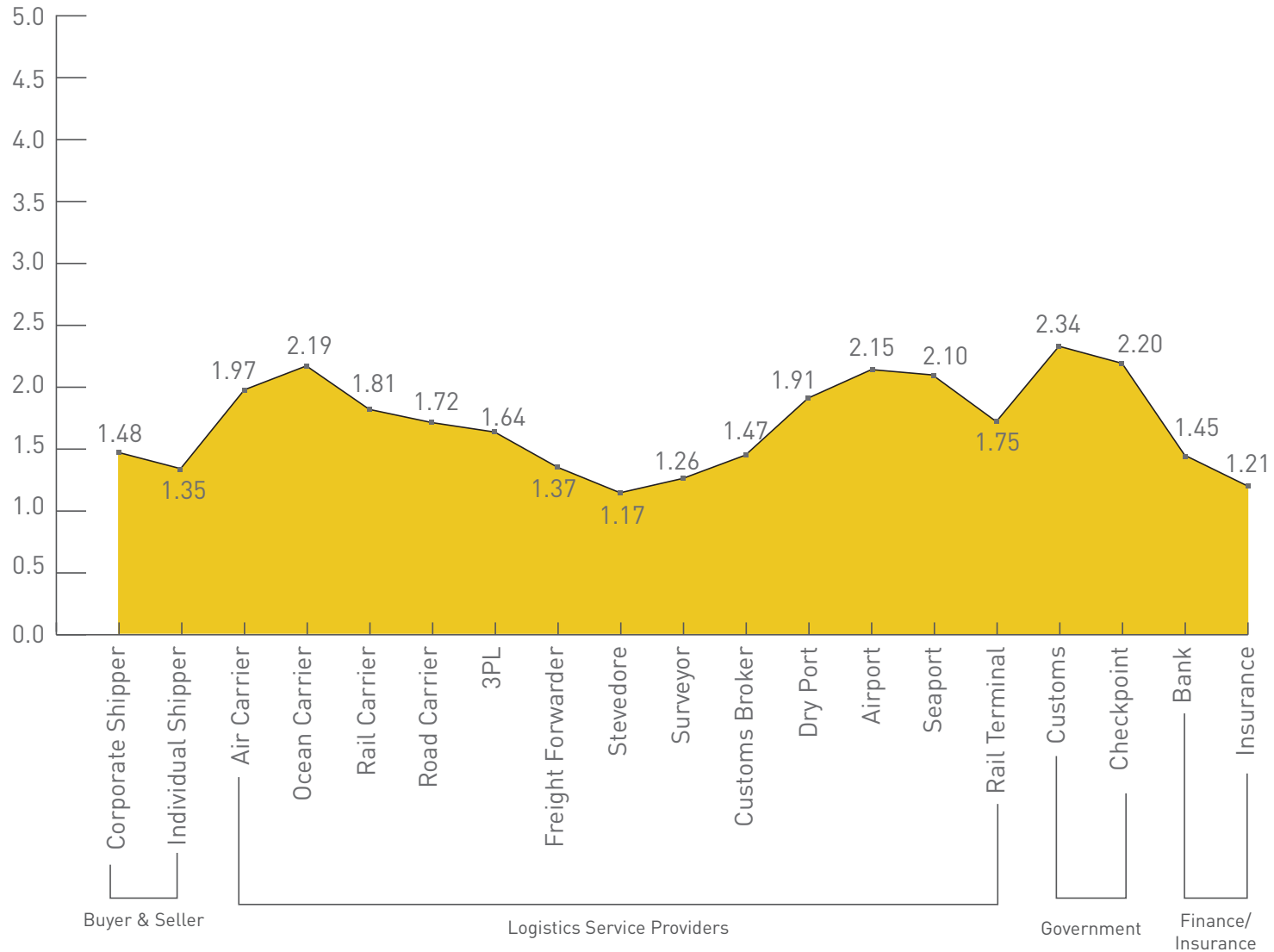
The highest score for Processes in the Southeast (1.69) zone is primarily due to the presence of major industries, economic activity and presence of major infrastructure organizations and carriers in this zone that handle a high percentage of the freight movement in the country. These organizations have invested in their vertical processes to optimize the handling of the shipment in their jurisdictions.

The difference between the highest and the lowest scores is very small at 4%. This indicates a consistency of scores across the zones, thus providing an ideal starting point for horizontal process optimization.



## Processes Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to Processes incompatibility
- 21.6% of participants use ERP systems; those firms that automate processes, typically use off-the-shelf not customized systems
- >30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

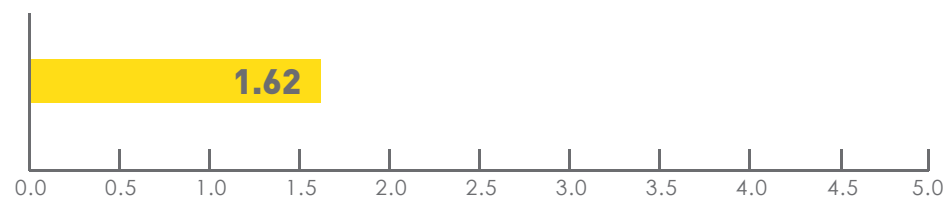
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain at most a score of 2.5.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal efficiency.

### Brazil's Overall E-Documentation Score

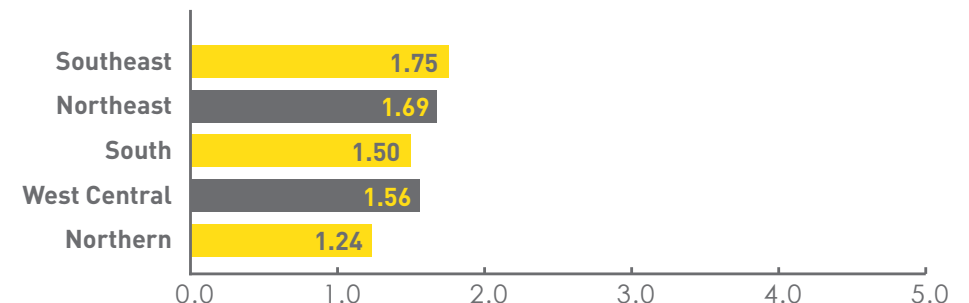
The overall national E-Documentation score in Brazil is 1.62, which indicates that some of the 19 clusters are moving from paper to E-Documentation, influenced by the Customs clearance process and tools provided through the National Single Window portal. In fact, since mid 2015 nearly 95% of import and export documentation has been submitted electronically to the Customs.



### E-Documentation by Economic Zone

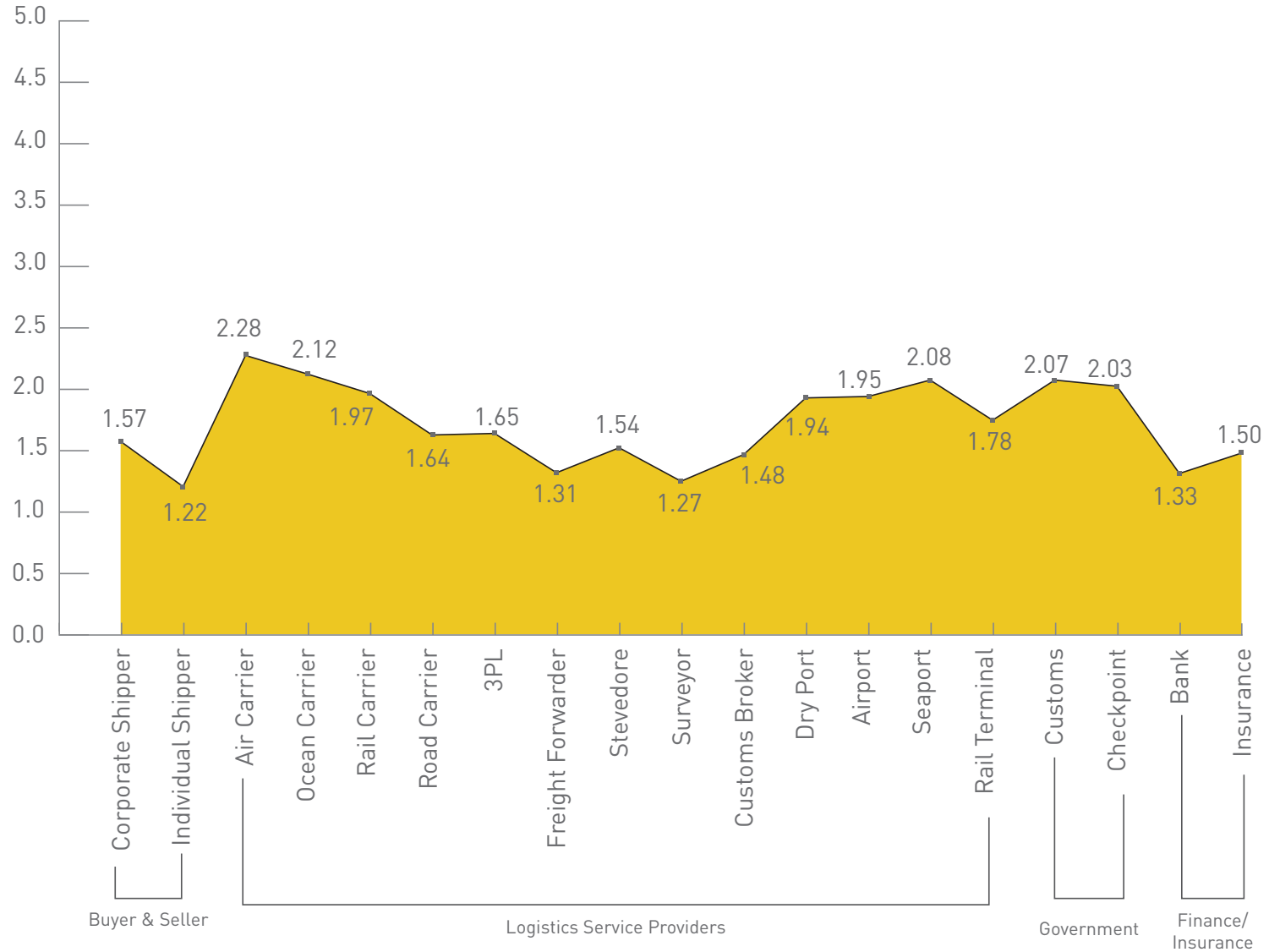
E-Documentation scores are moderately comparable across most Economic Zones. This is mostly influenced by the introduction of the National Single Window portal by the Customs which allows for the on-line submission of declaration forms for import and export. However, this only covers the BSCIFI documentation requirements but it lacks the inter-participant documentation exchange capability.

The presence of the manufacturing, steel, mining and automotive industries in the Southeast (1.75) and Northeast (1.69) zones have contributed to the slightly higher scores in these zones due to their export oriented industry. The difference between the highest and lowest scoring zones is less than 10% on a scale of 5.0. Therefore, when full E-Documentation capability is presented to the country, it can be quickly and readily adopted by all participants towards embracing a truly comprehensive E-Documentation capability.



## E-Documentation Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

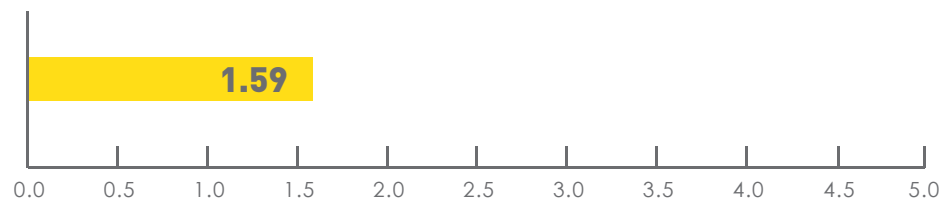
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### Brazil's Overall Tracking & Visibility Score

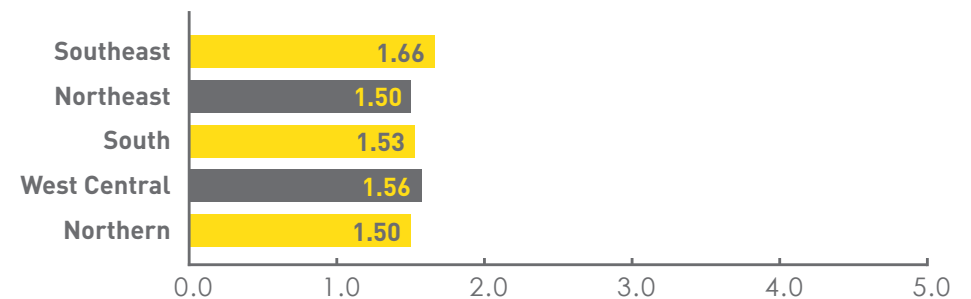
The overall national Tracking & Visibility score in Brazil is 1.59, which indicates that significant steps are necessary in order to attain an optimum level of Tracking & Visibility efficiency performance.



### Tracking & Visibility by Economic Zone

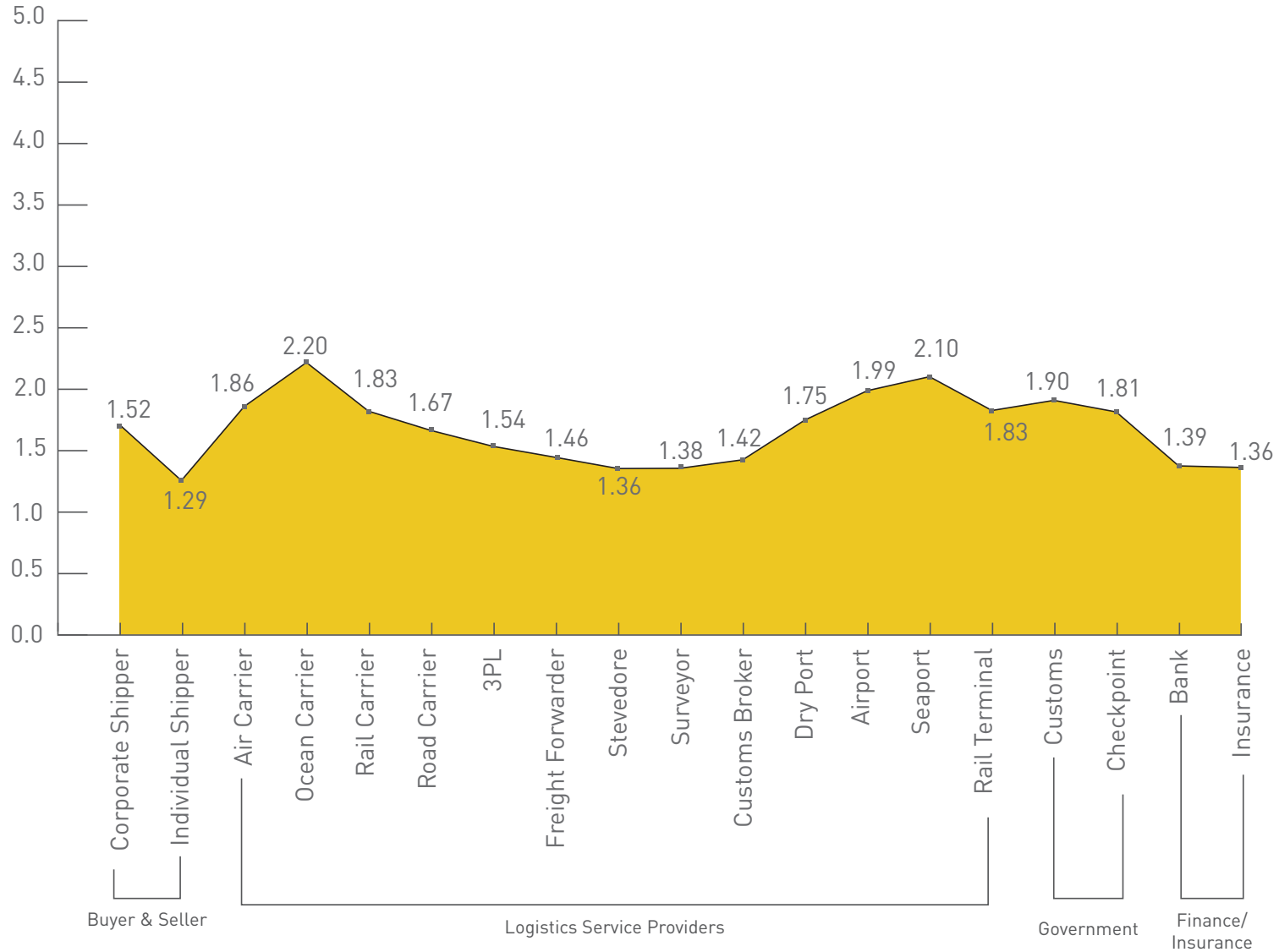
Analyzing Tracking & Visibility by Economic Zone, it is apparent that all zones have comparable scores. The relatively higher scores in the Southeast (1.66) zone is largely driven by major industries of mining, agriculture, steel, pharmaceuticals and car manufacturing, as well as the presence of major Air Carriers, Ocean Carriers, Airports, and Seaports. These organizations have the technology necessary for Tracking and Visibility of shipments through GPS, RFID and other tracking systems.

The difference between the highest and lowest scores is small at 3.2%. This indicates that there is a country-level opportunity to improve Tracking & Visibility across all the zones.



### Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

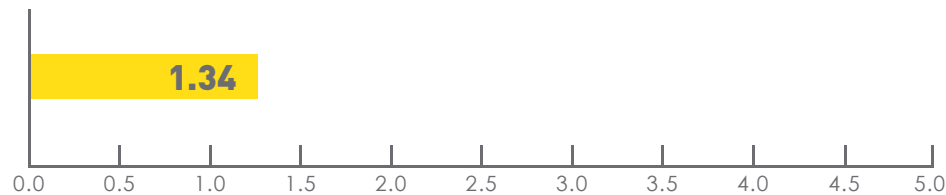
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, it needs all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

## Brazil's Overall Competence Score

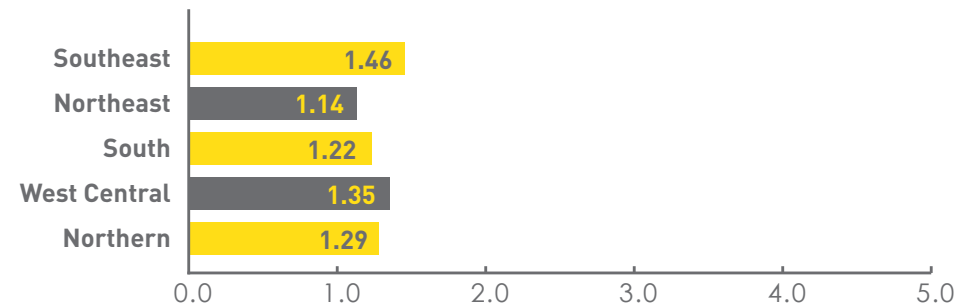
The overall national Competence score in Brazil is 1.34. Given that a score of 5.0 indicates maximum efficiency, Brazil's score indicates an opportunity for Brazil to achieve significant improvement in Competence related to the handling of shipment flow in the trade pipeline. When the right tools to monitor contractual obligations, job completion and escalation are made available, the workforce of Brazil can create the competitive edge needed for Brazil to succeed in the global markets.



## Competence by Economic Zone

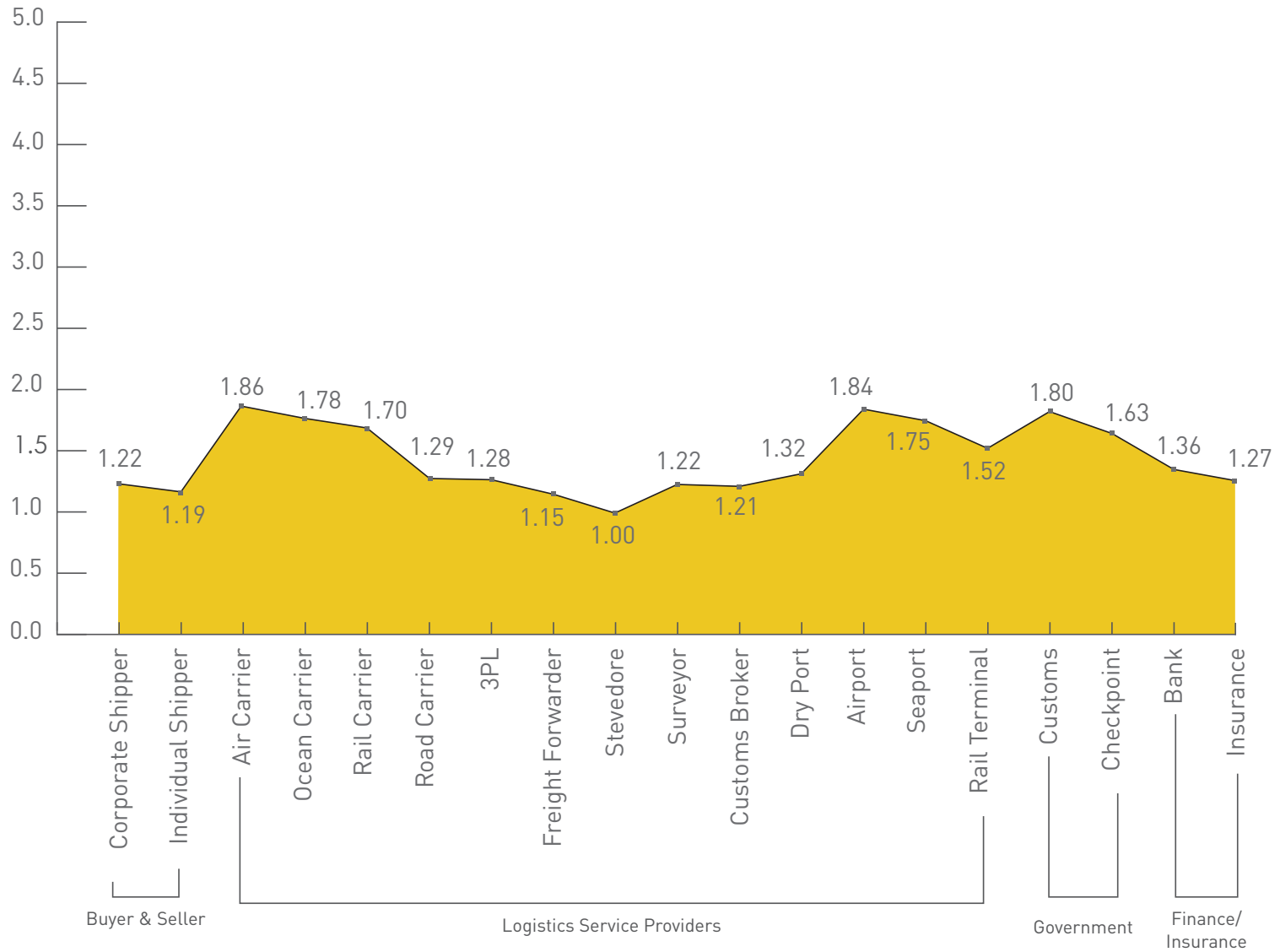
When we analyze the Competence results across the Economic Zones in Brazil, the heavily urbanized and industrialized Southeast (1.46) zone has achieved the highest score due to the presence of major international companies that use information systems to automate the business processes and the availability of an educated workforce in this highly urbanized zone.

The difference between the highest and lowest scores is moderate at 6.4%, indicating a countrywide opportunity to enhance Competence of the workforce. With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate when necessary across the trade pipeline, the Competence of workforce can be improved to achieve superior trade efficiencies across all the economic zones.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automated the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

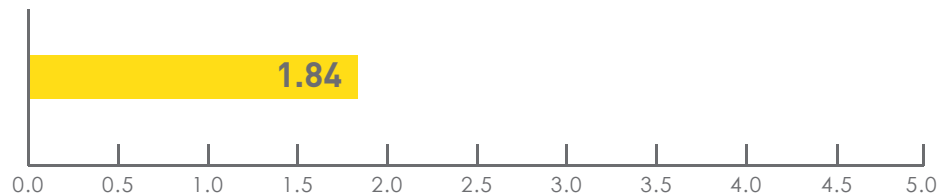
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

### Brazil's Overall Cargo Security Score

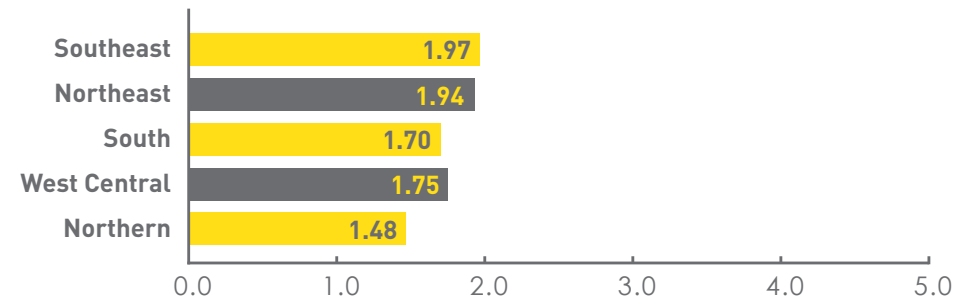
The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score 1.84 indicates Brazil's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Brazil's level of Cargo Security Efficiency nationwide can be improved.



### Cargo Security by Economic Zone

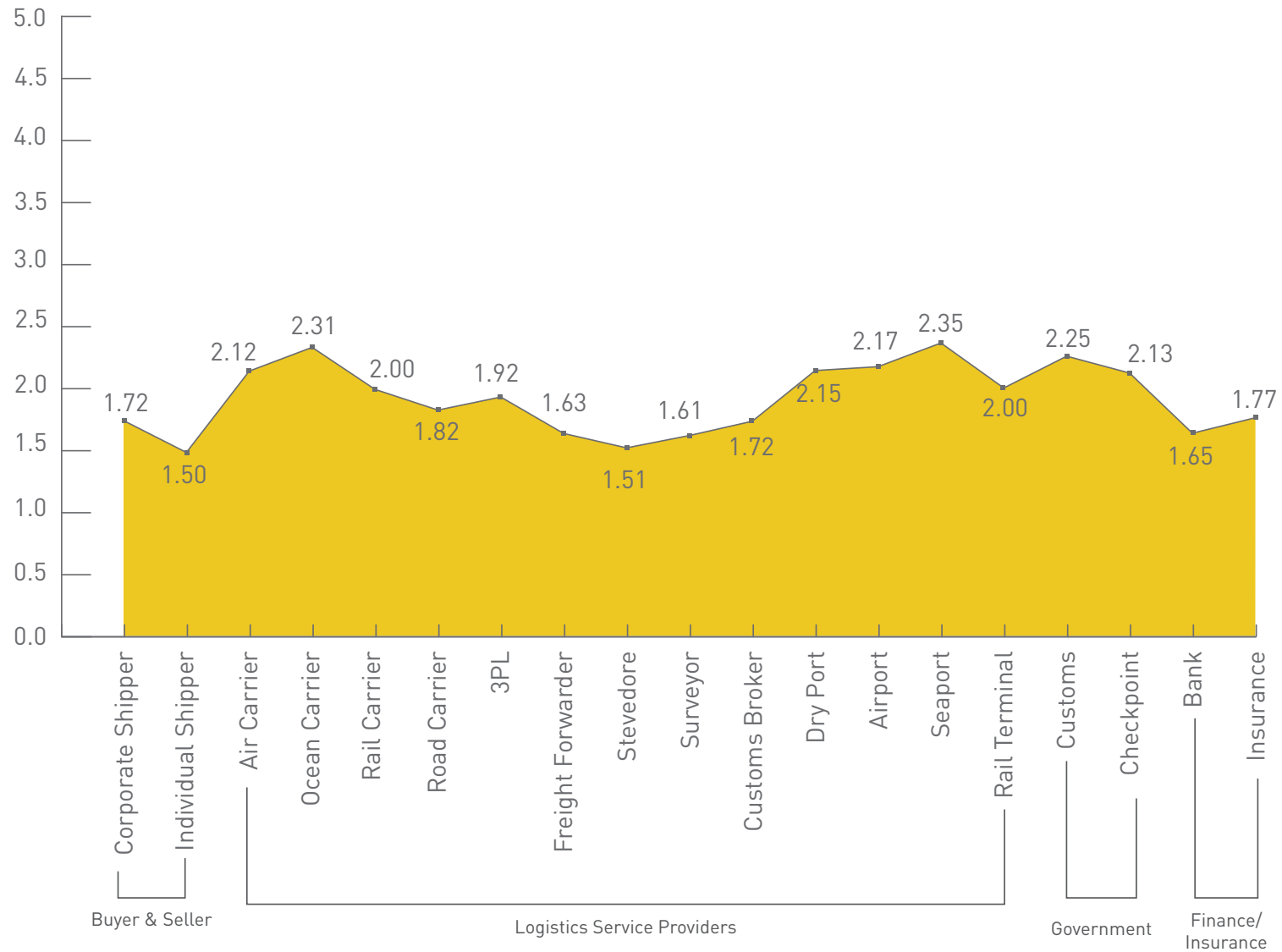
The higher scores in the Southeast (1.97) and Northeast (1.94) zones, reflect the high volume and nature of goods shipped in these zones, such as industrial products, pharmaceuticals, agricultural and farming produce. These industries are required to use the National Single Window for Customs clearance, which allows for higher visibility for ports and government authorities.

The successful launch of the National Single Window is a way forward in the right direction for the Brazilian government. It simplifies information flows between trade participants and government, as well as the submission of information and higher availability of shipment related information for the purpose of Cargo Security Efficiency measures.



## Cargo Security Efficiency by Trade Cluster

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is ≤50% complete



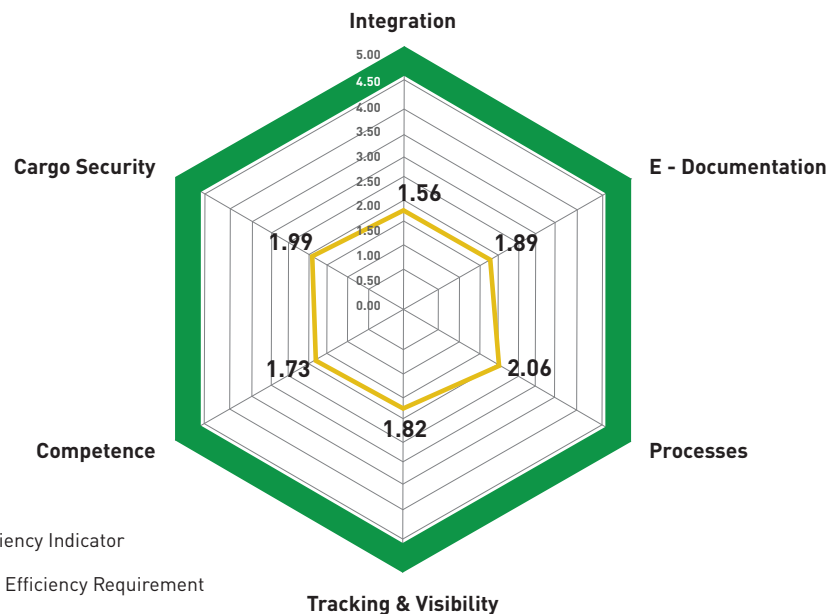


## Canada's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Canada's current trade efficiency in relation to the 21-6-EIEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Canada Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Canada SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EIEI standard. Upon Implementation of the Canada SEA Report recommendations, Canada can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 46.5 billion, placing Canada at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 104 billion and create nearly 1 million jobs by 2030, meeting the economic ambitions of Canada.

### Canada's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EIEI)



Canada Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

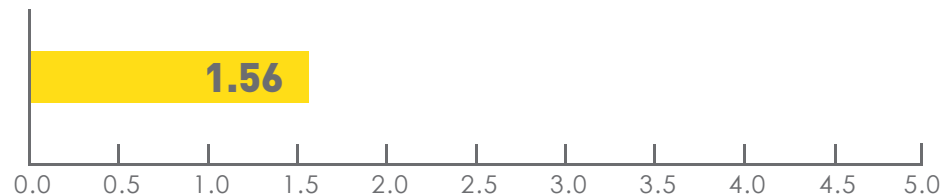
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade pipeline participants, a participant can score at most 2.5.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## Canada's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Canada. Collectively they have scored 1.56 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

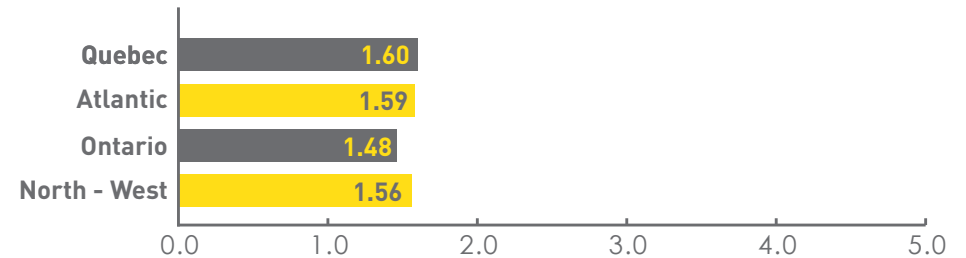


This Integration score is relatively low despite the Canadian government's use of the ACE National Single Window and other systems such as ACROSS and TITAN by its Canada Border Services Agency (CBSA) to improve the facilitation of trade. Similar focus on Integration across all the trade participants globally is necessary to significantly improve Canada's overall Integration Efficiency score.

## Integration by Economic Zone

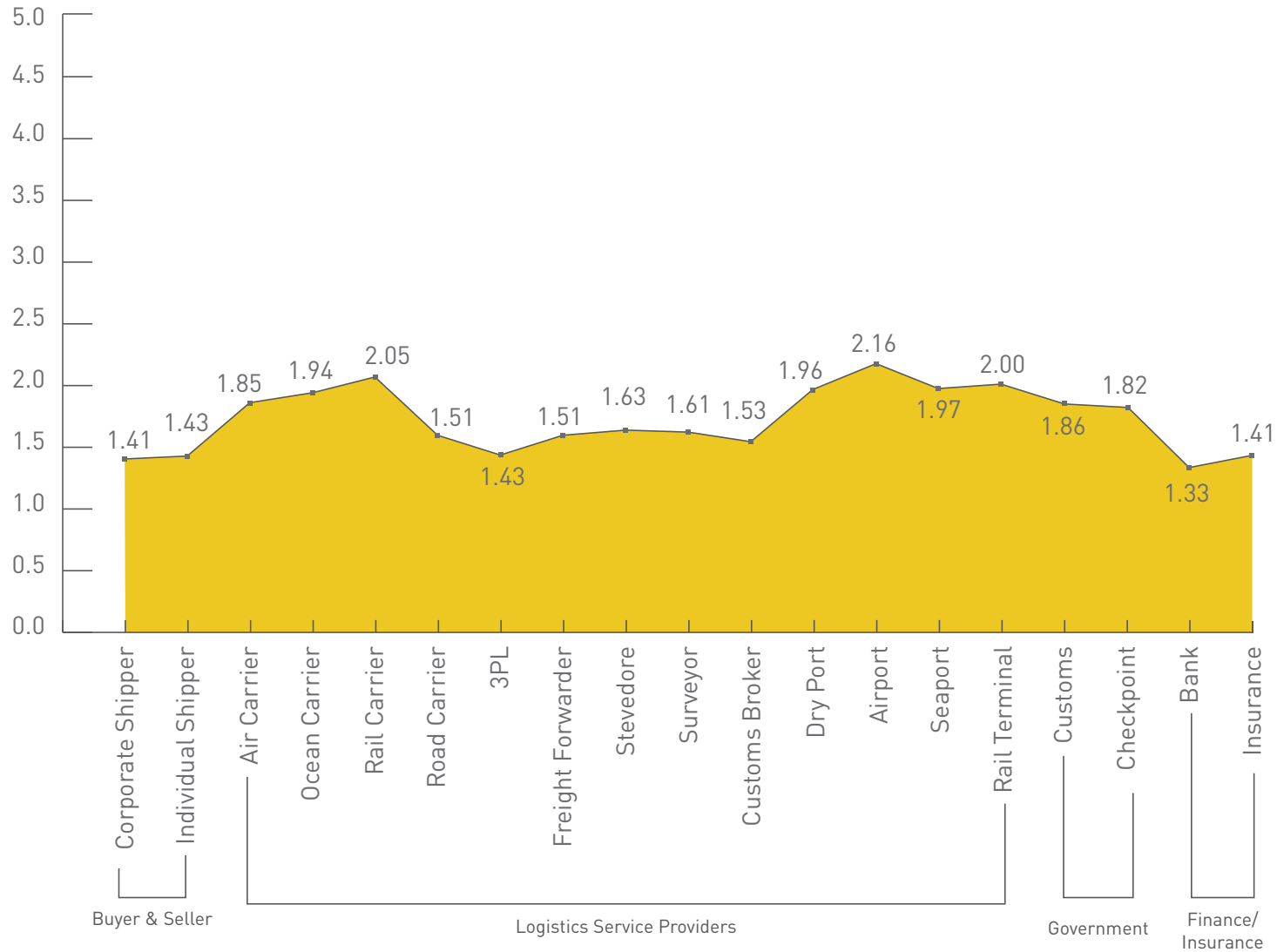
All economic zones in Canada scored uniformly on Integration, with the difference between the highest and lowest scores being small at 2.4%, indicating a countrywide opportunity to enhance Integration. The Quebec (1.60) and Atlantic (1.59) zones with advanced manufacturing industries including aeronautics, chemical, and food processing industries have scored relatively higher on Integration.

This low use of technology applications across all zones in Canada confirms the need for the Canadian government to devise economic development strategies and policies that enhance Integration.



## Integration Efficiency by Trade Cluster

- 31 – 50% of shipment data is re-entered in multiple forms
- 94.8% shipment communications are manual (Postal Mail / Fax / Phone / Email)
- 87.2% of trade participants do not have Integrated Systems



## PROCESSES

### Findings – Data

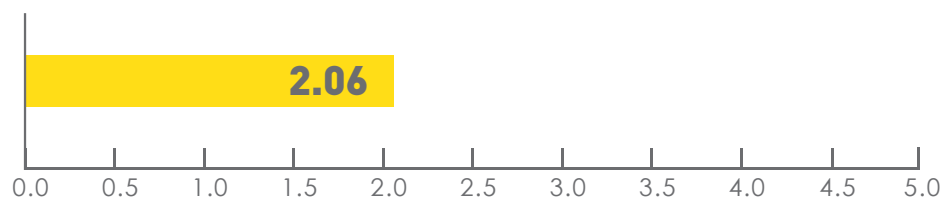
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete Processes in a trade pipeline

### Canada's Overall Processes Score

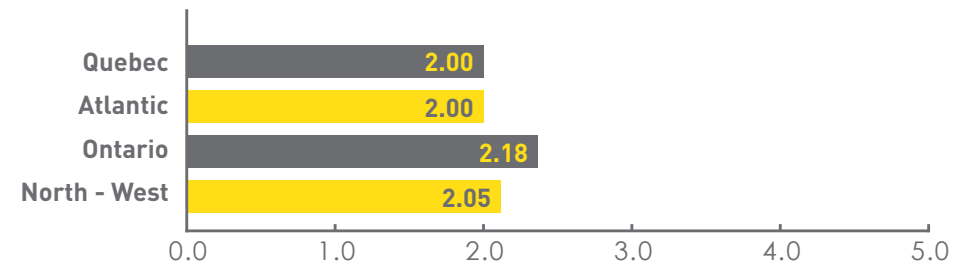
The following result represents the overall national Processes score assessing the handling of shipment flow through the trade pipeline. Collectively, the trade participants in Canada have scored a 2.06 out of a possible 5.0 on the 21-6-ETEI scale. The implementation of the North American Free Trade Agreement (NAFTA) over the last two decades has assisted Canada in streamlining its processes for cross border trade and contributed to its achievement of one of the highest Processes scores among the G20 Nations.



### Processes by Economic Zone

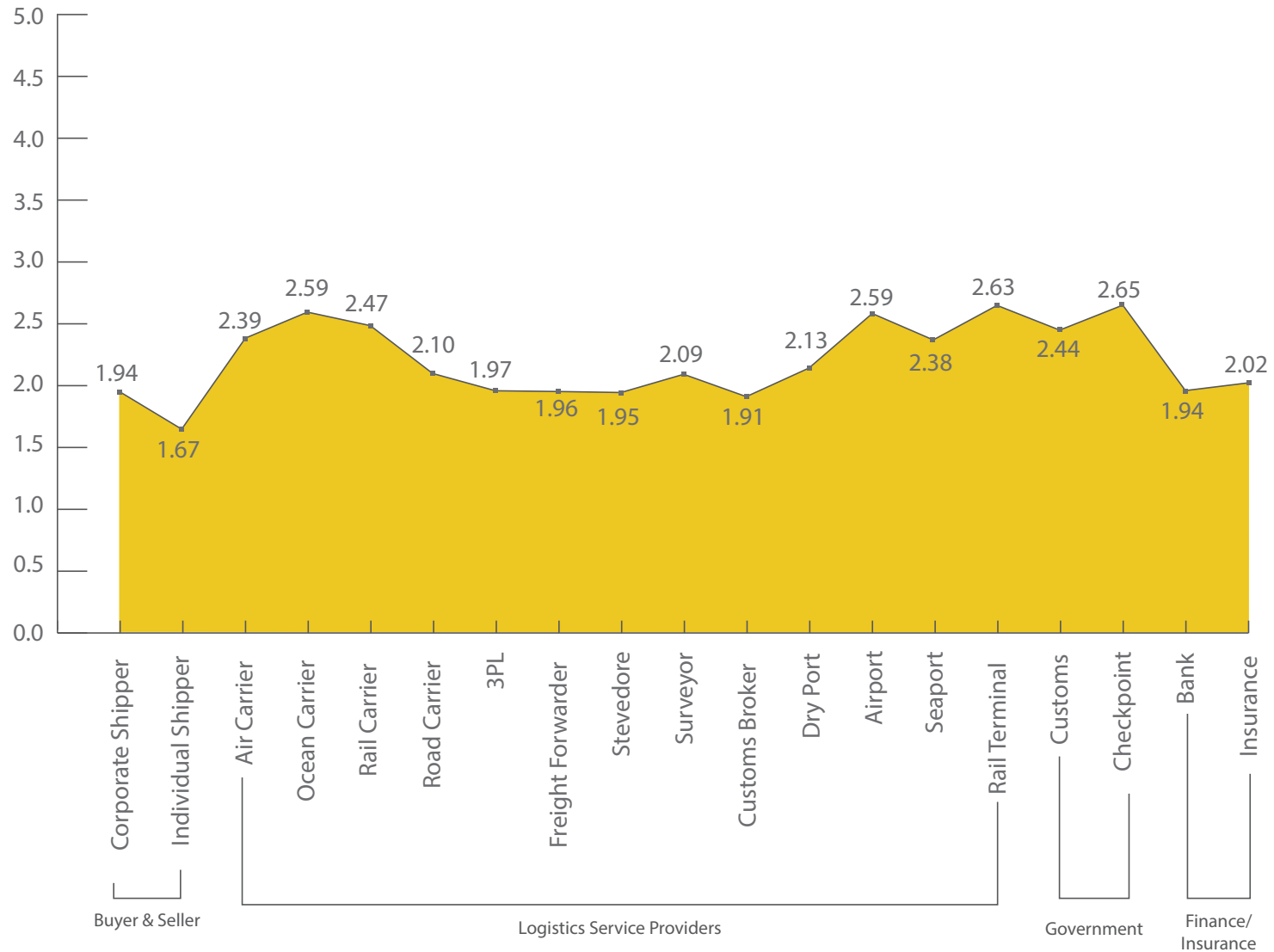
Examining the Processes scores by Economic Zone, the more advanced Ontario (2.18) zone with its advanced manufacturing industries such as automobile parts assembly has scored the highest on Integration compared to the other economic zones. The difference between the highest and the lowest scores is low at 3.6%, indicating a countrywide opportunity for Canada to enhance its Processes score across all economic zones.

For the Processes in Canada to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved horizontal Integration in the trade pipelines across Canada, further efficiency gains will be achieved in the horizontal processes in all economic zones and contribute to a further increase in Canada's overall trade efficiency. With the right innovation, there is a countrywide opportunity to enhance Processes scores across all the regions of the country.



## Processes Efficiency by Trade Cluster

- ▶ 61-80% of shipment data is re-entered due to Processes incompatibility
- ▶ 7.2% of participants use ERP systems; those firms that automated processes, typically use off-the-shelf not customized systems
- ▶ 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

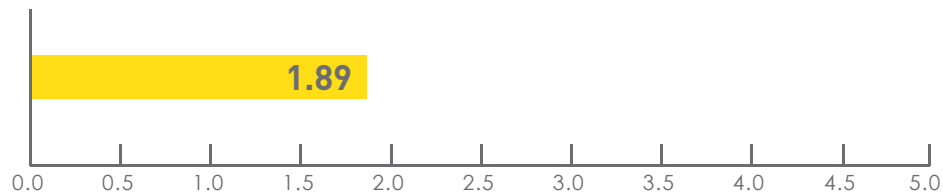
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain at most a score of 2.5.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation Efficiency.

### Canada's Overall E-Documentation Score

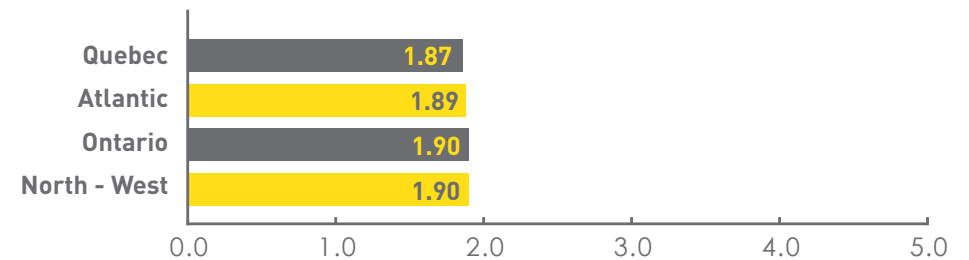
The overall national E-Documentation score of Canada is 1.89, which indicates that some significant steps can be implemented by Canada to attain an optimal level of E-Documentation capability.



The Canadian government has enacted policies to promote the use of information technology systems to facilitate trade for its businesses. Two decades of investments into developing systems such as ACROSS (Accelerated Commercial Release Operating Support System) and CUSDEC (Customs Declaration) to streamline cross border trade with the United States of America to implement NAFTA has enabled Canada to exchange trade documents such as Advanced Shipping Notifications and Customs declarations electronically. With the recent implementation of the ACE National Single Window for trade facilitation, Canadian businesses have become accustomed to the online environment, which is increasing the use of E-documents.

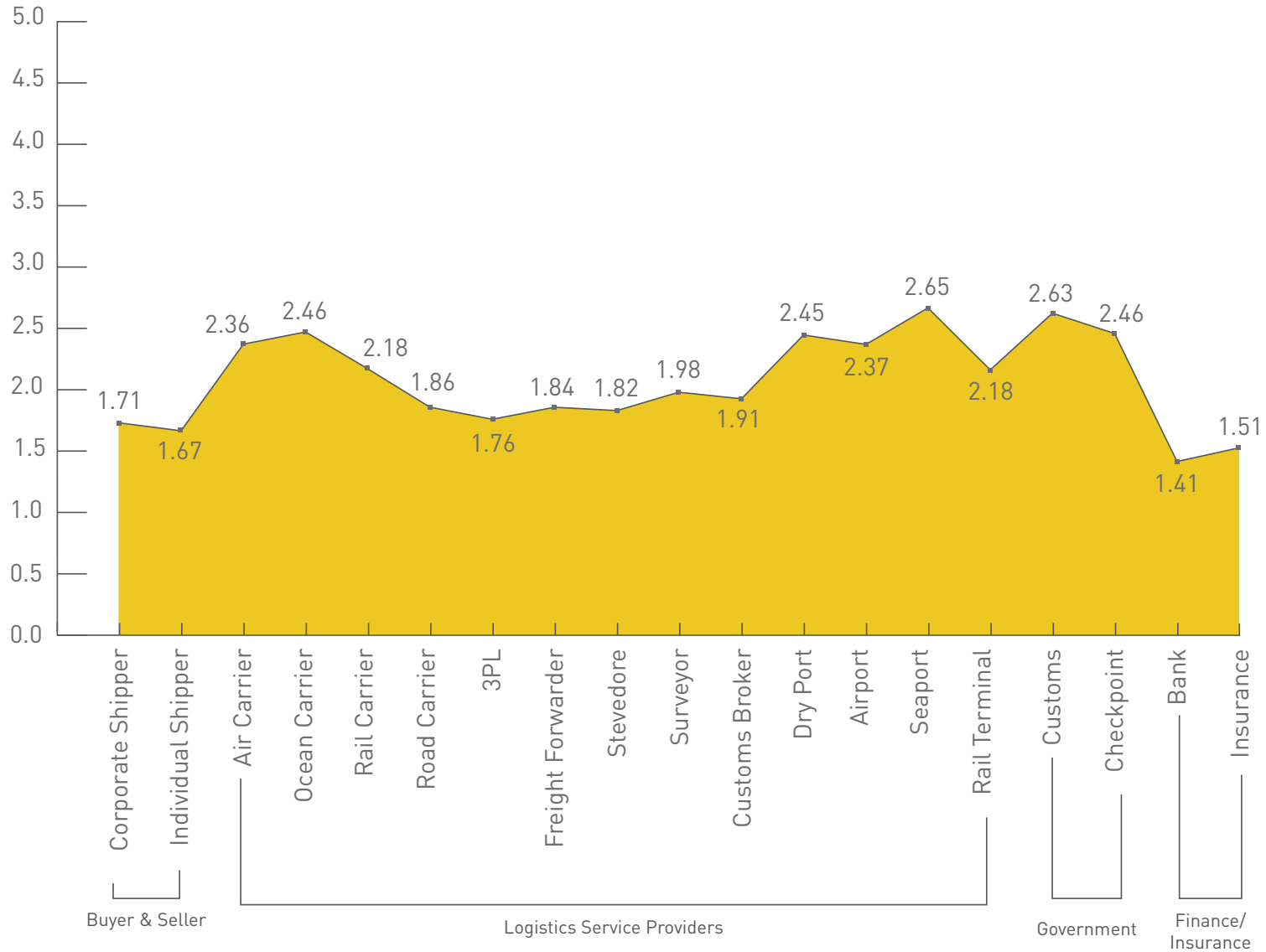
### E-Documentation by Economic Zone

Examining the E-Documentation scores by Economic Zone, we see that the scores are very similar across the zones with the difference between the highest and lowest scores being 0.6%, indicating a countrywide opportunity for the Canadian government and businesses to work together to enhance the use of E-Documentation in order to achieve optimal level of efficiency countrywide when the right type of E-Documentation capability is made available.



### E-Documentation Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- 21-40% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

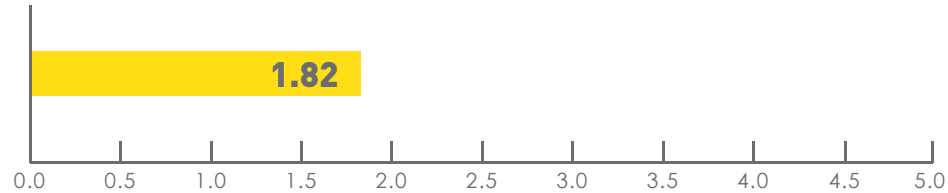
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score at most 2.5. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### Canada's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in Canada is 1.82, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



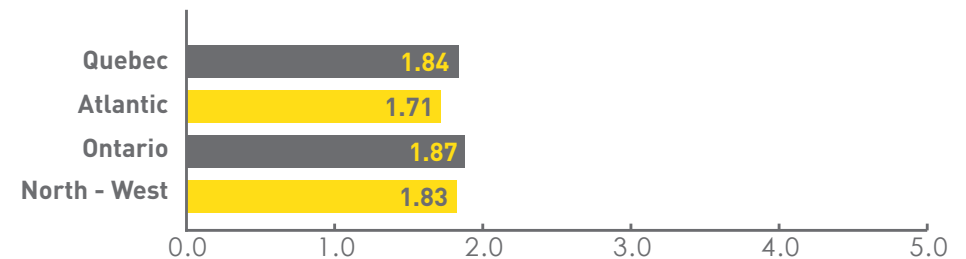
The investments made by CBSA into the ACE National Single Window and a range of trade facilitation tools have contributed to the observed moderate Tracking & Visibility score for Canada. However, significant horizontal integration is required across the systems of the participants in the trade pipelines for the businesses and the government agencies of Canada to obtain the real-time information needed to proactively track and prevent delays in the shipments.

### Tracking & Visibility by Economic Zone

Analyzing the Tracking & Visibility scores by Economic Zone, the Quebec (1.84) zone with significant presence of export-oriented industries including aeronautics, electronics, and food processing has scored the highest.

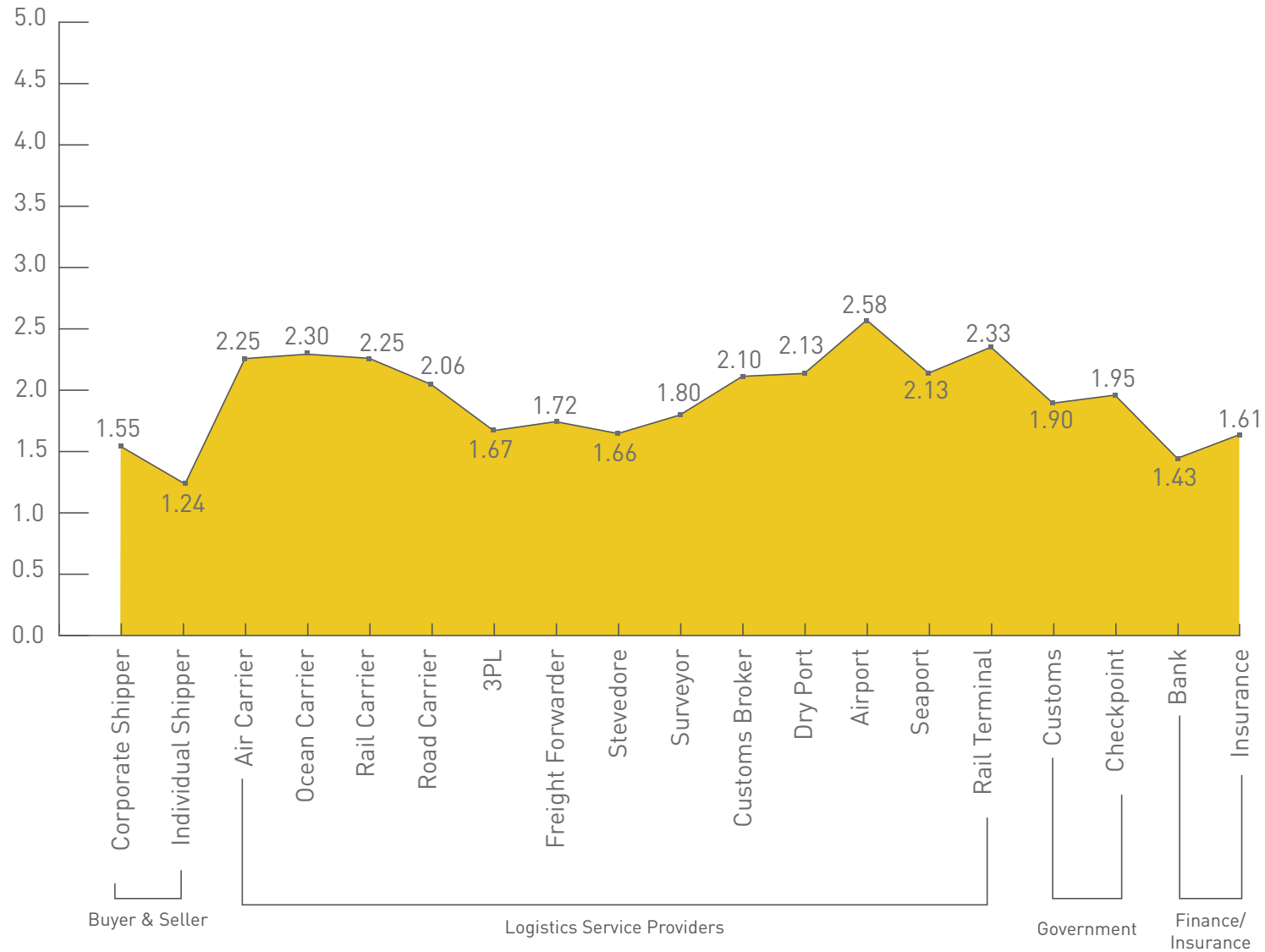
The difference between the highest and lowest score is very low at 2.6%, indicating a uniform opportunity for improving the Tracking & Visibility capabilities of all the economic zones.

When the right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, Canada can enhance its Tracking & Visibility to achieve superior operating efficiencies.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

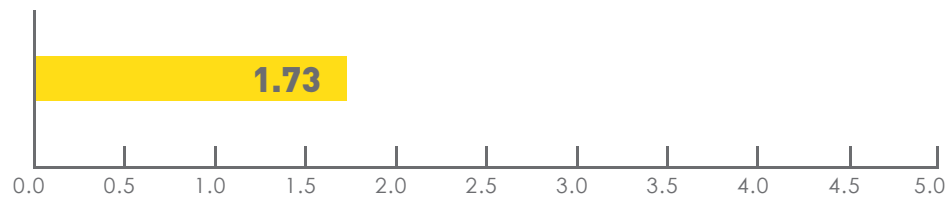
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in their trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade pipeline.

## Canada's Overall Competence Score

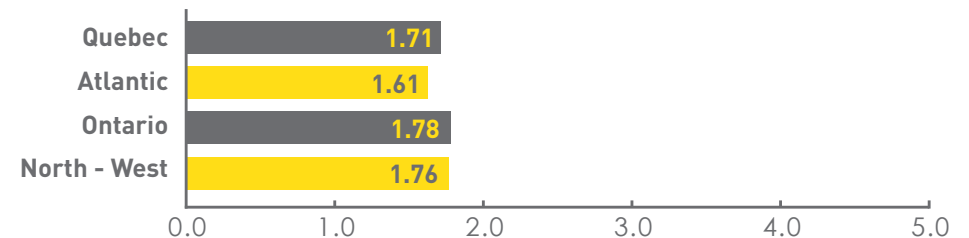
The overall national Competence score in Canada is 1.73. Given that a score of 5.0 reflects maximum efficiency, Canada's score indicates a moderate level of Competence and an opportunity for Canada to leverage its skilled and talented workforce to achieve significant improvement.



## Competence by Economic Zone

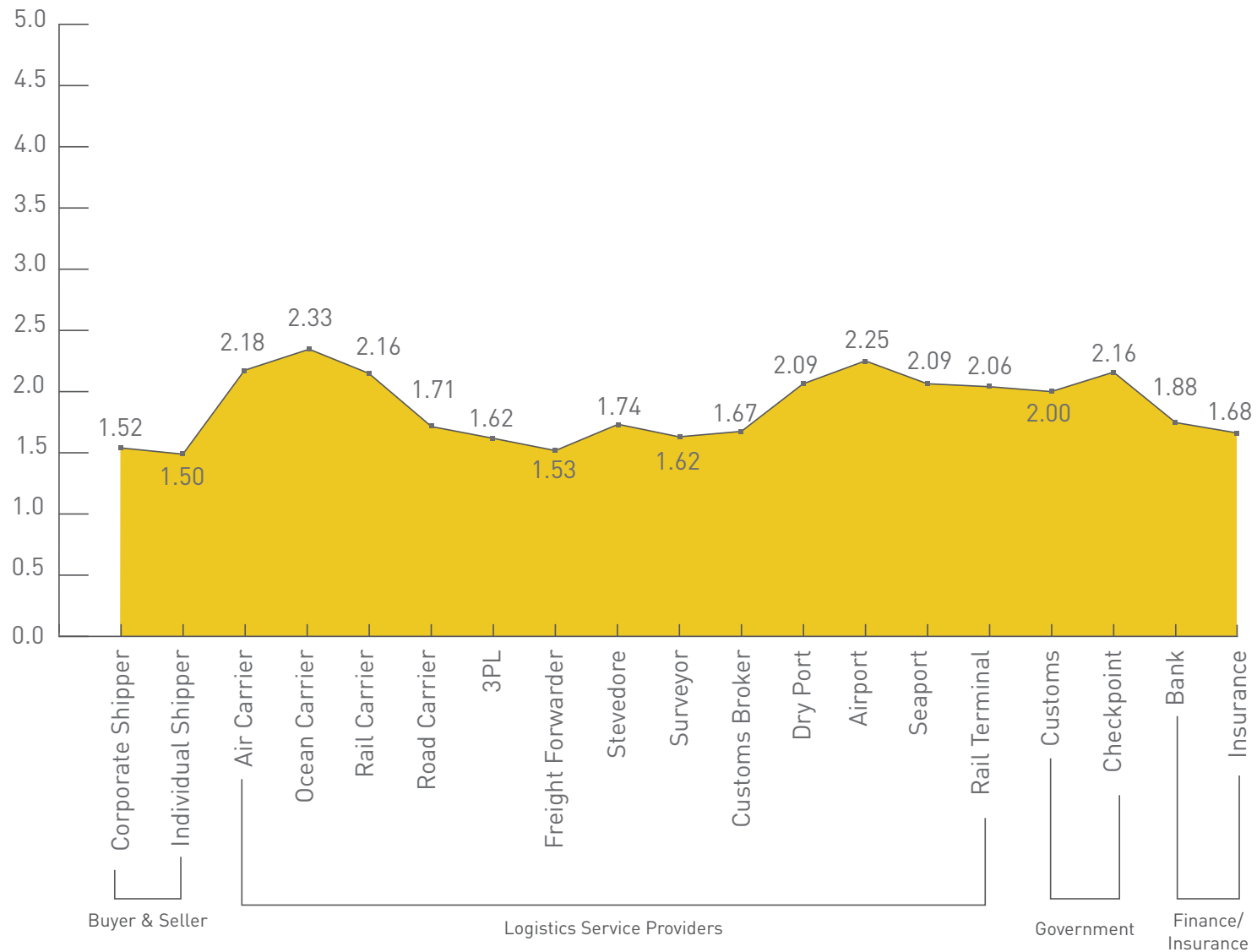
Analyzing the Competence scores across the Economic Zones in Canada, the Ontario (1.78) zone with its advanced automobile parts assembly supply chains has scored the highest. The difference between the highest and the lowest Competence scores among the zones is very low at 3.4%, indicating a countrywide opportunity to enhance Competence.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate issues when necessary, the Competence level of employees can be improved to superior levels across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines across Canada.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

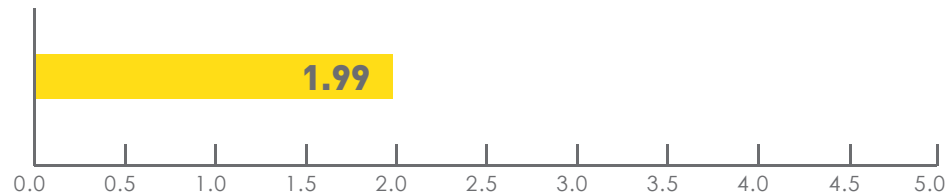
Cargo Security Efficiency scale in brief:

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**Level 5** = Presence of effective Cargo Security procedures.

### Canada's Overall Cargo Security Score

The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.99 indicates Canada's emphasis on the importance of and investments for improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Canada's level of Cargo Security nationwide can be improved.

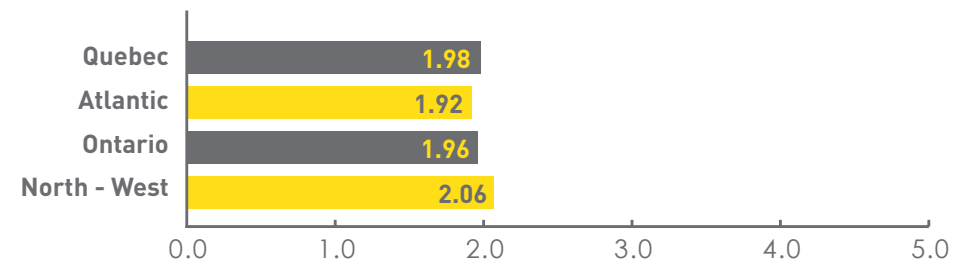


With the implementation of NAFTA over the last two decades, Canada has partnered with the United States to enhance Tracking & Visibility with a focus on enhancing its Cargo Security. Canada's investments in systems such as TITAN (Tactical Information Targeting Analysis and Notification System) for marine container examination and HRS-ATD (Harmonized Risk Scoring and Advance Trade Data) has contributed to the moderate Cargo Security score, which is one of the highest scores among the G20 Nations.

### Cargo Security by Economic Zone

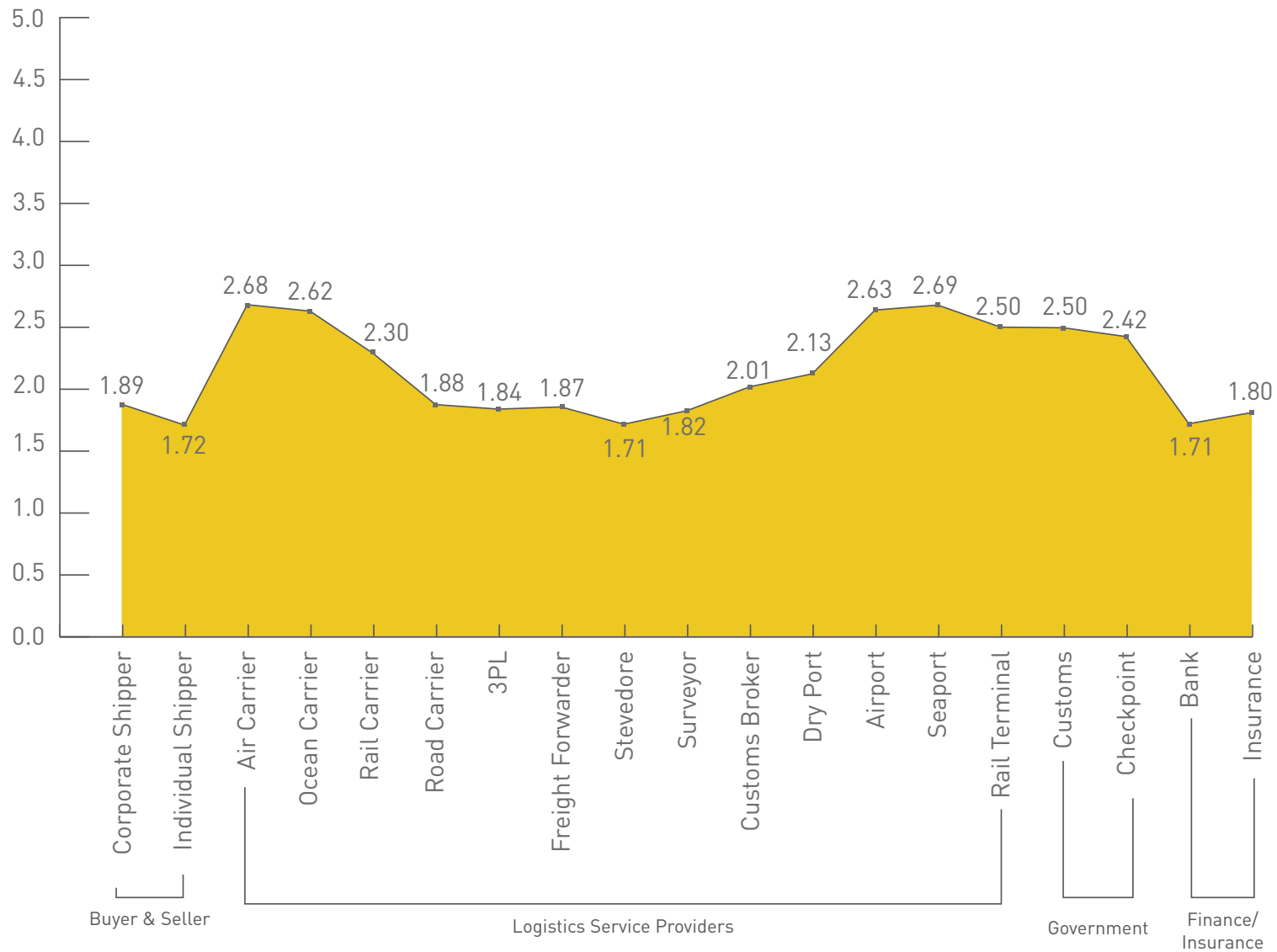
The results illustrate the comparative strengths among the zones related to the adoption of Cargo Security. It is important to note that the range between 0-2.5 indicates security measures at the national level, while the 2.5-5.0 range implies compliance with international regulations and voluntary initiatives as well as the visibility to monitor, flag, and respond to shipments before arrival.

When we analyze Cargo Security scores by Economic Zone, all zones in Canada scored comparably with the difference in scores between the highest North-West (2.06) zone and lowest Atlantic (1.92) zone being very small at 2.8%. These relatively consistent scores across the zones indicate that implementation of new measures that enhance Integration and Tracking & Visibility can also enhance Cargo Security uniformly across the zones.



### Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



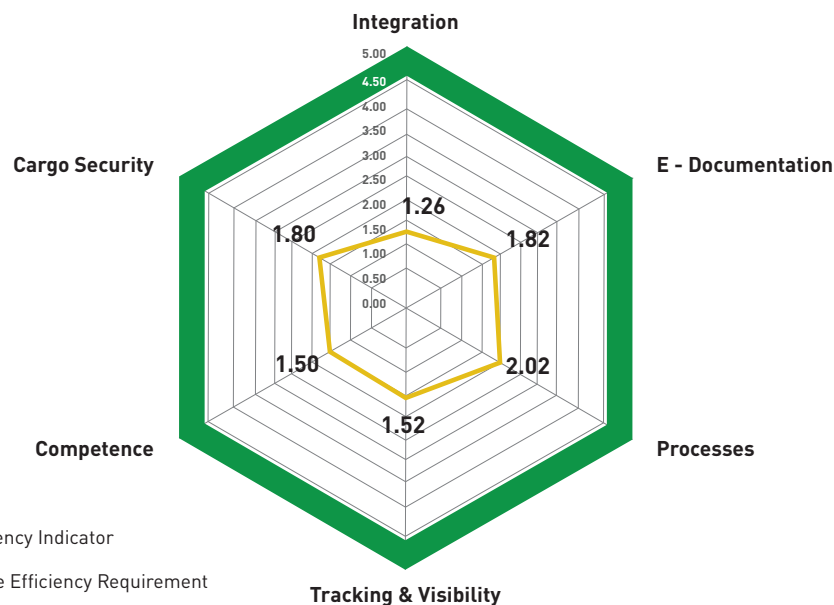


## China's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated China's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the China Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the China SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon Implementation of the China SEA Report recommendations, China can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 828 billion, placing China at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 941 billion and creating 44 million jobs by 2030, meeting the economic ambitions of China.

### China's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EI)



## INTEGRATION

### Findings – Data

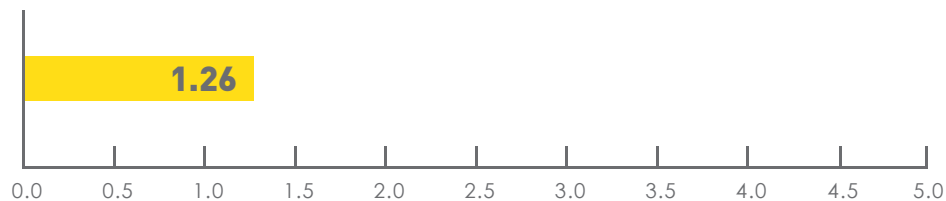
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, using in-house vertical systems, without horizontal integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

### China's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in China. Collectively they have scored 1.26 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

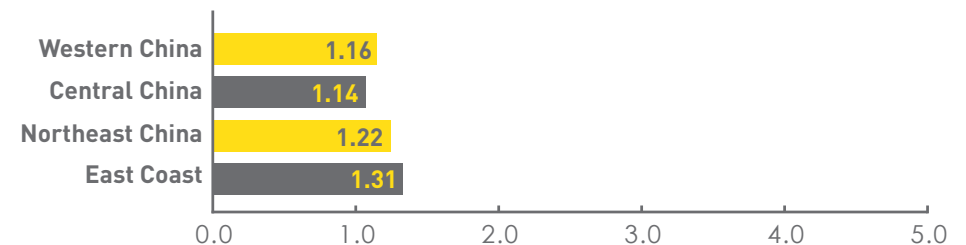


This Integration score is relatively low despite the implementation of the National Transport and Logistics Public Information Platform (LOGINK), also known as the e-Logistics hub, since 2008. The LOGINK was initiated by the Ministry of Transport and the Zhejiang provincial government with participation from different organizations, including industry associations and logistics service providers, in order to integrate the Ministry's services amongst logistics players. In addition, the introduction of e-Customs, e-General Administration and e-Port by the General Administration of Customs of China (GACC) is an example of Customs and industry working together to provide an efficient and consistent approach to improve the facilitation of trade. Similar focus on Integration across all trade participants in China is important to improve the overall Integration Efficiency score.

### Integration by Economic Zone

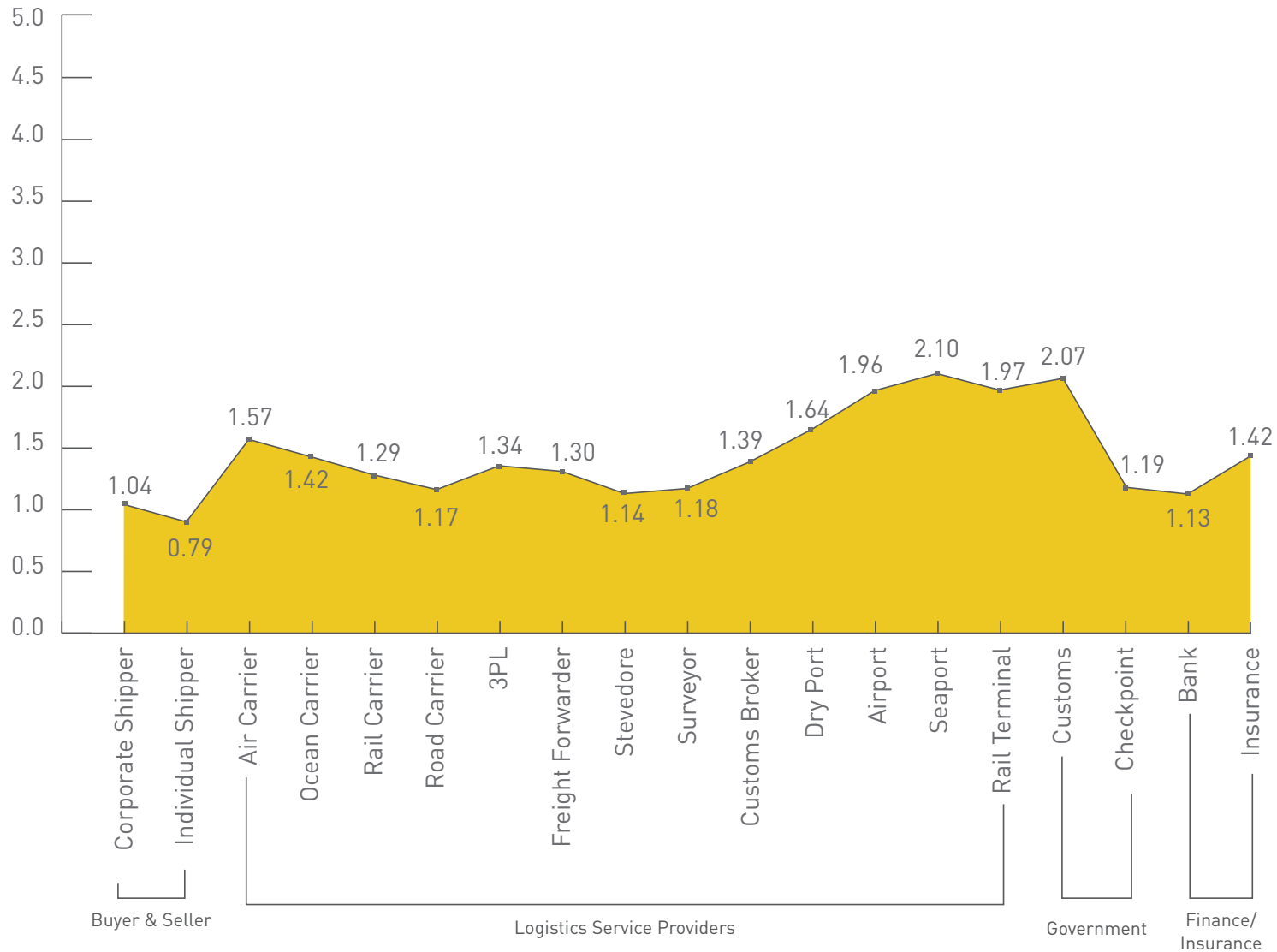
The difference in the maximum and minimum Integration scores by Economic Zone is 3.4%, indicating a national opportunity to enhance Integration scores across the zones. In 2009, the Ministry of Transport of China (MOT) joined efforts with the Zhejiang provincial government to upgrade the MOT Public Information Sharing Platform for Transportation and Logistics. This technology for transportation and logistics was introduced from the East Coast (1.31) and the Northeast China (1.22) zones and slowly moved to the Central China (1.14) and Western China (1.16) zones.

The contrast in technology adoption between the different zones in China confirms the need for the Chinese government to devise economic development strategies and policies to alleviate the prosperity gap.



## Integration Efficiency by Trade Cluster

- 84.4% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 93.2% shipment communications related to shipments are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

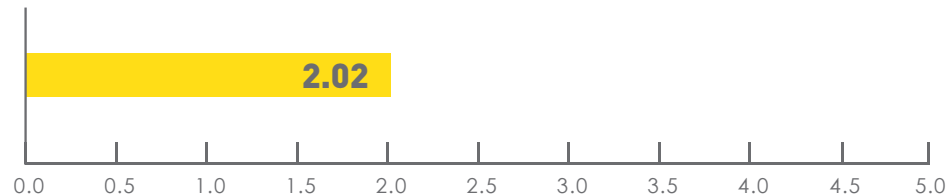
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### China's Overall Processes Score

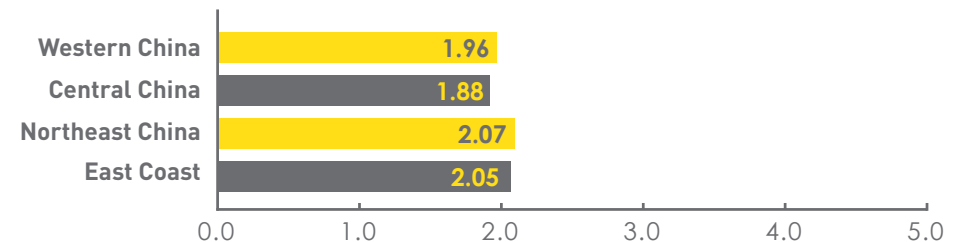
The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in China have scored a 2.02 out of a possible 5.0 on the 21-6-ETEI scale.



### Processes by Economic Zone

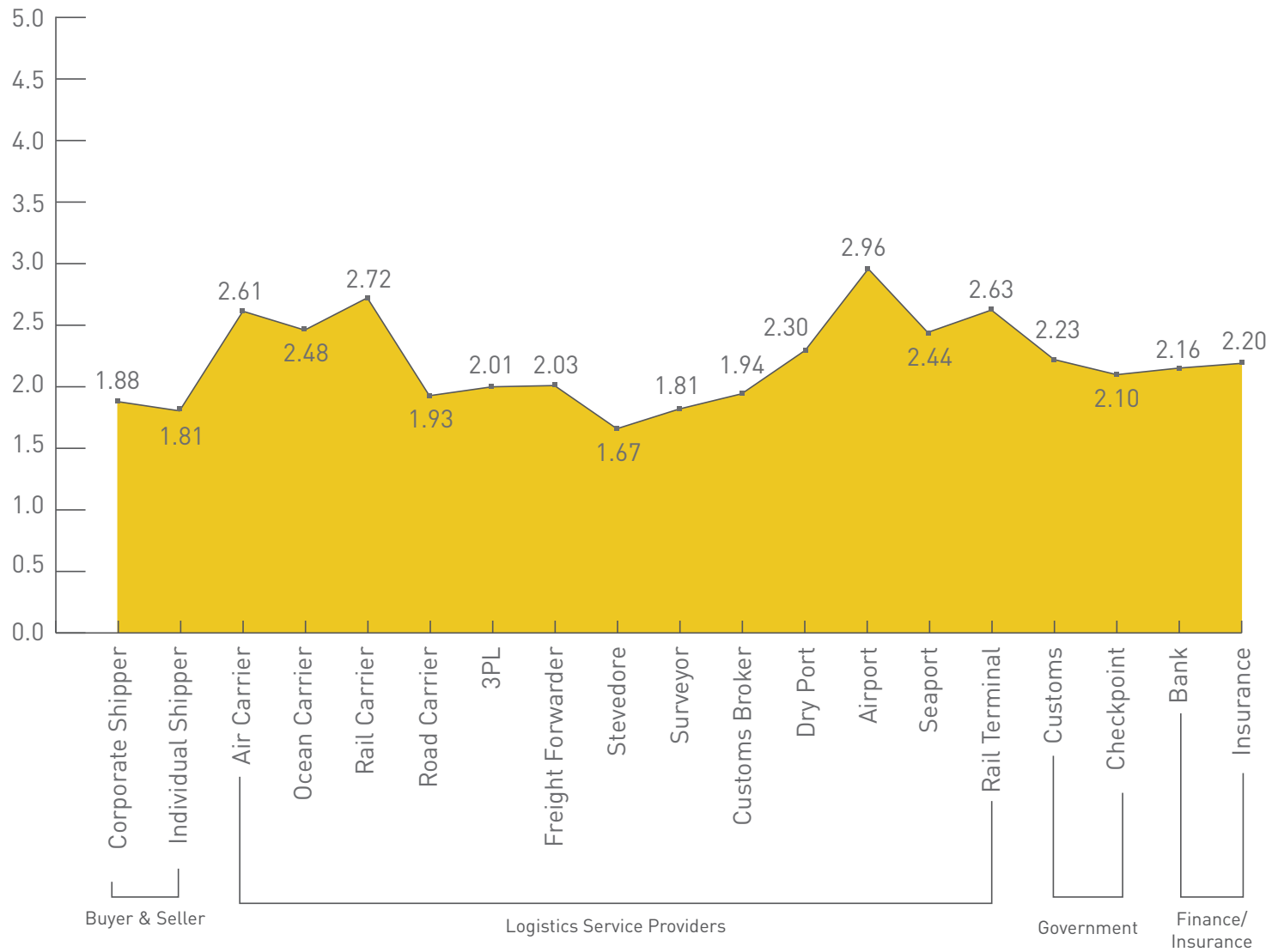
When we evaluate the Processes scores by Economic Zone, the Northeast China (2.07) zone scored the highest and the Central China (1.88) zone scored the least. However, the difference between them is only 3.8%, indicating that all zones are performing at nearly the same level.

The Northeast China (2.07) and East Coast (2.05) zones have scored slightly higher compared to the interior zones of Western China (1.96) and Central China (1.88) zones, indicating that the development and economic programs introduced by the Central Government in the coastal regions and supported by the provincial local administrations will provide similar benefits to the interior zones of the country. However, for the Processes in China to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across China, further efficiency gains will be achieved in the horizontal Processes in all economic zones and contribute to a further increase in China's overall trade efficiency.



## Processes Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to Processes incompatibility
- 16% of participants use ERP systems; those firms that automated processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

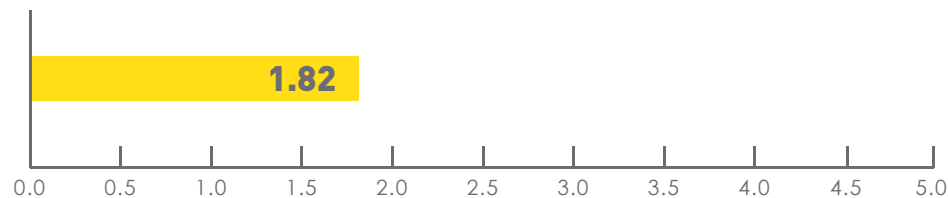
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### China's Overall E-Documentation Score

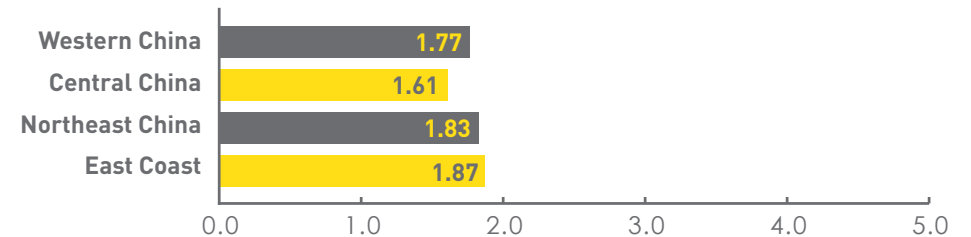
The overall national E-Documentation score in China is 1.82, which indicates that China is in the early stages of moving from paper to E-Documentation across clusters. Such movement is influenced by the Customs clearance process provided through the Customs Management Information System and e-Port Platform and also the National Transport and Logistics Public Information Platform (LOGINK).



### E-Documentation by Economic Zone

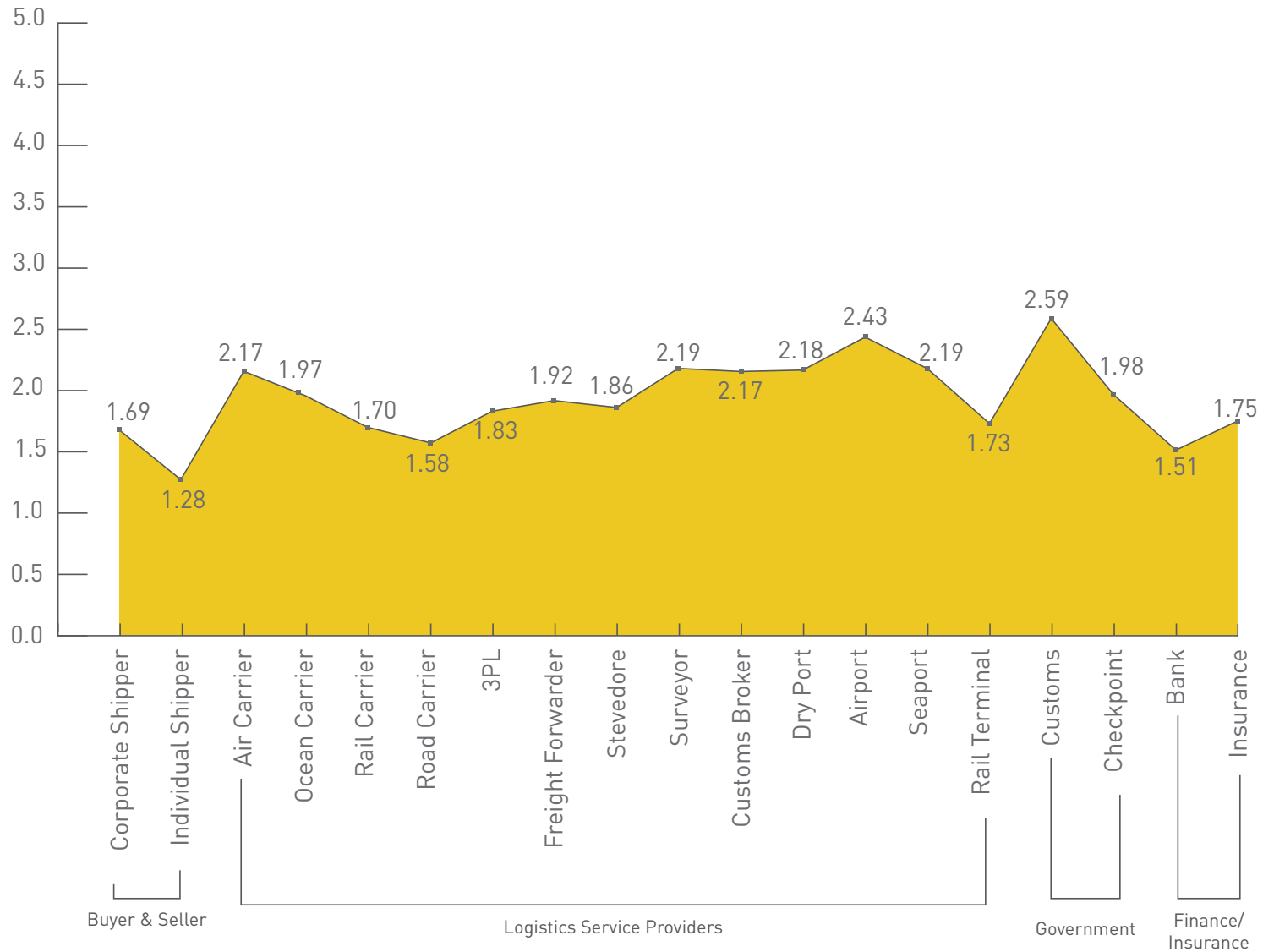
Examining the E-Documentation scores by Economic Zone, we can see that the difference between the highest and lowest scores of the zones is almost 5.2%. The coastal zones of East Coast (1.87) and Northeast China (1.83) are relatively higher compared to the Western China (1.77) and Central China (1.61) zones.

Hence, there is a countrywide opportunity, especially in the interior zones, to achieve optimal levels of efficiency when E-Documentation capability is made available.



## E-Documentation Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to systems incompatibility, with occasional validation
- 21–40% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

Tracking & Visibility Efficiency scale in brief:

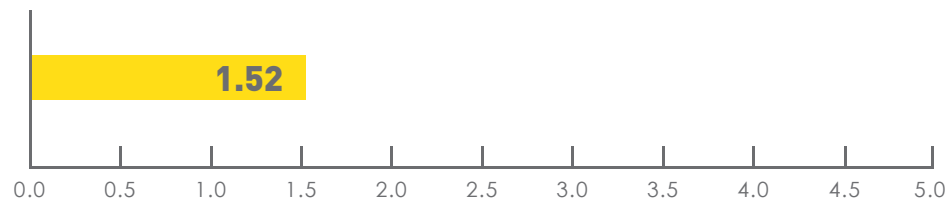
**Level 1** = Little or no Tracking & Visibility capability.

A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane pipeline partners to have such capabilities, and be integrated with a common user interface in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### China's Overall Tracking & Visibility Score

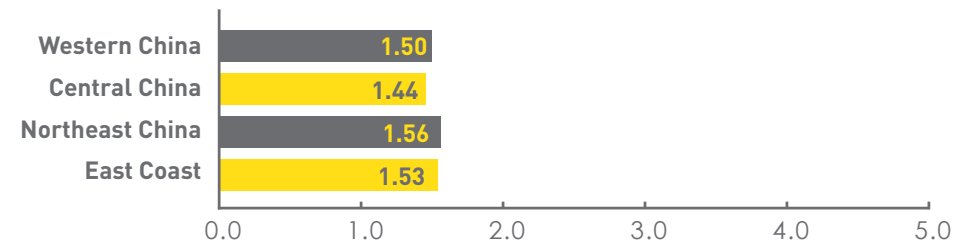
The overall national Tracking & Visibility score in China is 1.52, which indicates some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



### Tracking & Visibility by Economic Zone

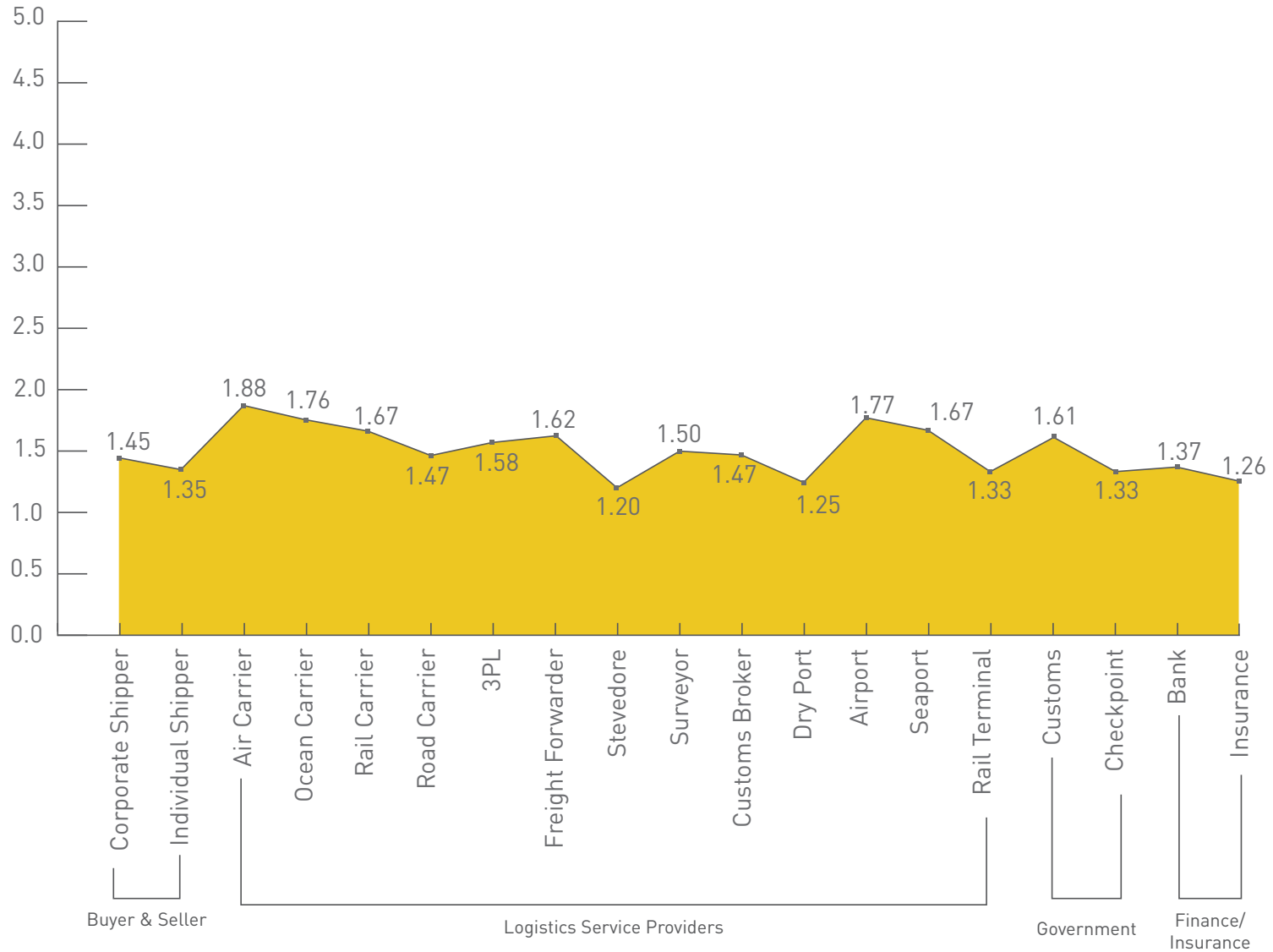
Analysing Tracking & Visibility by Economic Zone, the difference of 2.4% between the highest and the lowest scores is not significant, indicating that there is a countrywide opportunity to improve Tracking & Visibility. We can see a similar pattern of the coastal zones, Northeast China (1.56) and East Coast (1.53) zones scoring slightly higher than the interior zones of the Western China (1.50) and the Central China (1.44) zones.

The East Coast and Northeast China zones have scored higher as these zones have more developed industrial areas, and include the more advanced state-owned enterprises that are entrenched in the National Transport and Logistics Public Information Platform (LOGINK) and have the ability to track their shipments.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

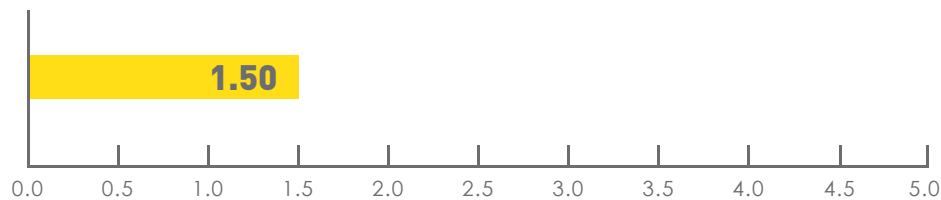
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in their trade pipelines to have similar capabilities in order to score higher.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

### China's Overall Competence Score

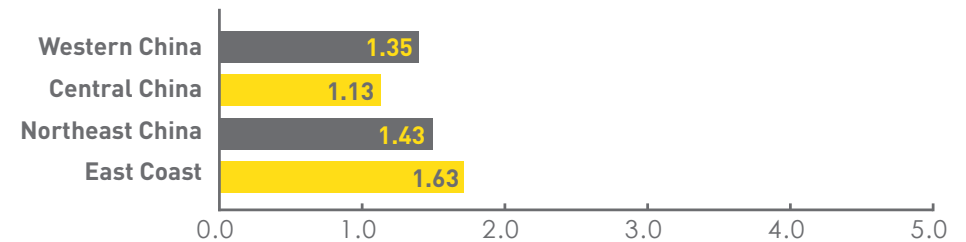
The overall national Competence score in China is 1.50. Given that a score of 5.0 indicates maximum efficiency, China's score indicates a low level of Competence and an opportunity for China to leverage its skilled and talented workforce to achieve significant improvement.



### Competence by Economic Zone

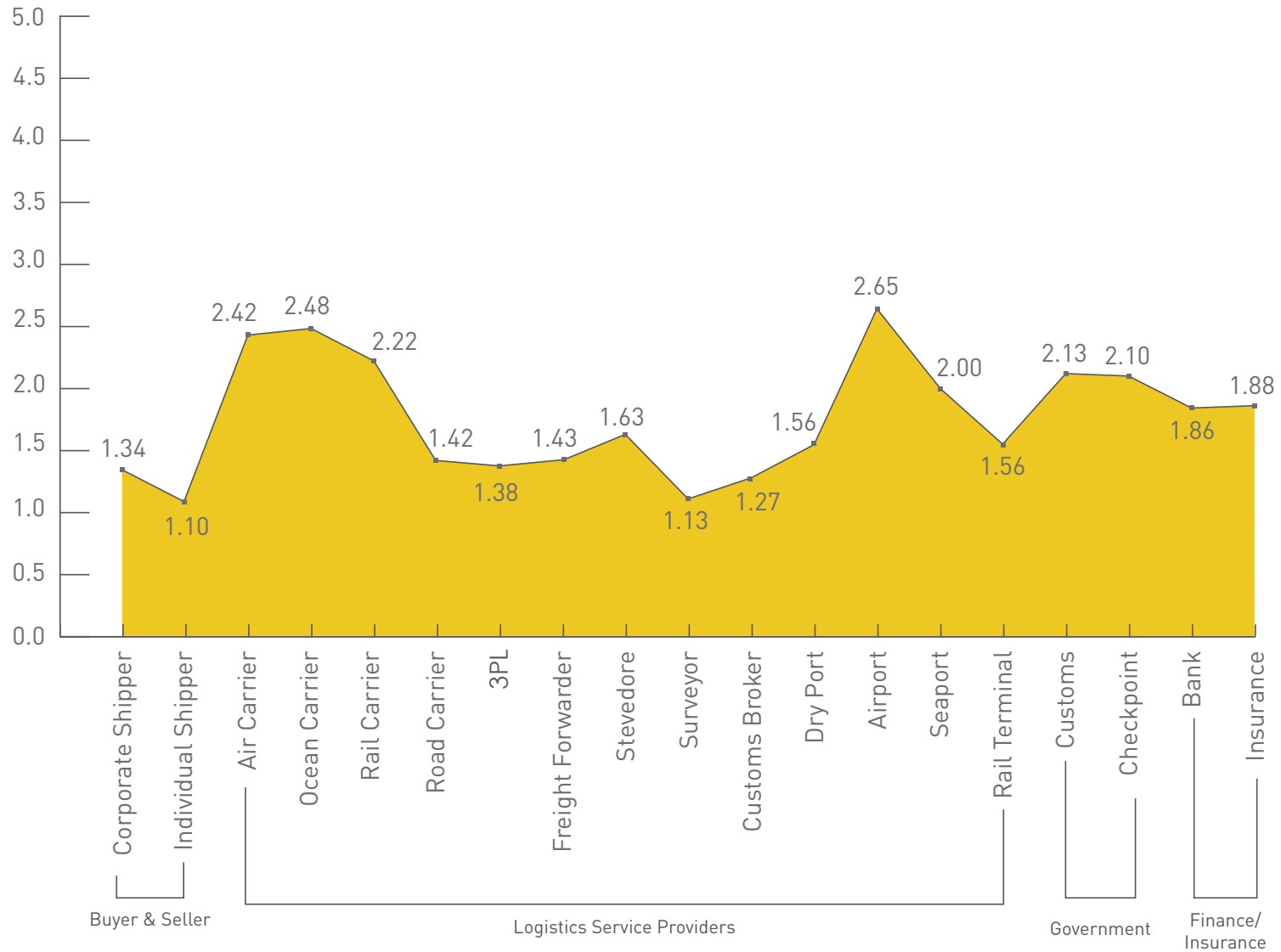
Analyzing the Competence results across the Economic Zones in China, East Coast (1.63) zone has the highest score. The ongoing investments into the development of internal vertical systems for tracking shipments and ensuring job completion in the large enterprises and their supply chain partners operating historically in the developed East Coast zone accounts for the moderate score observed. The Northeast China (1.43) zone has the next best Competence score. The difference between the highest and lowest scores is moderate at 10%.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion and escalate when necessary, the competence level of employees can be improved to achieve a more superior level across all the economic zones, which in turn contributes to improve the efficiency of the trade pipelines across China.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, all of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

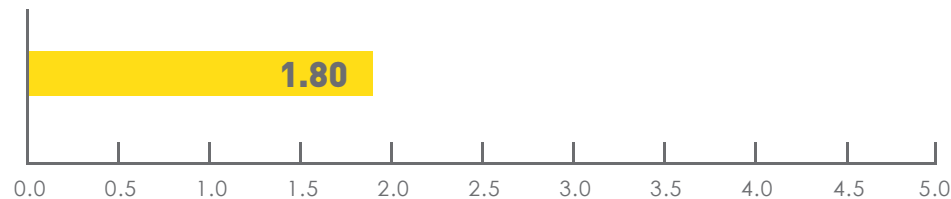
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective cargo security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in the trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, it can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

### China's Overall Cargo Security Score

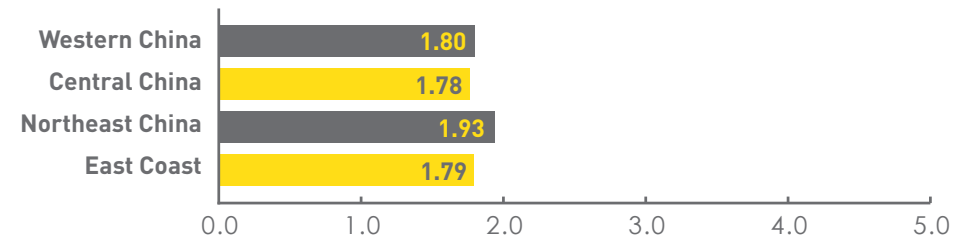
The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.80 indicates China's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, China's level of Cargo Security Efficiency nationwide can be improved.



### Cargo Security by Economic Zone

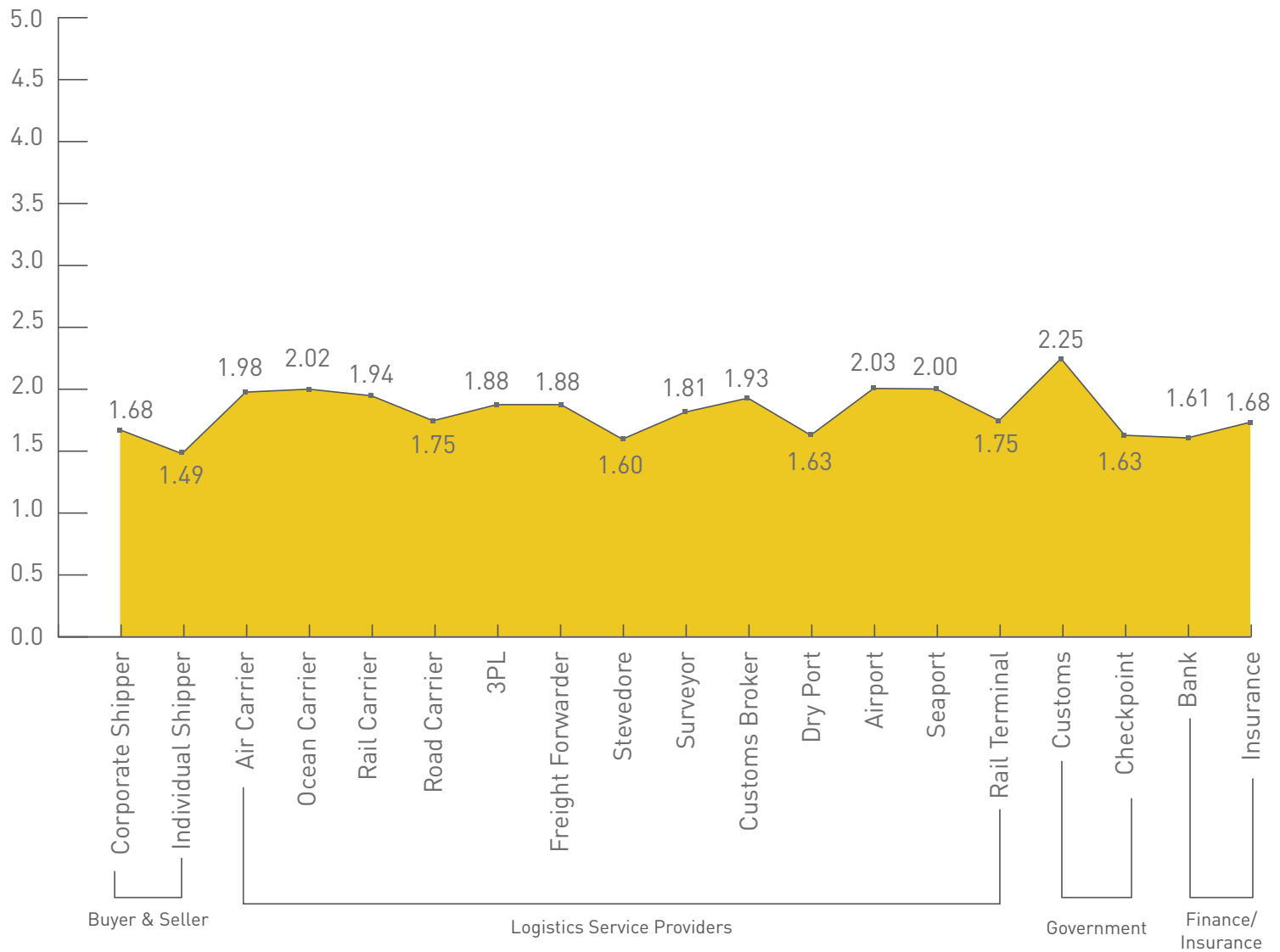
Analyzing Cargo Security by Economic Zone, we see that all four zones are quite consistent with the difference between the highest and lowest scores being small at 3.0%. These scores indicate that implementation of new measures will benefit all zones.

The higher score in the Northeast China (1.93) zone reflects the high volume and nature of goods shipped in this region, such as petroleum, natural gas, chemicals and biotech. Moreover, the Northeast cities conduct their trade mainly with other G20 economies such as Japan, Russia and South Korea. This explains the additional Cargo Security needs in order to sustain large volumes of international trade through Northeast China. On the other hand, the Central China (1.78) zone is historically less economically developed, which is reflected in its relatively lower Cargo Security score.



### Cargo Security Efficiency by Trade Cluster

- <20% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is 51-75% complete



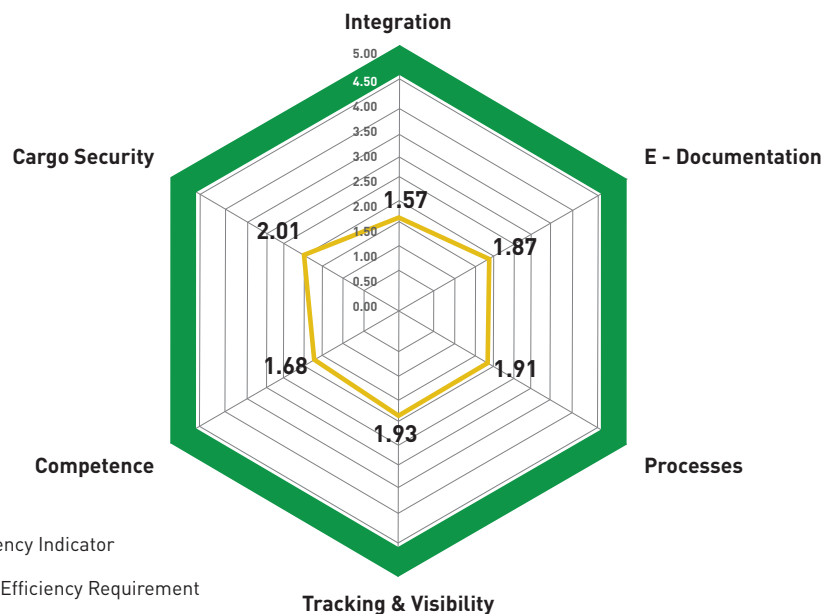


## France's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated France's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the France Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the France SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon Implementation of the France SEA Report recommendations, France can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 126.9 billion, placing France at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 154 billion and creation of nearly 1 million jobs by 2030, meeting the economic ambitions of France.

### France's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EI)



# INTEGRATION

## Findings – Data

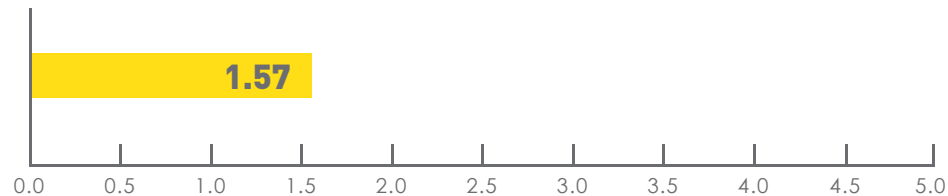
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its lowest performing participant. Hence, by using in-house vertical systems, without horizontal integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## France's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in France. Collectively they have scored 1.57 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



Through the continued development of the GUN (National Single Window), Customs has invested in the Integration of its services with fifteen other government agencies and the businesses in the private sector. With GUN in place, companies can obtain various authorizations, licenses and certifications needed for the flow of trade. Similar focus on integration of the systems used by the trade participants in the 19 trade industry clusters is necessary as well to improve France's overall Integration Efficiency score.

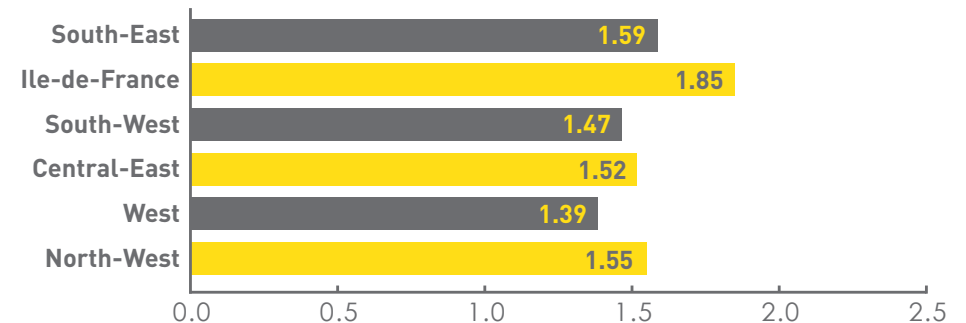
## Integration by Economic Zone

In line with its rankings as second in Europe for high speed rail lines and having Europe's leading road network, France is committed to a number of key transportation projects that will enhance the efficiency of the global value chains of its businesses.

In addition to traditional infrastructure investments, leveraging information technologies for automating operations in the trade pipeline can enhance the use of France's infrastructure, thereby solidifying its leading role in Europe in the areas of trade efficiency.

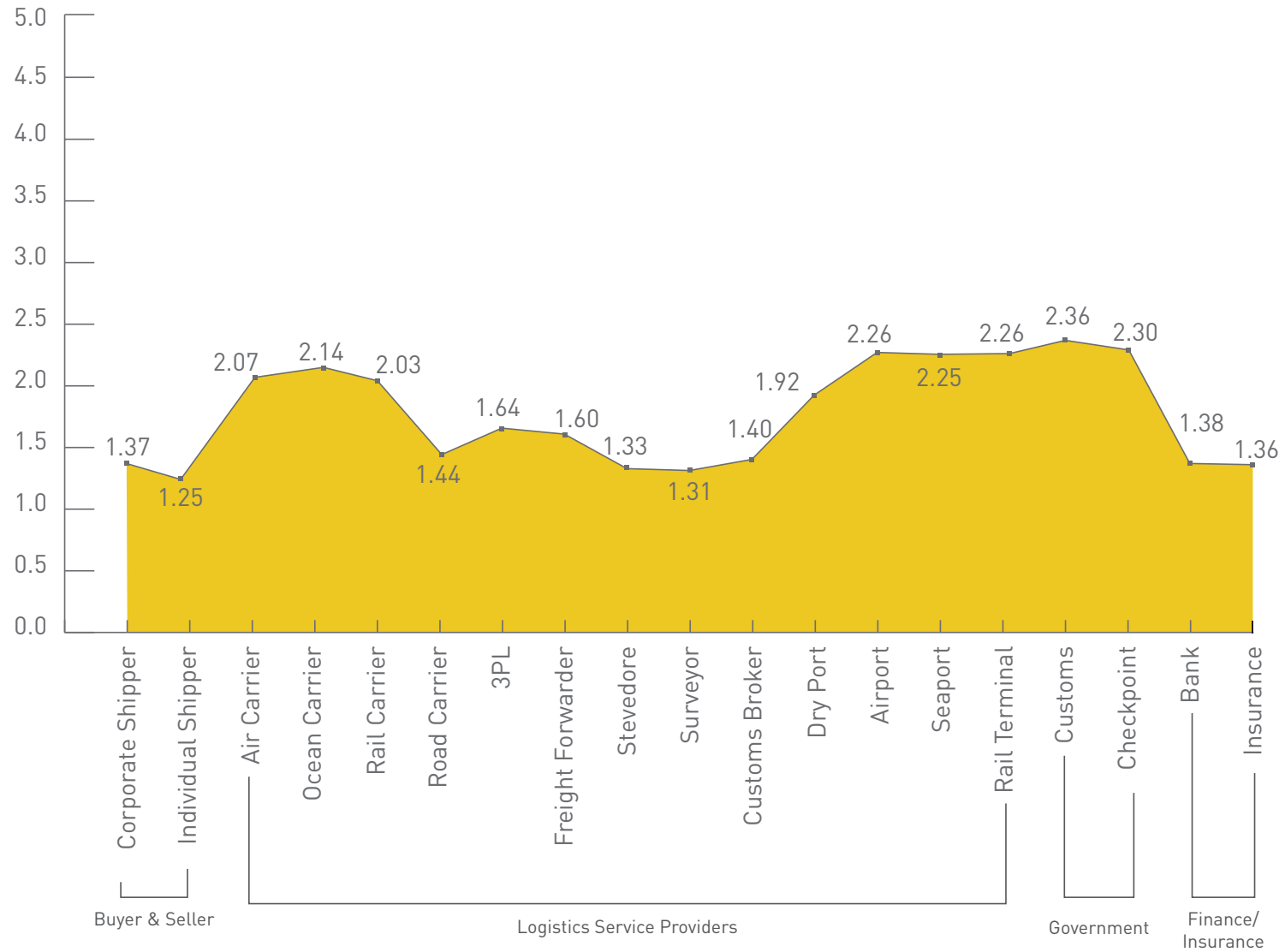
Analyzing the Integration scores by the economic zones, the heavily industrialized and urbanized Ile-de-France (1.85) and South-East (1.59) zones scored higher than the other zones, driven by the nature of goods shipped across the borders of these zones, such as machinery, transportation equipment, auto-industry components, passenger cars, commercial vehicles, aircraft, chemicals and pharmaceuticals. These high tech industries have a higher level of technological proficiency coupled with moderate Integration, thus leading to higher scores in these zones.

The difference between the highest and the lowest scores is 9.2%, indicating moderate discrepancy of scores across all the zones, implying that when France adopts innovation to enhance Integration, it will be embraced rapidly across all zones.



## Integration Efficiency by Trade Cluster

- 77.8% of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 84.5% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

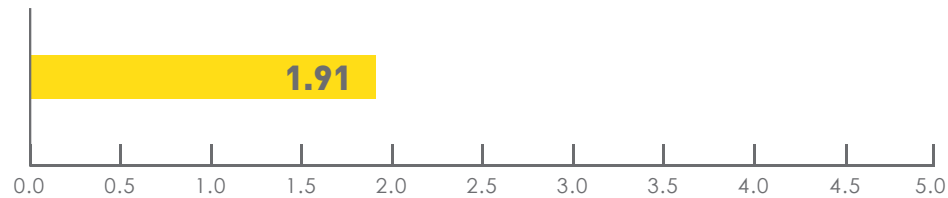
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### France's Overall Processes Score

The following represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in France have scored 1.91 out of 5.0 on the 21-6-ETEI scale.



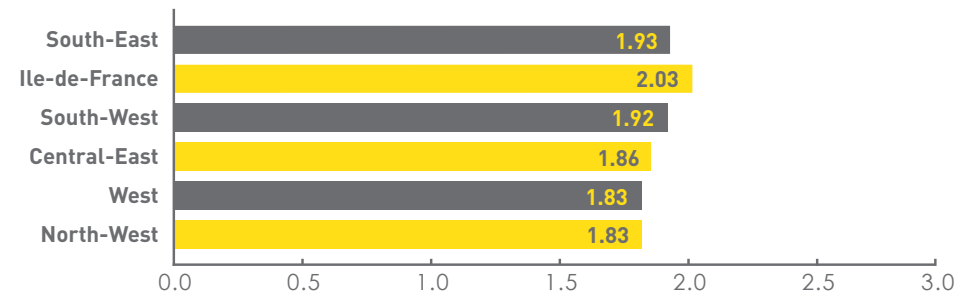
### Processes by Economic Zone

All zones in France show some established processes due to investment in vertical in-house systems. However, because trade is horizontal in nature, the efficiency that can be gained through further vertical investment is very limited.

The difference between the highest and the lowest scores is very low at 4.0%, indicating a uniform opportunity for enhancing Processes across all the zones.

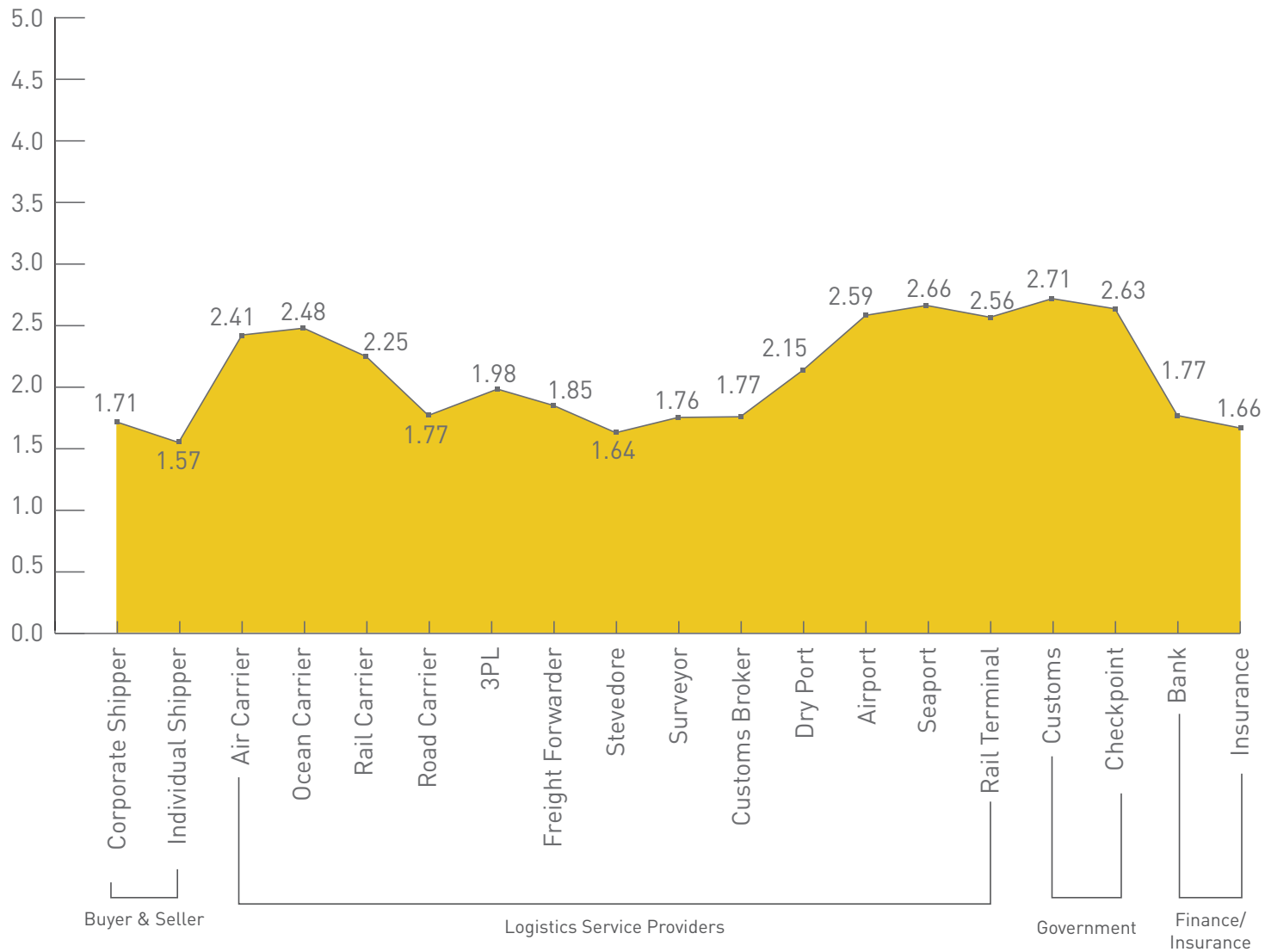
The principle manufacturing and mining companies especially in the automotive, aircraft and pharmaceutical industries are located in the Ile-de-France (2.03) and South-East (1.93) zones. These organizations have invested in their vertical processes to optimize the handling of the shipment in their jurisdictions.

With improved Integration across France, further efficiency gains will be achieved in the horizontal processes in all economic zones and contribute to a further increase in France's overall trade efficiency. With the right innovation, there is a countrywide opportunity to enhance the Processes scores across all the zones of the country and bridge the efficiency gap.



## Processes Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to Processes adopted
- 22.4% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

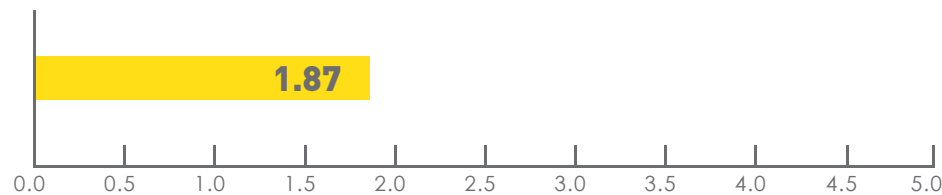
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in proprietary vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### France's Overall E-Documentation Score

The overall national E-Documentation score of France is 1.87, which indicates that some significant steps can be implemented by France to attain an optimal level of E-Documentation capability.

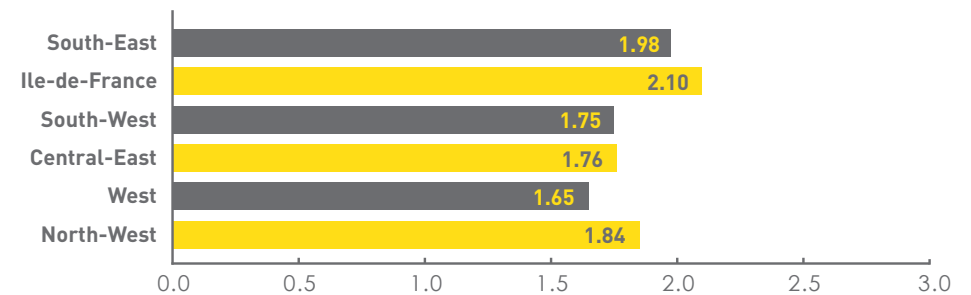


A key factor in the establishment of efficient and sustainable trade pipelines is the proper creation and submission of E-Documentation that reduces keystrokes, errors and shipment delays.

The French government has enacted policies to promote the use of information technology systems in the businesses, including the use of ICS and ProDuane for trade facilitation, which is increasing the use of E-documents.

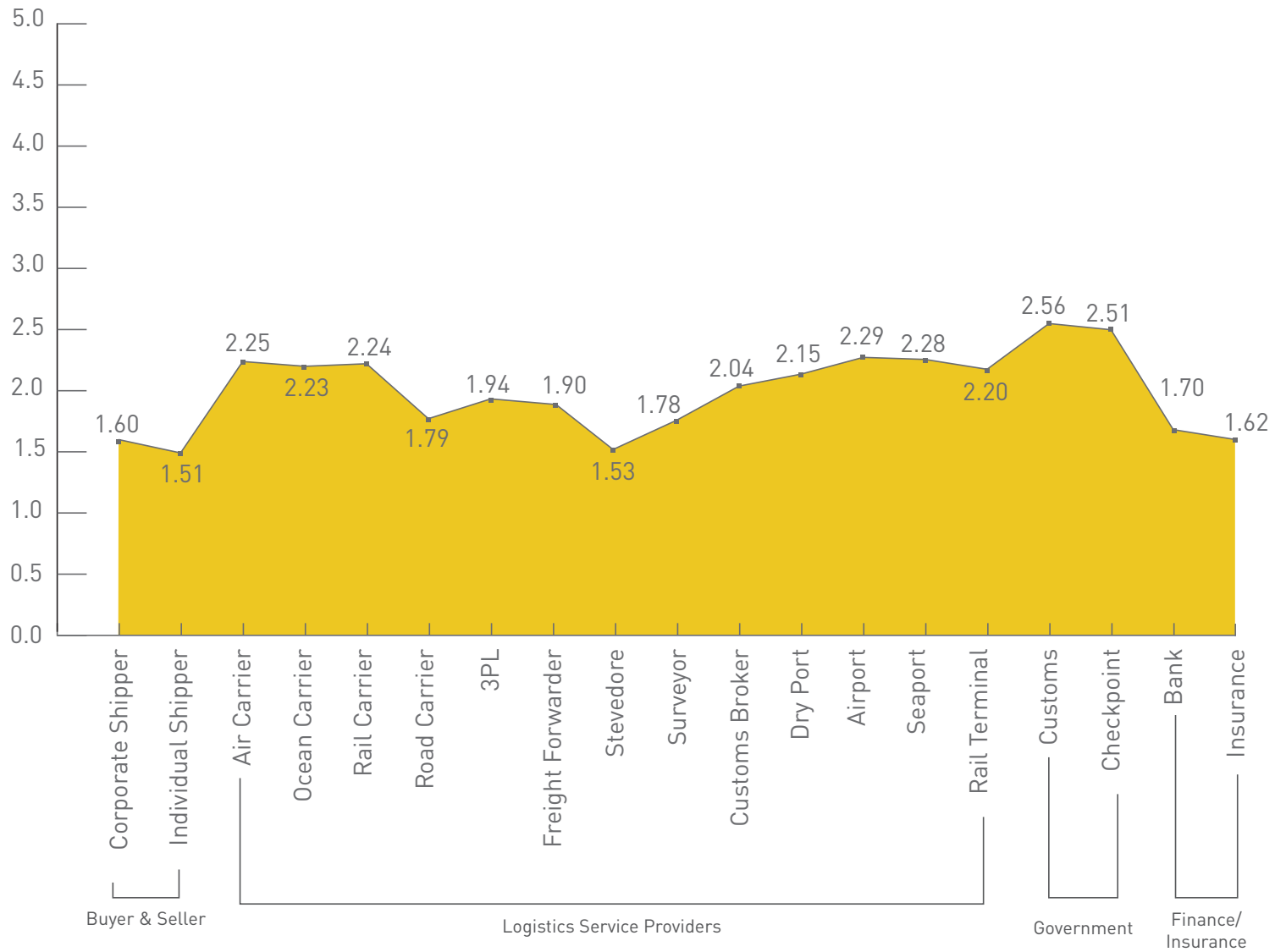
### E-Documentation by Economic Zone

Examining the E-Documentation scores by Economic Zone, we see that the Ile-de-France (2.10) and South-East (1.98) zones have scored higher than the other zones. This is driven by the requirements of the machinery, chemical, automobile, metal, aircraft, electronic equipment and food industries. The difference between the highest and the lowest scores is moderate at 9%. This consistency across economic zones indicates that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed and adopted.



## E-Documentation Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

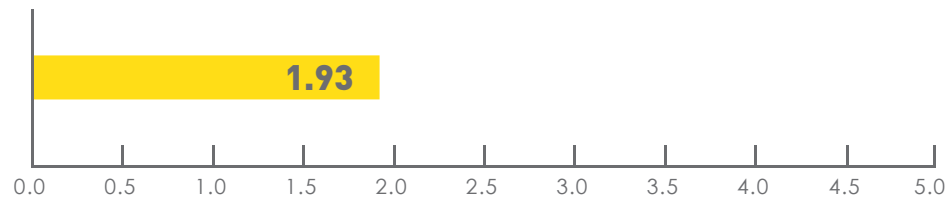
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all of its trade lane pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### France's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in France is 1.93, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility performance.



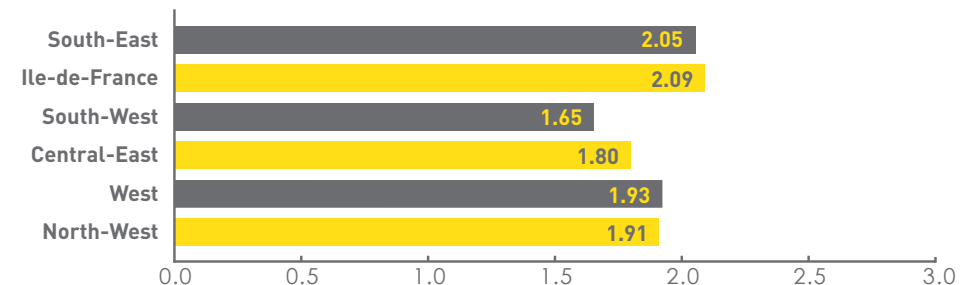
The businesses in France select their logistics service providers based on their reliability of shipment delivery and cargo safety. Hence, the trade participants in France should focus on increasing the level of real-time Tracking & Visibility of their shipments by using innovative technologies that leverage point-to-world integration.

### Tracking & Visibility by Economic Zone

Analyzing Tracking & Visibility by Economic Zones, it is apparent that all zones are consistent, with the difference between the highest and lowest scores being moderate at 8.8% on the 5-point scale. This relatively moderate discrepancy indicates that an opportunity exists to implement an improvement strategy for Tracking & Visibility at the countrywide level.

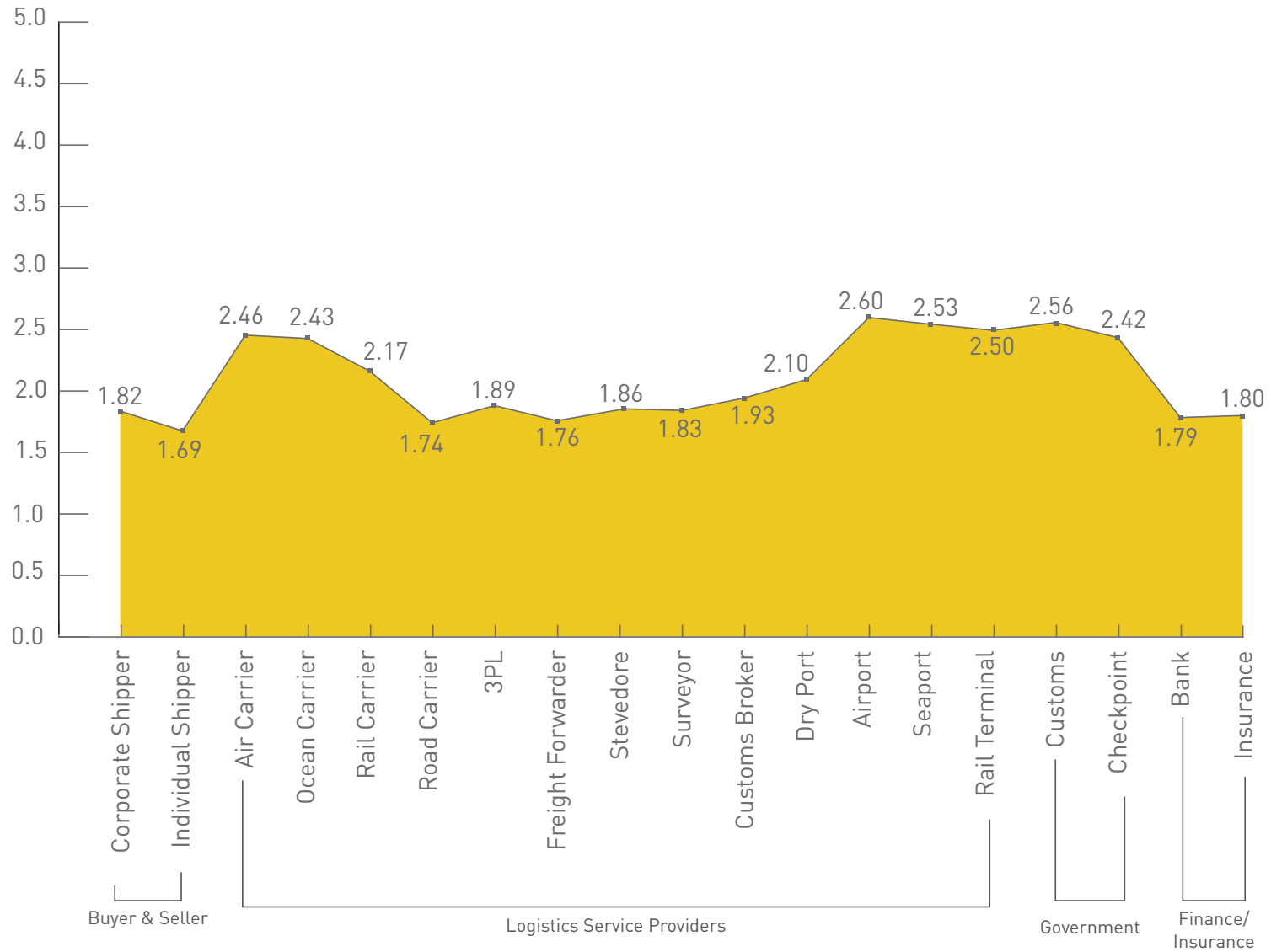
The Ile-de-France (2.09) and South-East (2.05) zones have higher Tracking & Visibility scores than the other zones. This is predominantly due to the presence of major Seaports, Airports, as well as asset-based Air and Ocean Carriers that possess the tracking technology for shipments in these zones with the required level of visibility. Moreover, 45% of France exports totalling around USD 300 billion pass through these zones; the high value items of these shipments require increased Tracking & Visibility.

When the right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, France can enhance its Tracking & Visibility to improve its security and achieve superior operating efficiencies.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



## COMPETENCE

### Findings – Data

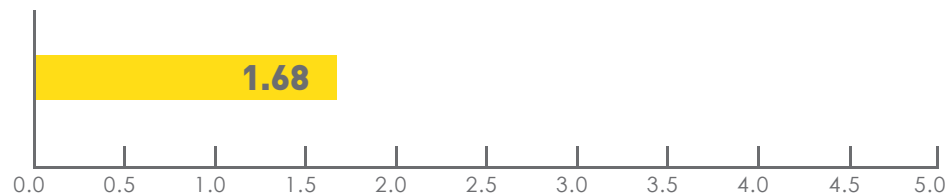
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

### France's Overall Competence Score

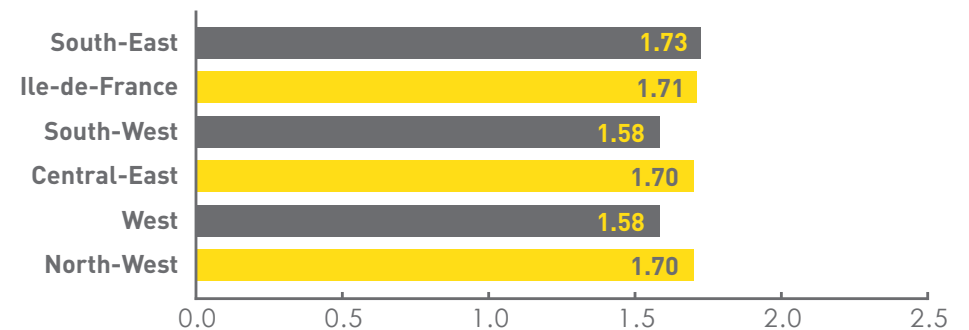
The overall national Competence score in France is 1.68. Given that a score of 5.0 reflects maximum efficiency, France's score indicates a moderate level of Competence and an opportunity for France to leverage its highly skilled workforce to achieve significant improvements relating to the handling of shipments in the trade pipeline.



France has a high literacy rate and prestigious educational institutions that provide an ample pool of skilled resources to support its businesses. However, France needs to promote policies that provide incentives to its businesses to train their workforce with a focus on enhancing their Competence in global value chains.

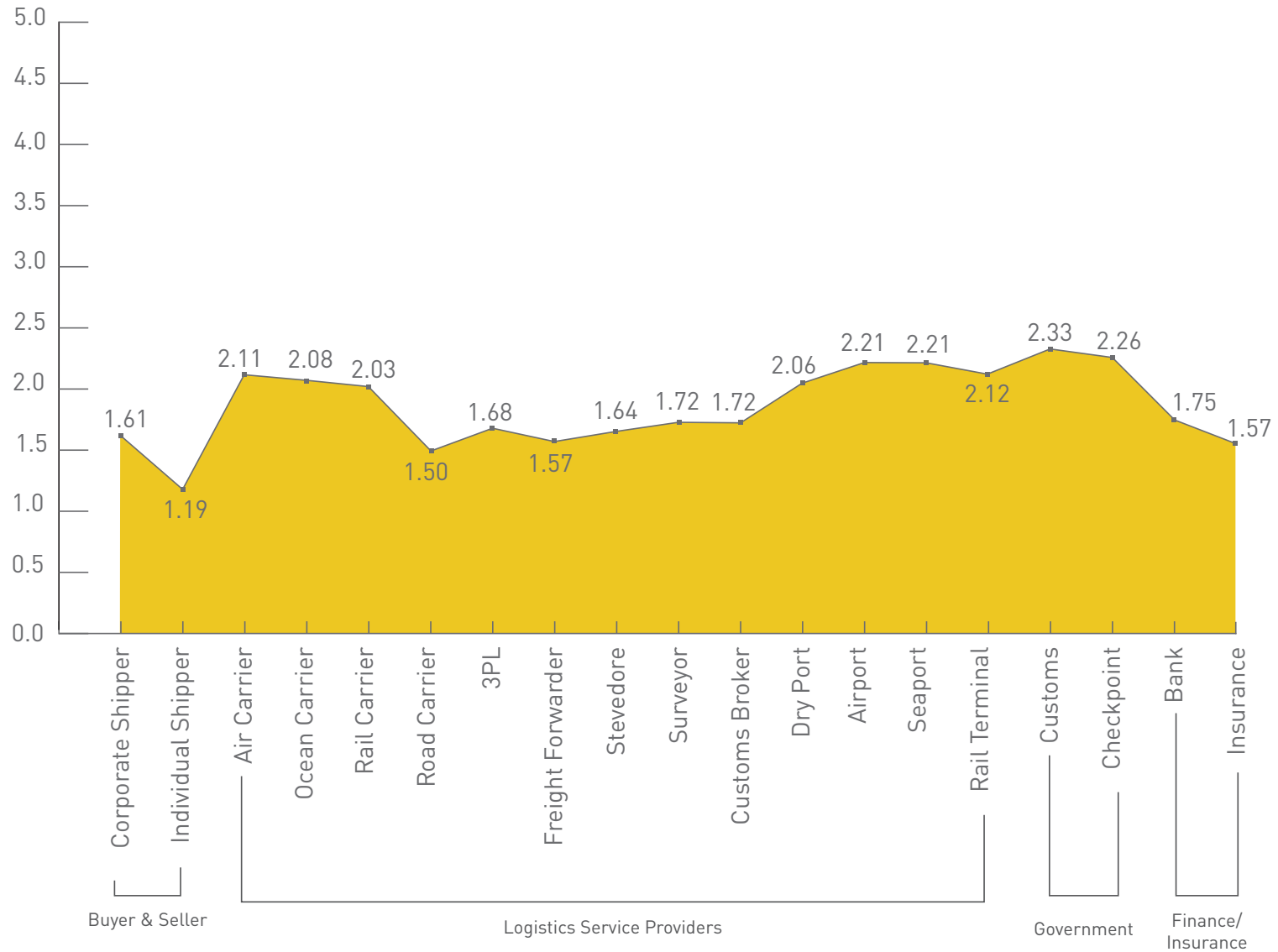
### Competence by Economic Zone

All the zones scored uniformly on Competence with the difference between the highest and the lowest scores being very low at 3%. This indicates that with the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate issues when necessary, the Competence level of employees can be improved uniformly across all the zones. This, in turn, contributes to improving the efficiency of France's global value chains.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

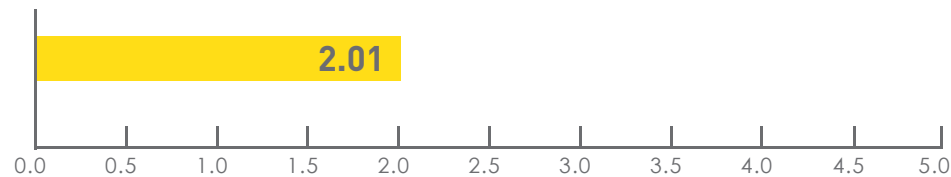
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

### France's Overall Cargo Security Score

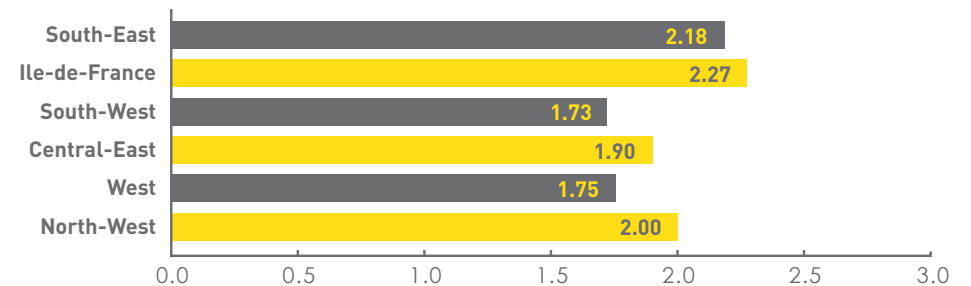
The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 2.01 indicates France's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, France's level of Cargo Security Efficiency nationwide can be improved.



### Cargo Security by Economic Zone

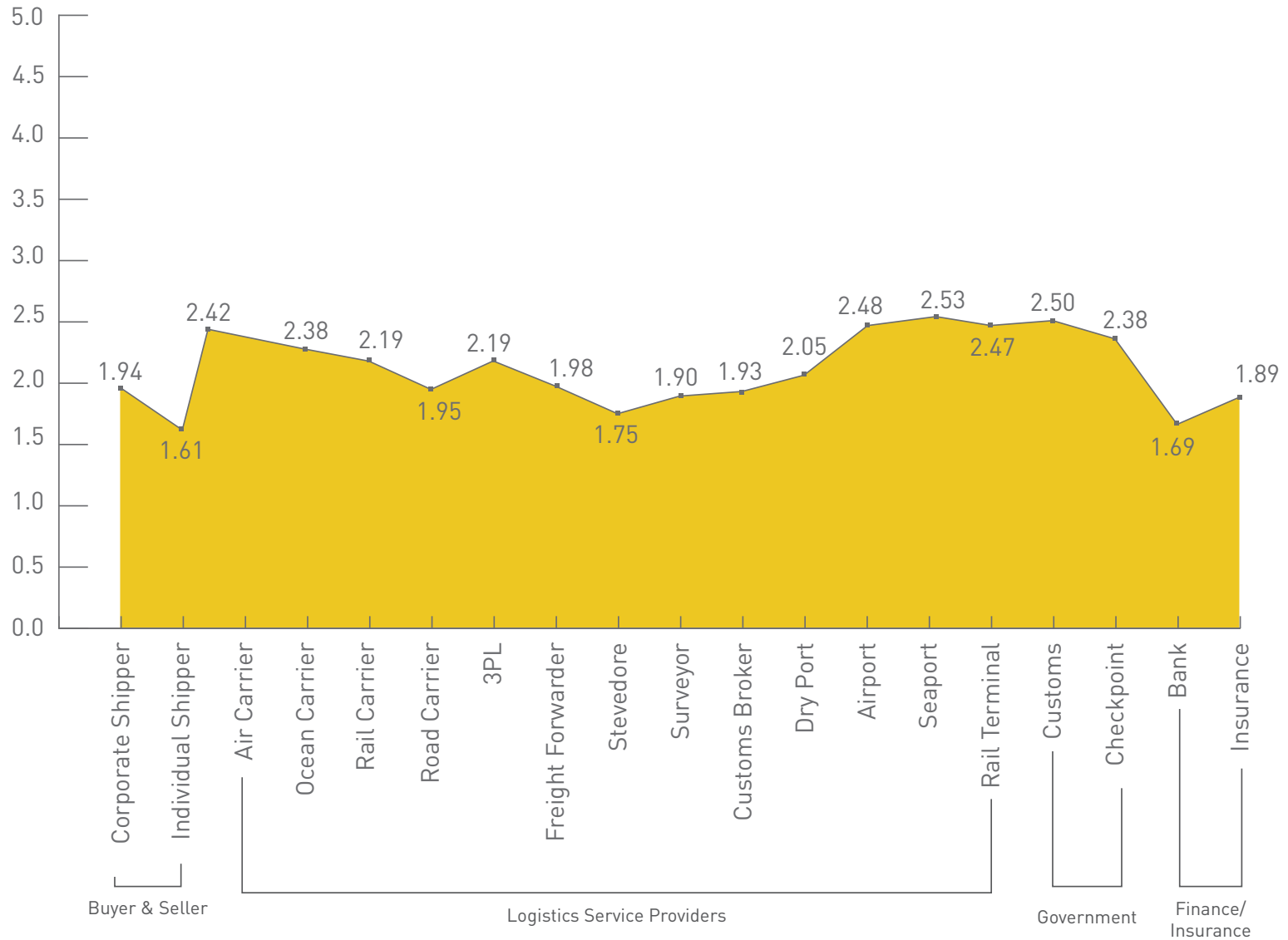
The Ile-de-France (2.27) zone has scored the highest on Cargo Security, followed by South-East (2.18) and North-West (2.00) zones. Between 2010 and 2014, the exports from these zones to the neighbouring countries (Germany, Belgium, Luxembourg, Italy, Switzerland and United Kingdom), accounted for roughly 40% of France's total exports. Due to the high volume and nature of the goods shipped through these zones, such as machinery, transportation equipment, passenger cars, commercial vehicles, aircraft, refined petroleum, chemicals and pharmaceuticals, these zones have developed additional security measures that are reflected in their higher scores.

The difference between the highest and lowest scores is moderate at 10.8%. France needs to implement additional measures Efficiency across all the zones and help alleviate the gaps in Cargo Security efficiency among the zones.



## Cargo Security Efficiency by Trade Cluster

- ▶ ≤20% of Buyers/Sellers ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is ≤50% complete



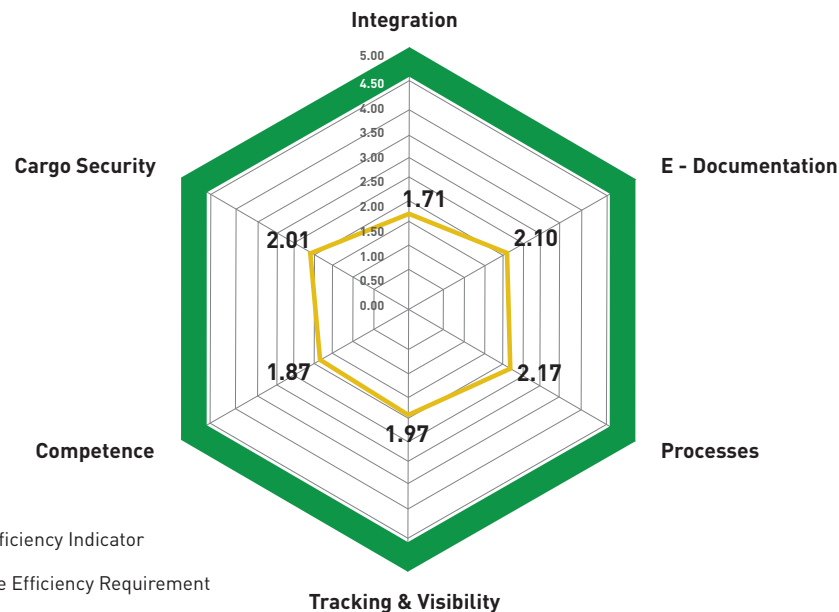


## Germany's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Germany's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Germany Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Germany SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon Implementation of the Germany SEA Report recommendations, Germany can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 57.1 billion, placing Germany at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 334 billion and create 2.2 million jobs by 2030, meeting the economic ambitions of Germany.

### Germany's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EI)



Germany Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

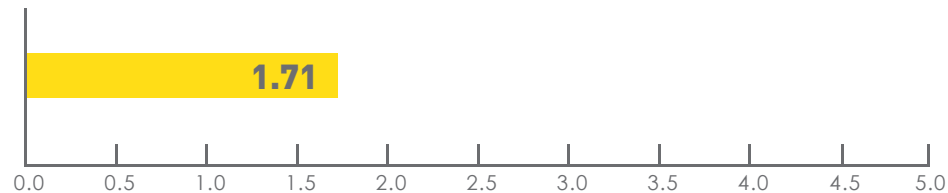
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## Germany's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Germany. Collectively they have scored 1.71 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



The German government has invested in the National Single Window and liberalization schemes to integrate the private sector with various agencies of the government in an effort to increase the level of Integration nationally, with the European Union (EU) member states and with the trade partners globally. The National Single Window expedites and simplifies information flows, provides single point of data entry and the one-time submission of information. It also facilitates trade by bringing efficiency to all trade participants involved in the flow of trade from shelf-to-shelf.

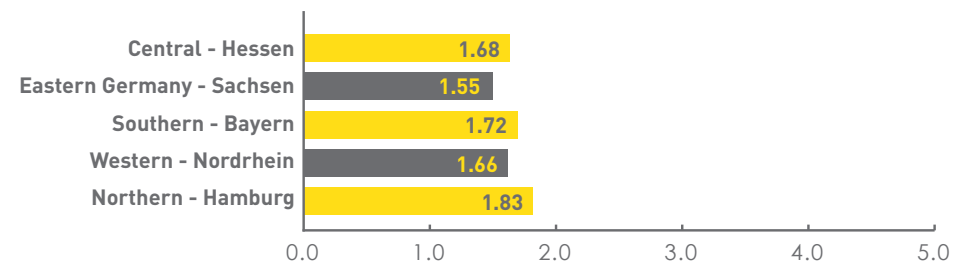
Similar focus on Integration across all the trade participants is necessary to significantly improve Germany's overall Integration score.

This Integration score is relatively low despite the German government's investment in various systems including ZOLL secure online portal, System for Exchange of Excise Data (SEED), and EU Customs Tariff (TARIC). These initiatives are examples of Customs and industry working together to provide an efficient and consistent approach to improve the facilitation of trade. Similar focus on Integration across all the trade participants is necessary to significantly improve Germany's overall Integration score.

## Integration by Economic Zone

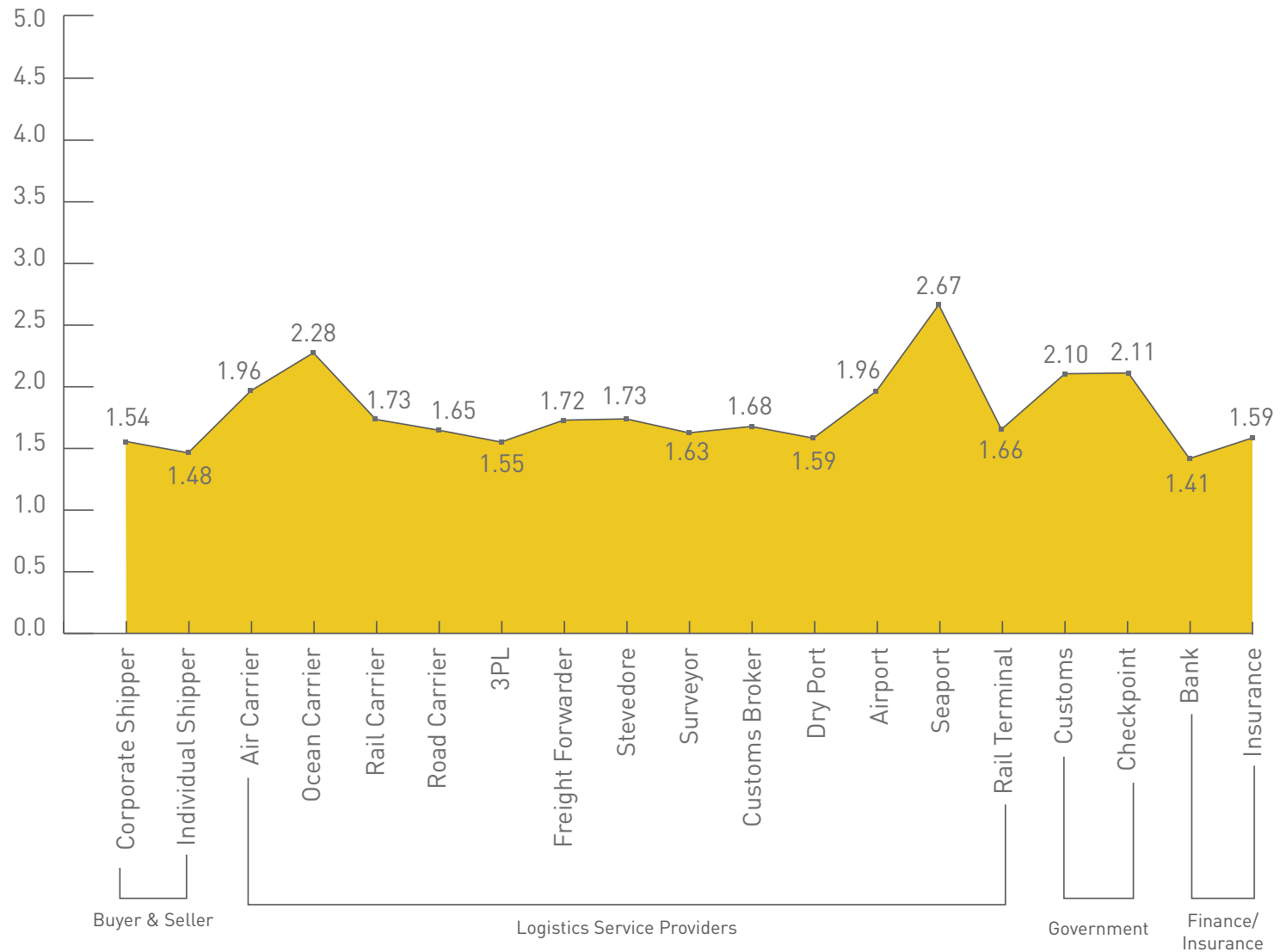
When we analyze the Integration score by Economic Zones, the industrially advanced and export oriented Northern-Hamburg (1.83) zone with the busiest port of Hamburg in the Baltic Sea has scored the highest. The Southern-Bayern (1.72) zone, due to the higher concentration and presence of the highly sophisticated export-oriented industries including automotive and chemical manufacturing centers in the Bavaria and Baden-Württemberg areas, has scored the next best. The difference in the scores of the remaining zones is low at 5.6%, indicating a countrywide opportunity to enhance Integration scores.

This low use of technology application across all zones in Germany confirms the need for the German government to devise economic development strategies and policies to enhance Integration Efficiency across all the zones.



## Integration Efficiency by Trade Cluster

- 81.8% of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 95.5% shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

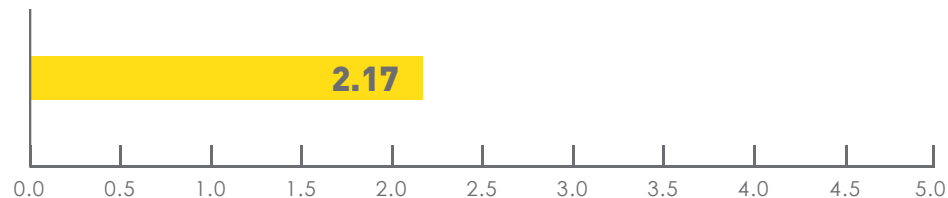
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade lane pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade lane pipeline.

### Germany's Overall Processes Score

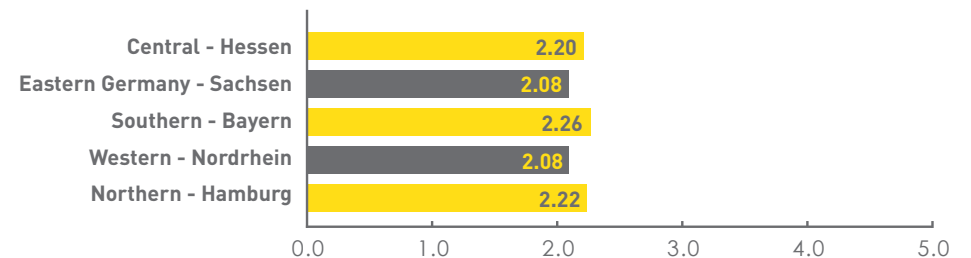
The following result represents the overall national Processes score assessing the handling of shipment flow through the trade pipeline. Collectively, the trade participants in Germany have scored a 2.17 out of a possible 5.0 on the 21-6-ETEI scale.



### Processes by Economic Zone

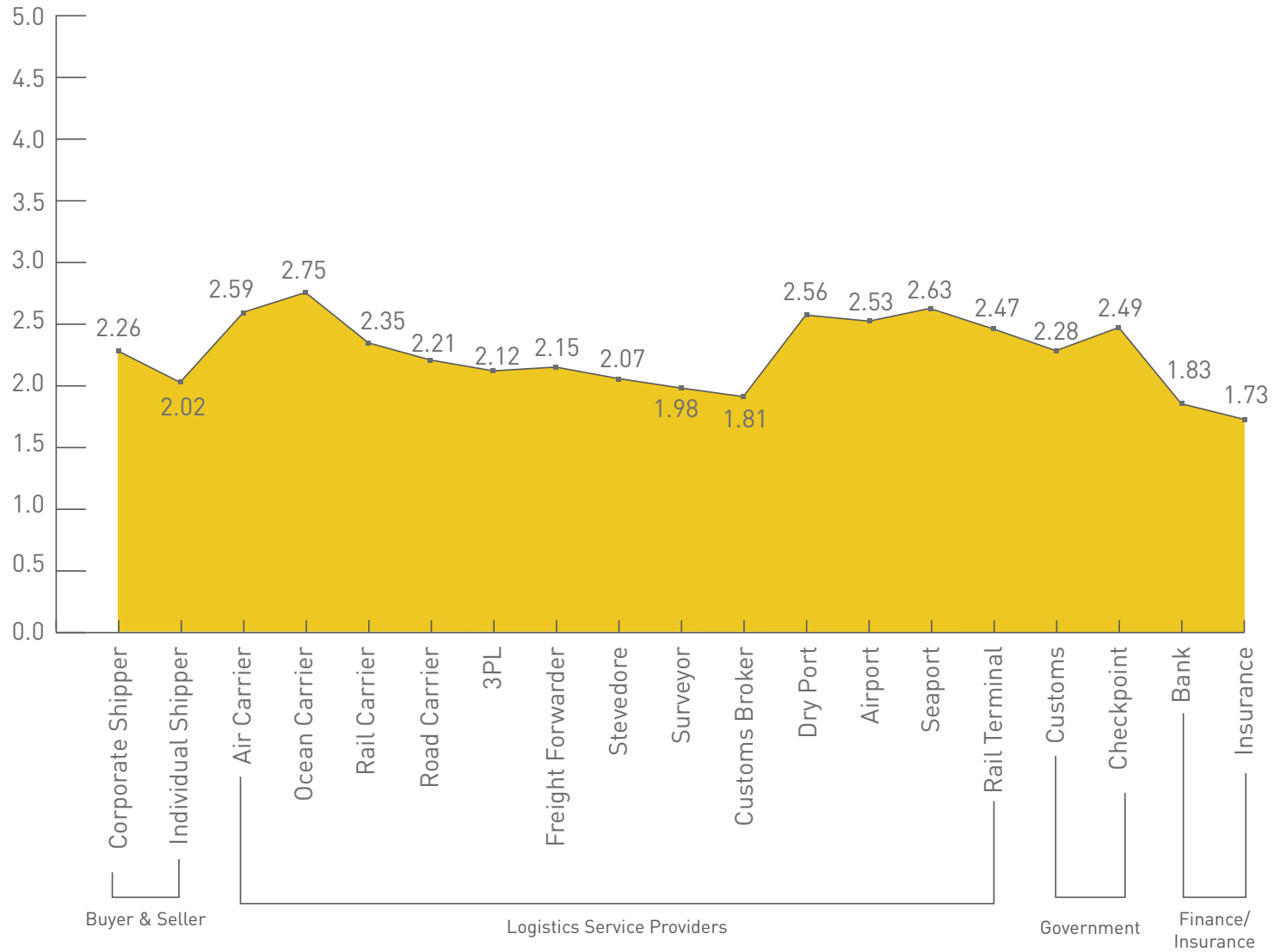
When we analyze Processes scores by Economic Zone, all five zones show some established processes due to investment in vertical in-house systems. The highest score of the Southern-Bayern (2.26) zone is due to the presence of the world-class automotive and manufacturing companies. The Northern-Hamburg (2.22) zone, with its major manufacturing and global logistics companies, along with the Southern-Bayern zone, has established internal vertical processes and handle high volumes of cargo and imp. The difference between the highest and the lowest scores is very low at 3.6%, indicating a countrywide opportunity to enhance Processes scores.

For the Processes in Germany to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across Germany, further efficiency gains will be achieved in the horizontal Processes in all economic zones, boosting Germany's overall trade efficiency.



## Processes Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 9.9% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

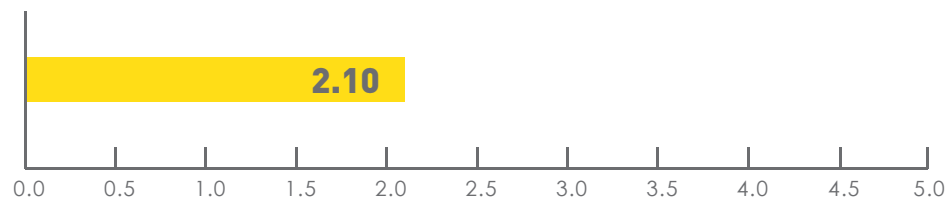
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data-re-keying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of using automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems without establishing horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### Germany's Overall E-Documentation Score

The overall national E-Documentation score represents aggregate data compiled from responses provided by the 19 clusters. Given that a score of 5.0 reflects optimal efficiency, 2.10 indicates that some of the clusters are moving from paper to E-Documentation, primarily influenced by the Customs clearance process provided through the National Single Window.

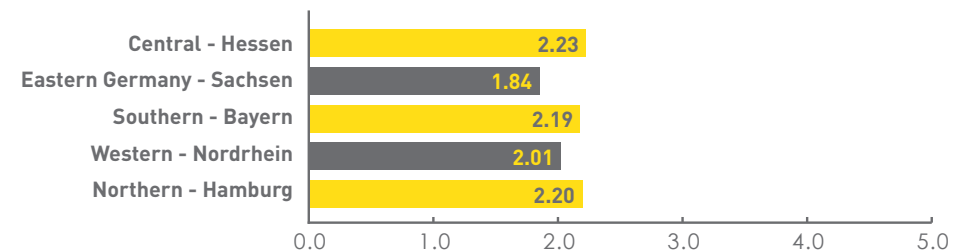


### E-Documentation by Economic Zone

The higher scores in Central-Hessen (2.23), Northern-Hamburg (2.20), and Southern-Bayern (2.19) zones are due to the presence of major automotive, manufacturing and transport organizations with sophisticated in-house vertical systems that use E-Documentation for shipment and trade related activities.

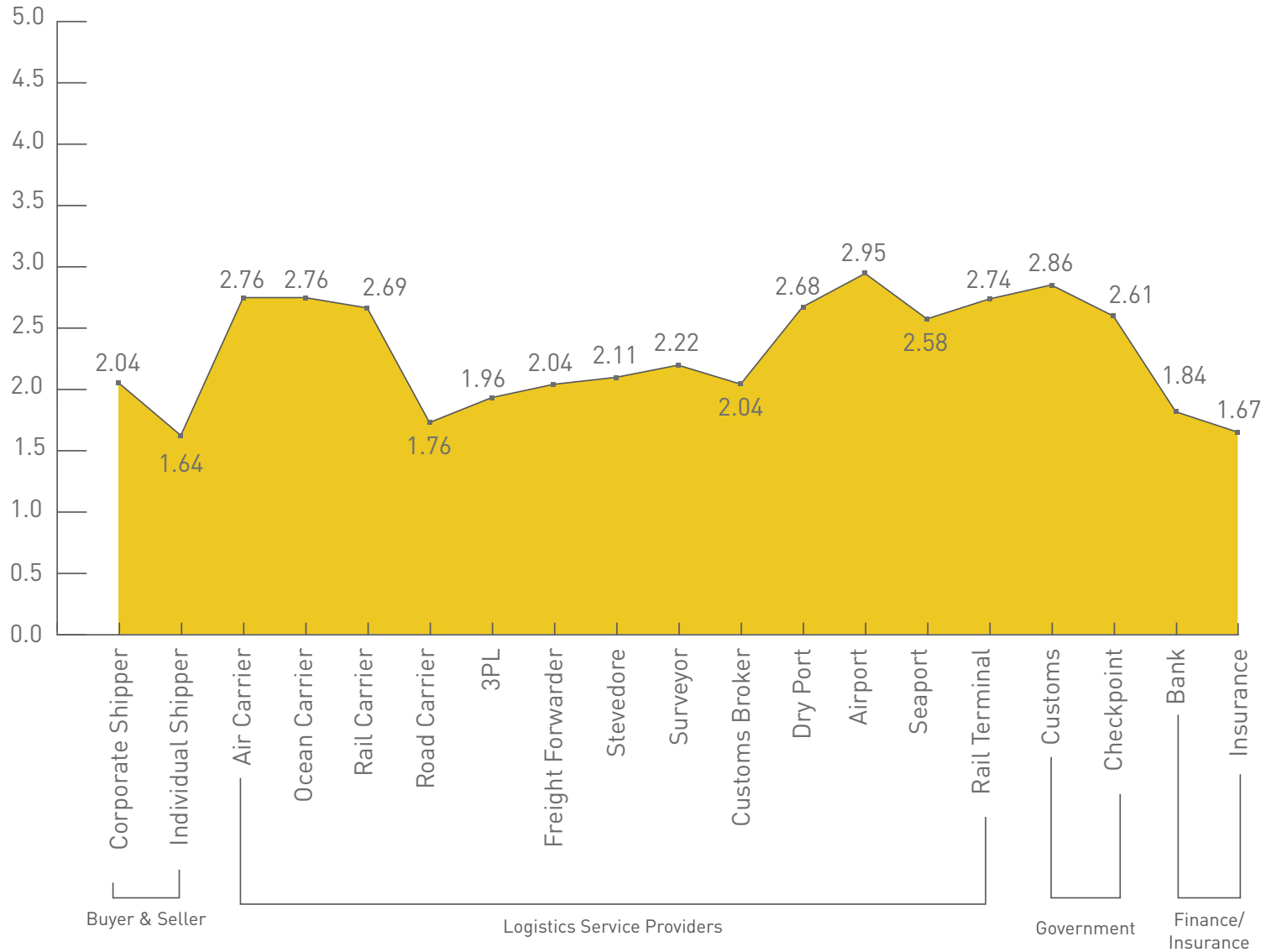
E-Documentation scores are fairly consistent across the economic zones with the difference between the highest and lowest scores being moderate at 7.8%.

Hence, there is a countrywide opportunity to achieve optimal level of efficiencies when an E-Documentation capability is made available.



## E-Documentation Efficiency by Trade Cluster

- 61–80% of data is re-entered due to systems incompatibility, with some data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

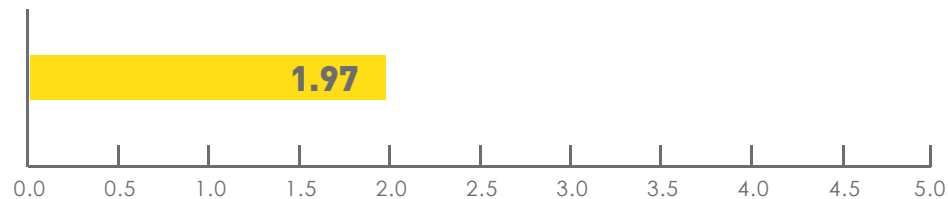
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### Germany's Overall Tracking & Visibility Score

The overall national Tracking & Visibility level in Germany is 1.97, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.

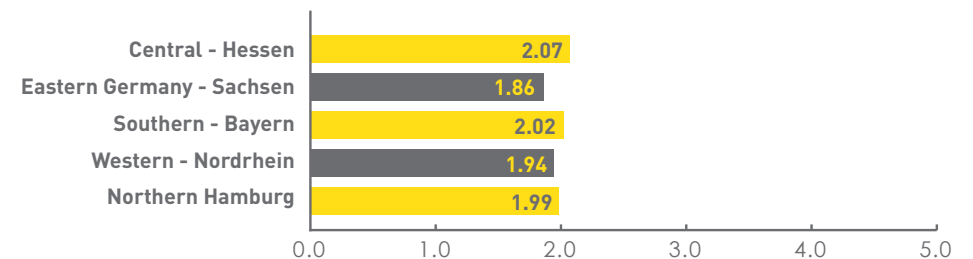


### Tracking & Visibility by Economic Zone

When we analyze the Tracking & Visibility by Economic Zone, the difference of 4.2% between the highest and the lowest scores is small, indicating that there is a countrywide uniform opportunity to improve Tracking & Visibility.

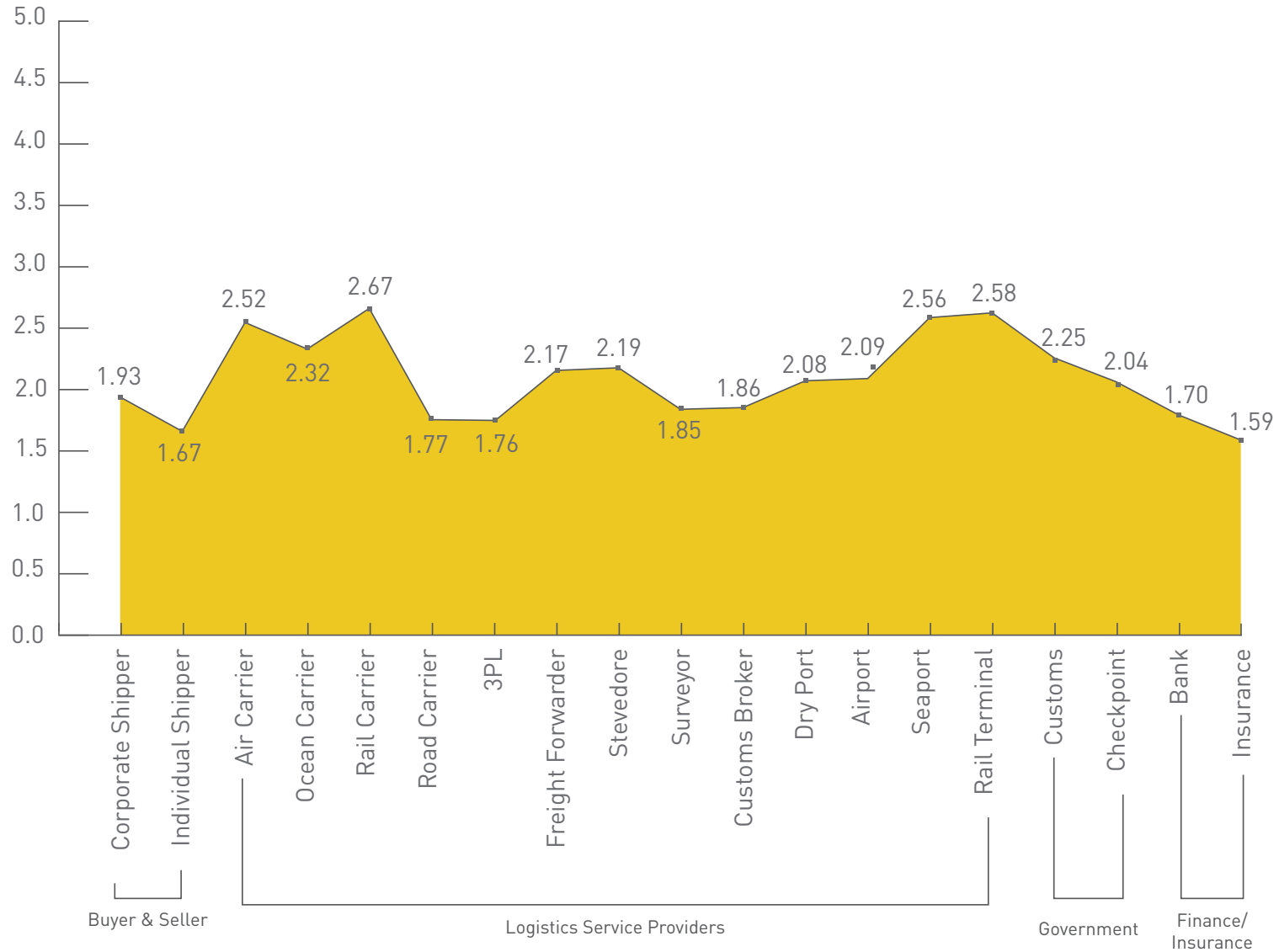
Germany is heading towards building a more intelligent and flexible logistics network. An improved and efficient Tracking & Visibility capability provides higher reliability, greater efficiency, predictive ability, and faster throughput of goods.

When the right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, Germany can enhance its Tracking & Visibility to achieve superior operating efficiencies.



## Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

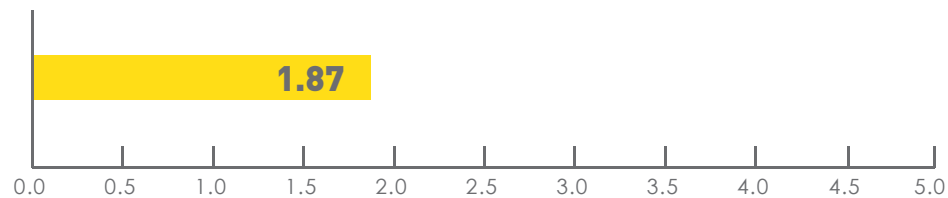
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

### Germany's Overall Competence Score

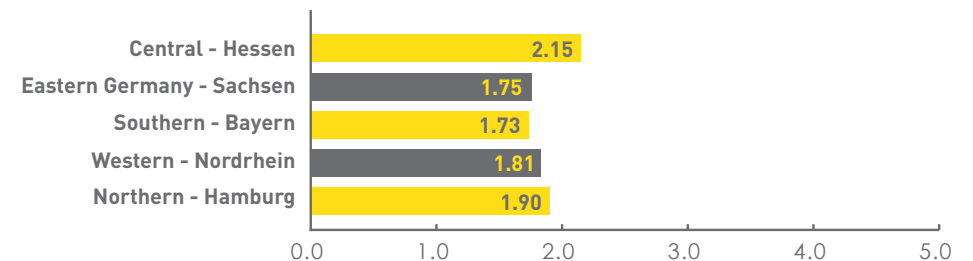
The overall national Competence score in Germany is 1.87. Given that a score of 5.0 indicates maximum efficiency, Germany's score indicates an opportunity for Germany to leverage its skilled and talented workforce to achieve significant improvement.



### Competence by Economic Zone

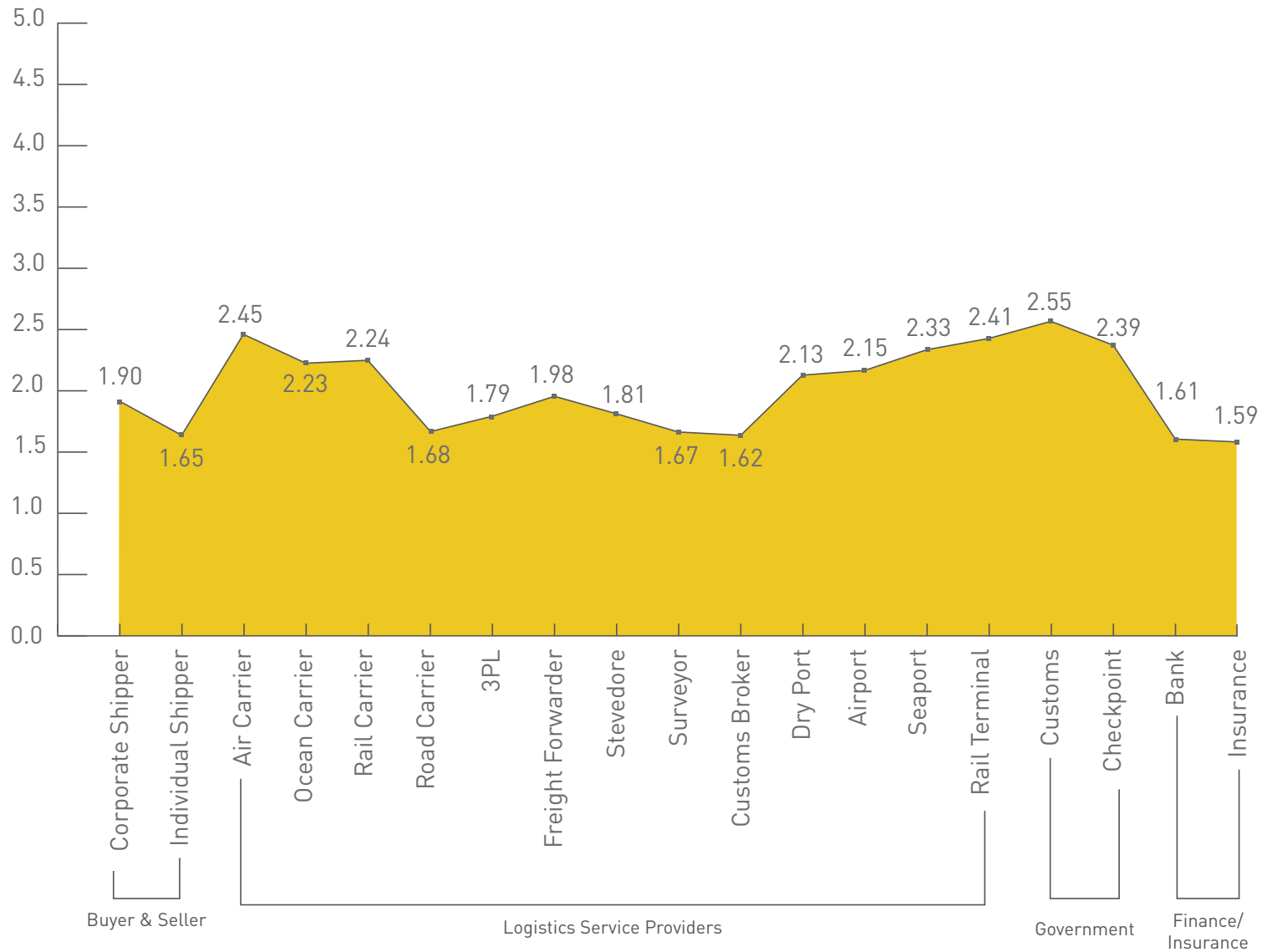
The Central-Hessen (2.15) zone scored the highest and the Southern-Bayern (1.73) zone scored the lowest, with the difference between them being moderate at 8.4%. This indicates a countrywide opportunity to enhance Competence.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate when necessary, the competence level of employees can be improved to a superior level across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines across Germany.



### Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

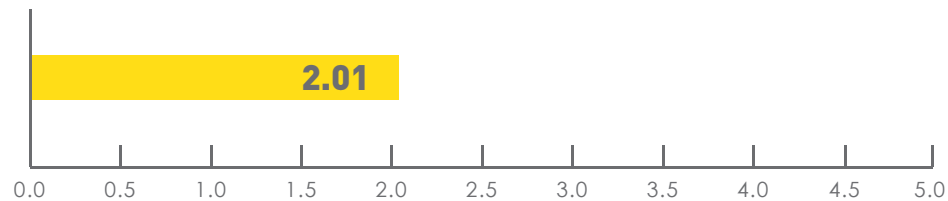
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

### Germany's Overall Cargo Security Score

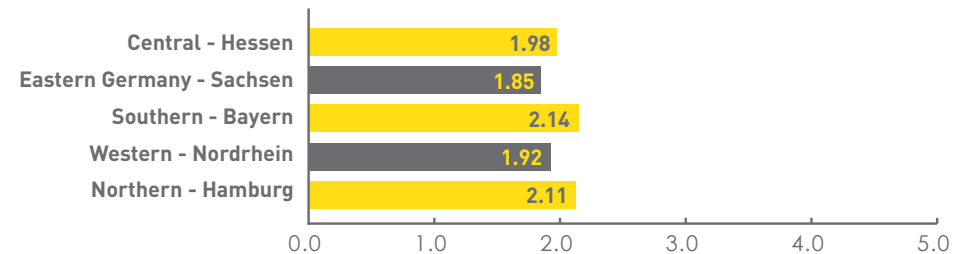
The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 2.01 indicates Germany's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Germany's level of Cargo Security Efficiency nationwide can be improved.



### Cargo Security by Economic Zone

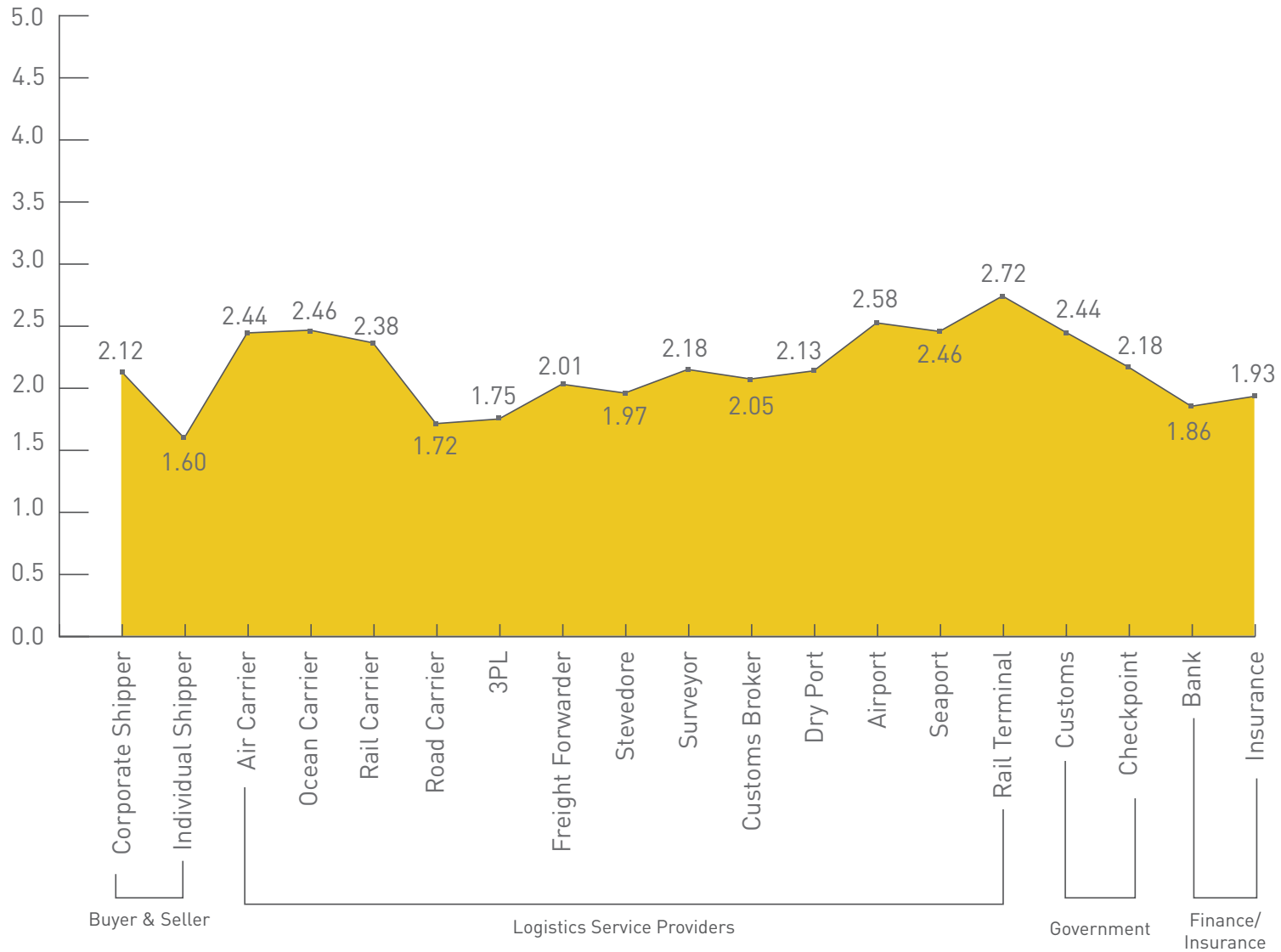
The Cargo Security scores of all the Economic Zones are comparable with the difference between the highest and lowest scores being low at 5.8%. These relatively consistent scores across the regions indicate that implementation of new measures can enhance Cargo Security uniformly across the zones. The higher score in the Southern-Bayern (2.14) zone is due to the presence of the key export oriented industries in Germany such as automotive, chemical and mechanical. These high value and key industries of national importance require additional security measures. The Northern-Hamburg (2.11) zone with its concentration of industries that facilitate exports through the Hamburg port has scored the second highest.

Accordingly, an implementation of innovative measures that complement Germany's National Single Window by connecting all the vertical systems in Germany's trade pipelines to deliver the real-time shipment information needed for the government agencies can enhance the Cargo Security scores of all the zones.



### Cargo Security Efficiency by Trade Cluster

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is ≤50% complete



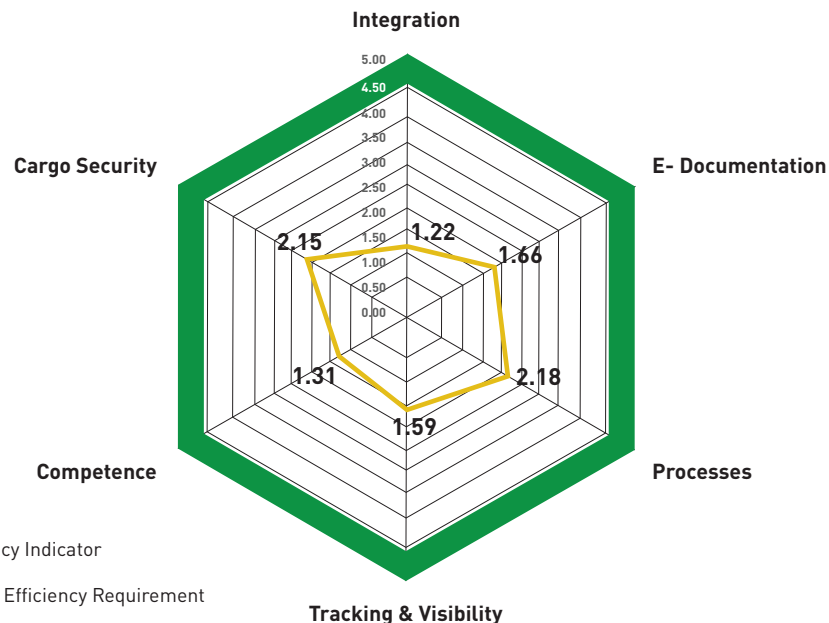


## India's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated India's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the India Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the India SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the India SEA Report recommendations, India can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 73 billion, placing India at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 365 billion and create 17.1 million jobs by 2030, meeting the economic ambitions of India.

### India's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



India Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

## INTEGRATION

### Findings – Data

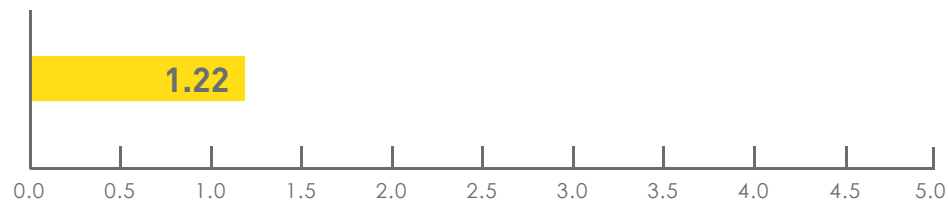
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade lane participants, a participant can score at most 2.5.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

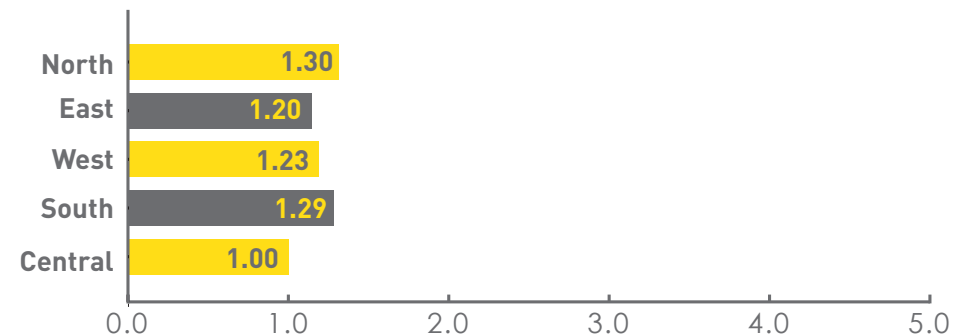
### India's Overall Integration Score

This represents the aggregate data on a national level from all nineteen clusters surveyed in India. Collectively they have scored a 1.22 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



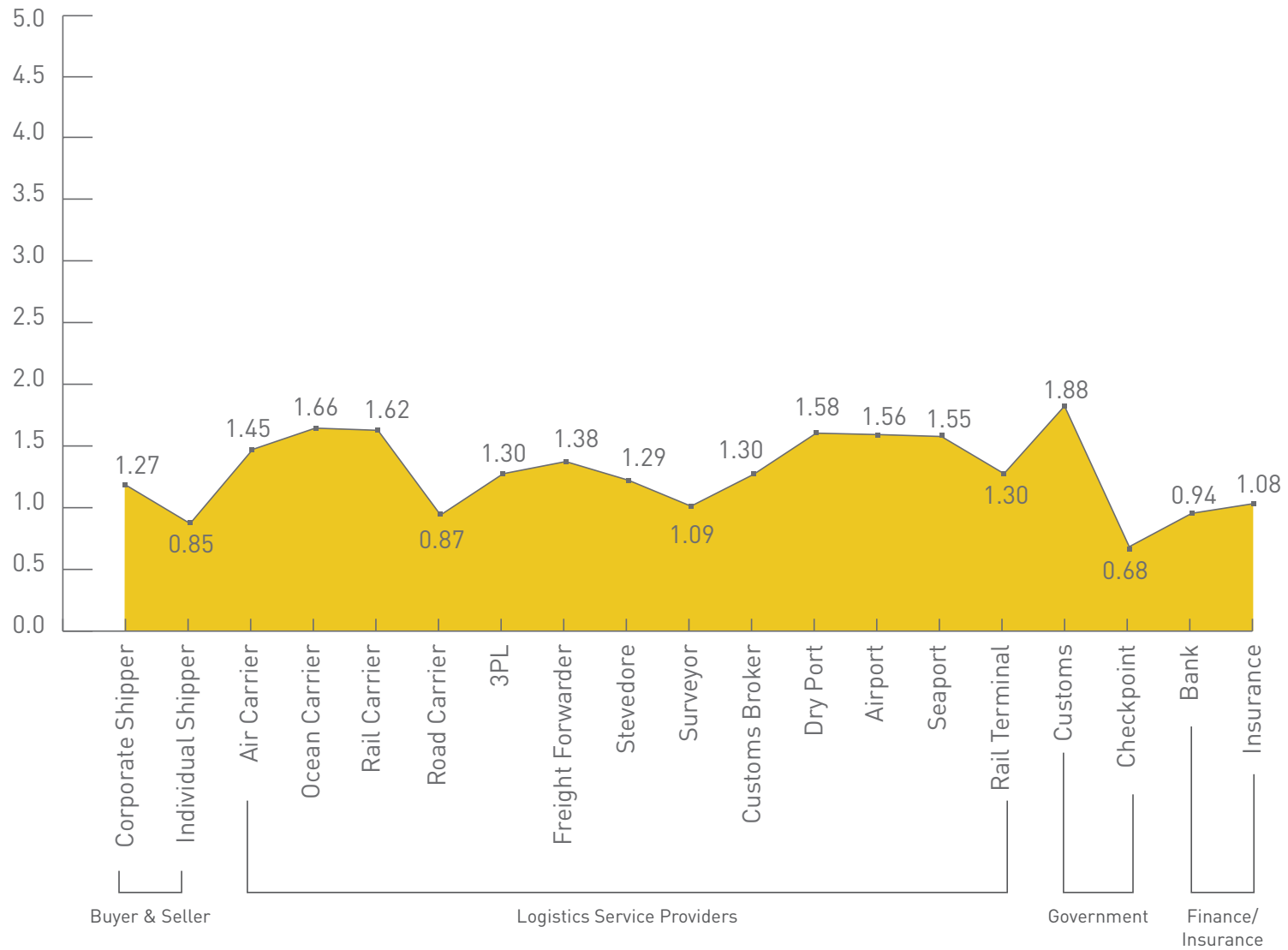
### Integration by Economic Zone

The Indian government, recognizing the importance of Integration, has created Special Economic Zones (SEZ) and has made several attempts to better connect the economic zones by working with organizations such as the Delhi State Industrial & Infrastructure Development Corporation (DSIIDC). However, the technology in use does little to improve the Integration score because vertical in-house investments cannot maximize required horizontal efficiency. According to our survey only 40% of the companies in India have vertical in-house systems, and 95% of these systems are not integrated across the nineteen clusters. It is worth noting that the difference in the Integration scores between the lowest score (1.00) and the highest score (1.30) is minimal. This means that when the right innovation is introduced to the country, it will be quickly and evenly adopted across all zones.



## India Integration by Trade Participant

- 75.25 % of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 94.19 % of shipment communications related to shipments are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

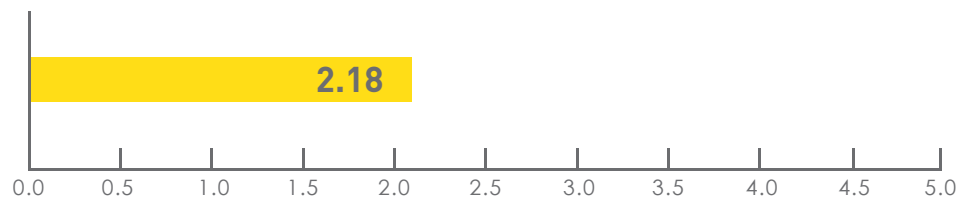
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade lane pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5=** Optimum and complete Processes in a trade lane pipeline.

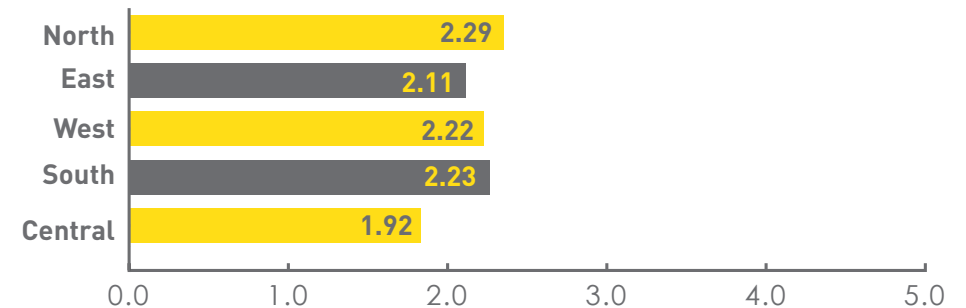
### India's Overall Processes Score

This represents an overall national Processes score assessing the handling of shipments in the trade pipeline. Collectively the trade participants have scored a 2.18 out of a possible 5.0. The top score of 5.0 represents optimal performance and complete Processes throughout the trade pipeline.



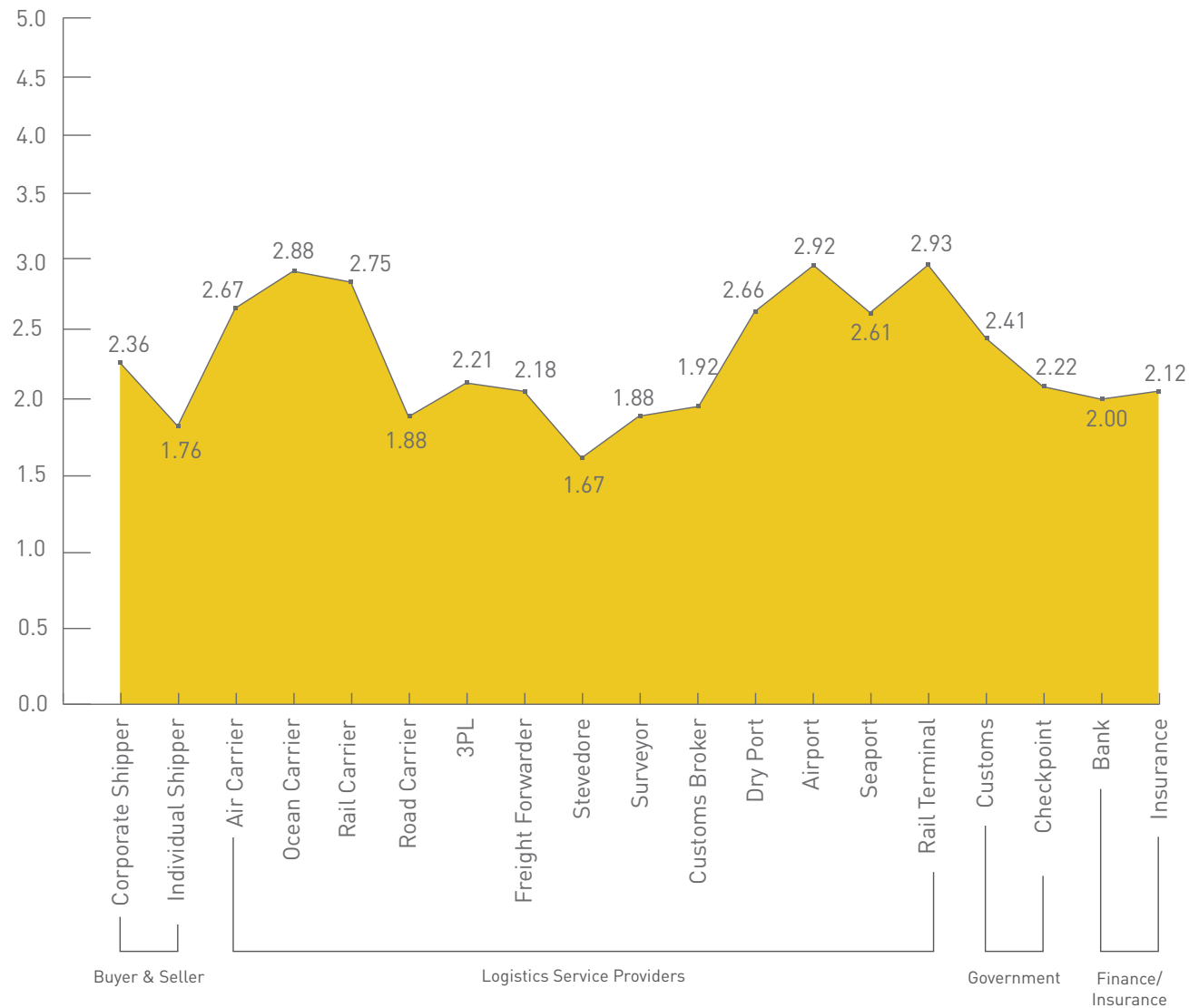
### Processes by Economic Zone

When we look at Processes by Economic Zone, all five zones have established processes for the handoff of shipments between trade participants. The presence of top technology companies, auto manufacturer, and multinational corporations has contributed to the establishment of internal processes. These processes need further Integration in order to be optimally efficient. The fairly even distribution indicates a level of national consistency that provides an ideal starting point for horizontal process optimization.



## India Processes by Trade Participant

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 12.25% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

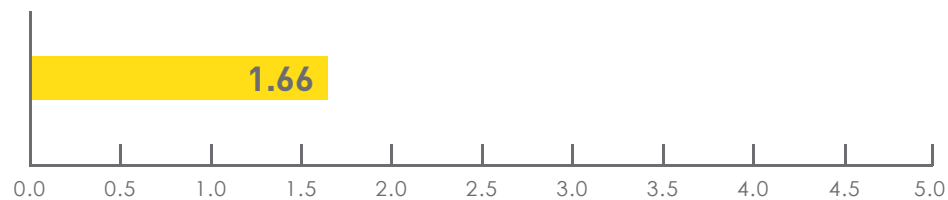
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain at most a score of 2.5.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

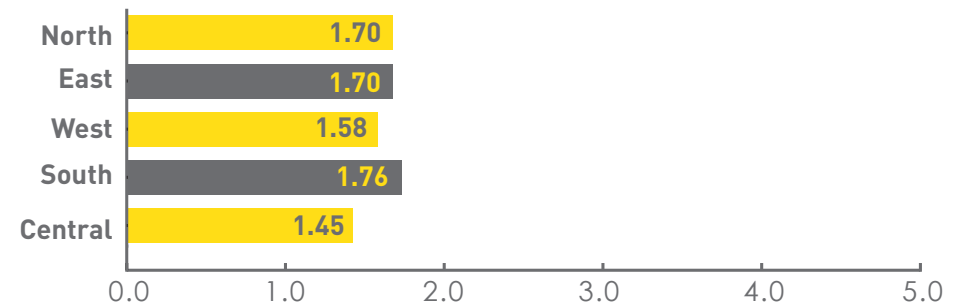
### India's Overall E-Documentation Score

The overall national E-Documentation score represents aggregate data compiled from responses provided by the 19 clusters. Given that a score of 5.0 indicates optimal efficiency, 1.66 indicates that some of the 19 clusters are moving from paper to E-Documentation, primarily influenced by the Customs clearance process provided through the ICEGATE portal, India's National Single Window.



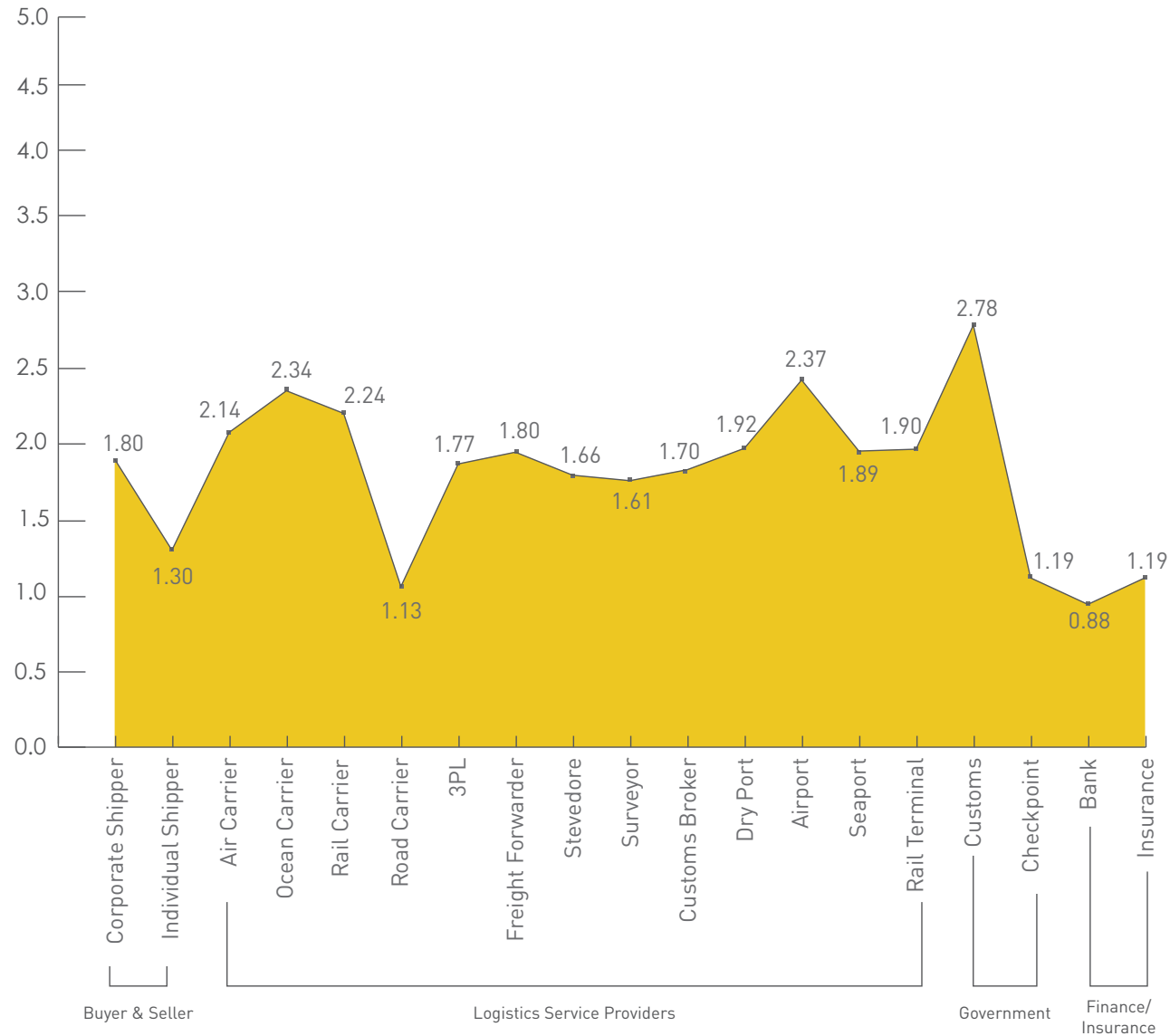
### E-Documentation by Economic Zone

E-Documentation scores are fairly consistent across economic zones. This means that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed. The clearance process provided through the ICEGATE portal primarily influences the highest score in the South, which includes 60% of India's major seaports.



## India E-Documentation by Trade Participant

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

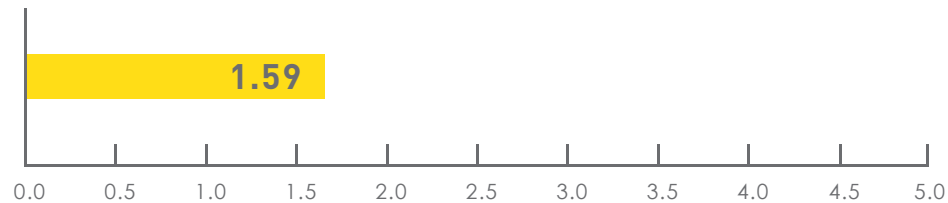
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score at most 2.5. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### India's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score represents aggregated data compiled from responses provided by the 19 clusters. Given that 5.0 indicates an optimum Tracking & Visibility capability, 1.59 indicates that significant steps are necessary in order to attain an optimum level of Tracking and Visibility performance in India.



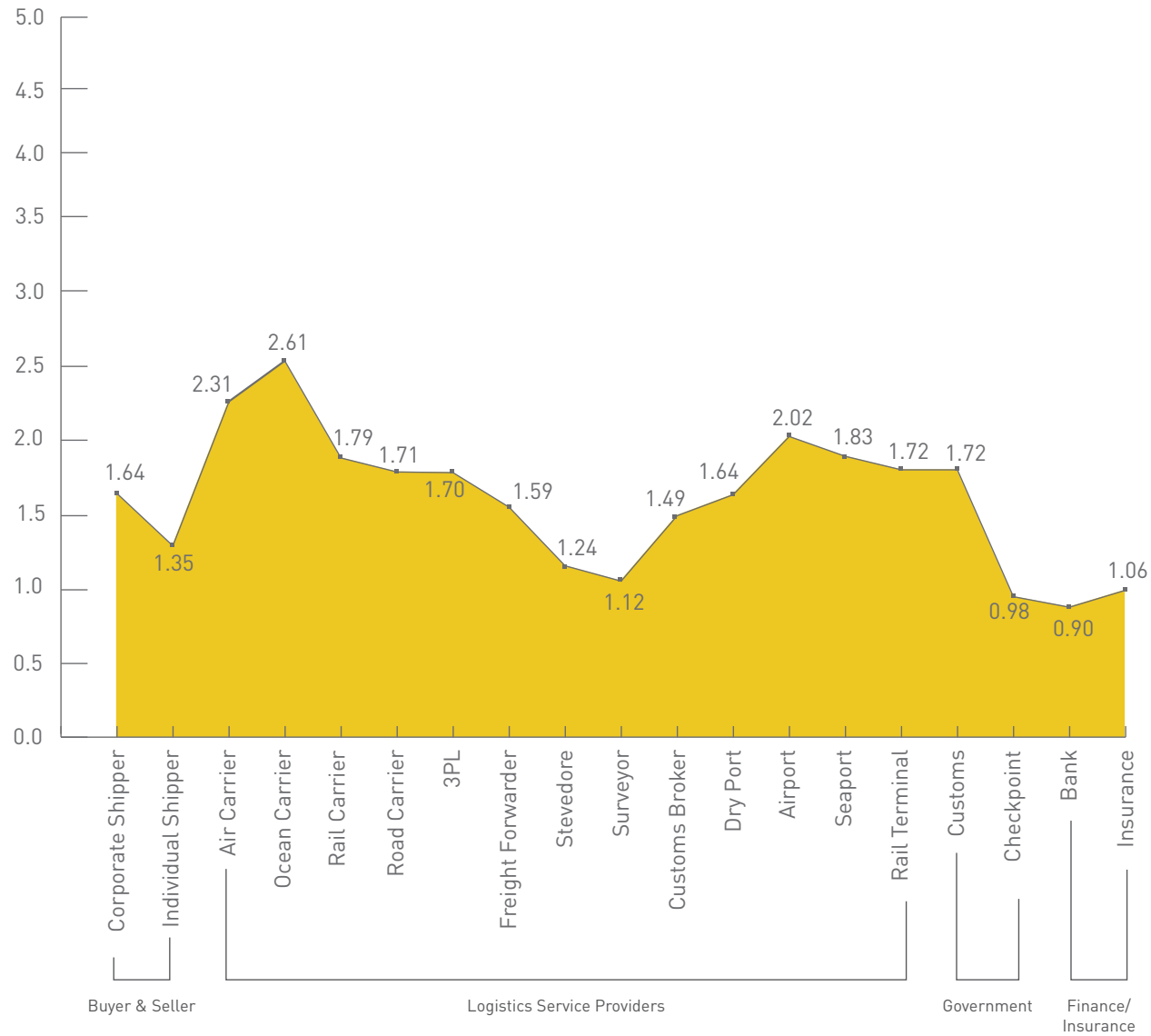
### Tracking & Visibility by Economic Zone

When we look at Tracking & Visibility by Economic Zone, all five zones are consistent. This relatively even distribution indicates that, as with Integration, there is a country-level opportunity to improve Tracking & Visibility through an evenly applied initiative across all regions. The higher score in the North is due to the high volume and value of the goods produced in this region such as steel and metal, petrochemicals and electronics. In addition, the presence of major IT companies in this zone provides the technology necessary for Tracking & Visibility of shipments.



## India Tracking & Visibility by Trade Participant

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

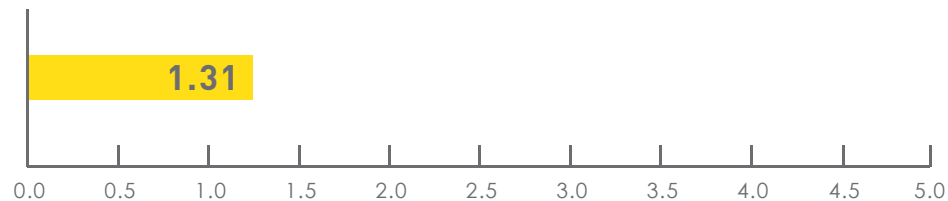
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to automate its contractual obligations into operational metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

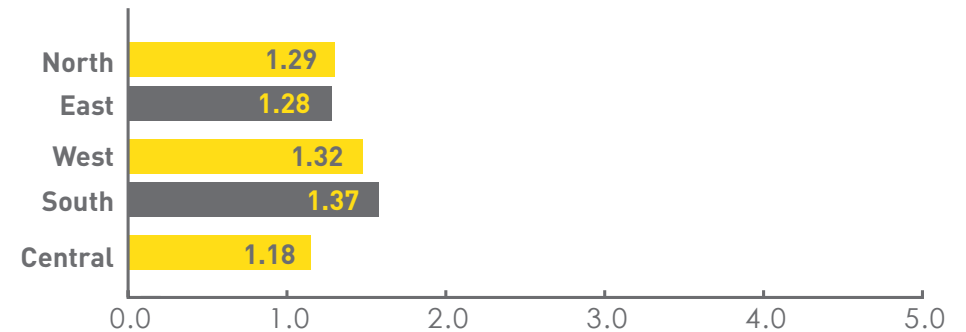
## India's Overall Competence Score

The following represents the overall national Competence score related to handling of shipment flow in the trade pipeline. Given that a score of 5.0 indicates maximum efficiency, 1.31 indicates a moderate level of Competence.



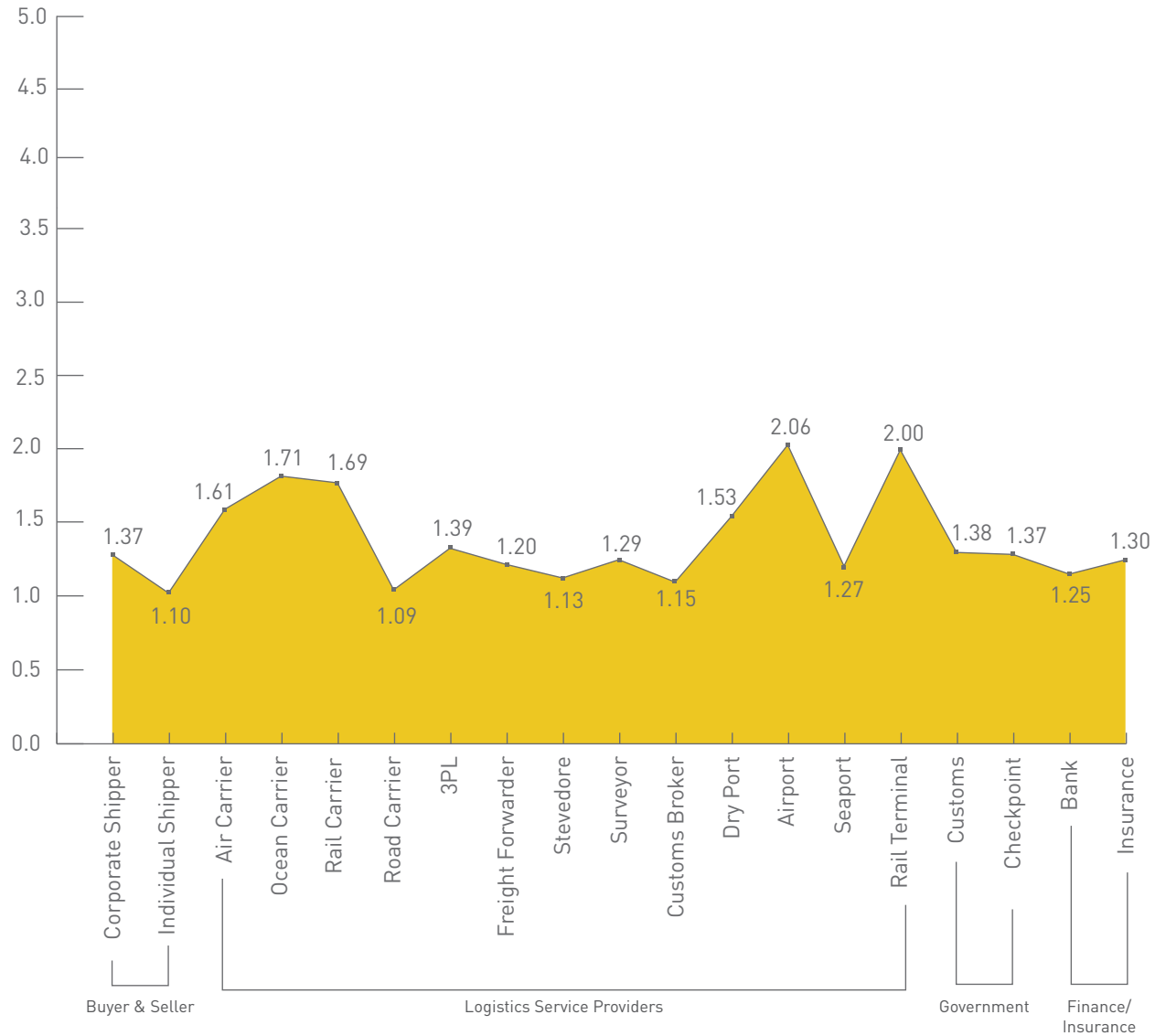
## Competence by Economic Zone

When we look at Competence by Economic Zone, all five zones are consistent. As in other areas, this indicates a comparatively even Competence level across all Economic Zones of India, except for Central, which is the most rural and least developed region.



## India Competence by Trade Participant

- Buyers/Sellers train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

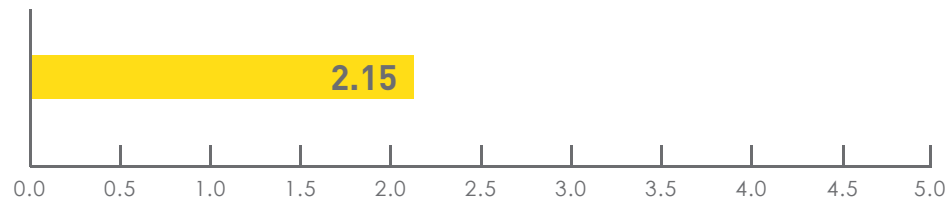
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, it can obtain a Cargo Security score of at most 2.5.

**Level 5** = Presence of effective Cargo Security procedures.

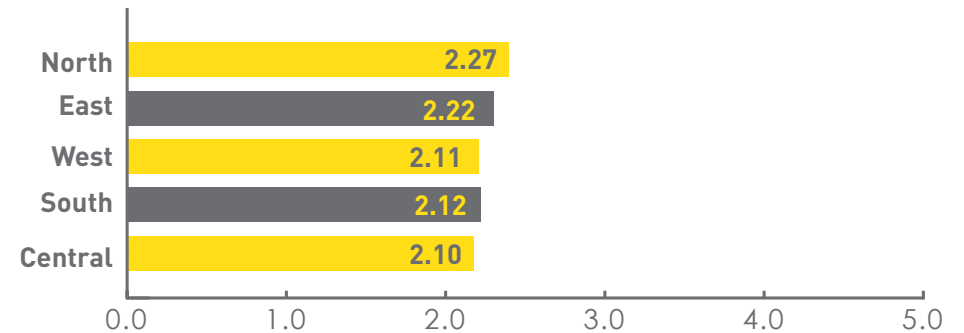
### India's Overall Cargo Security Score

The overall national Cargo Security score represents aggregated data compiled from all participants surveyed. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, 2.15 indicates the need for additional emphasis on Cargo Security Efficiency.



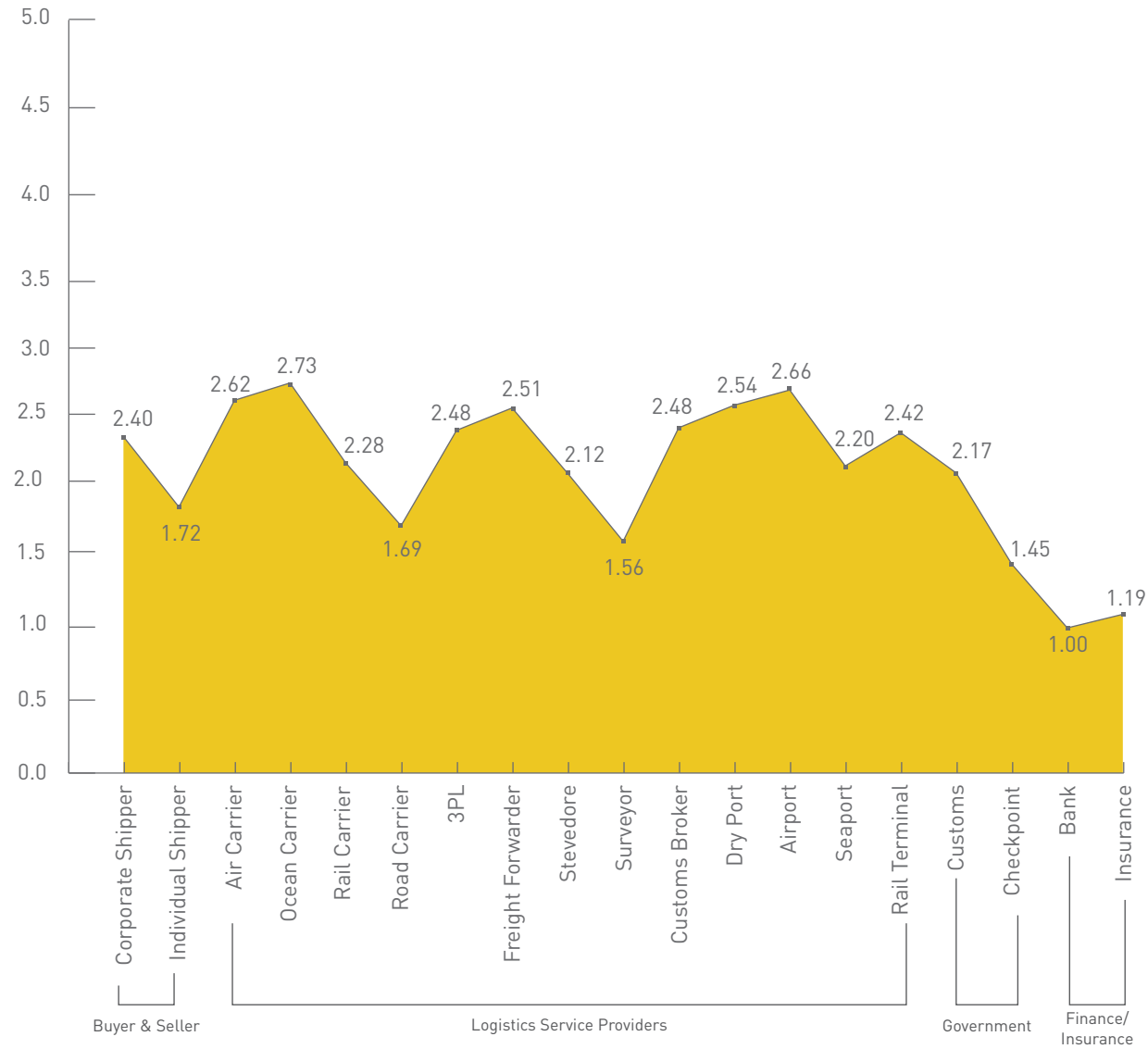
### Cargo Security by Economic Zone

When we look at Cargo Security by Economic Zone, we see that all five zones are consistent. These relatively even scores across the regions indicate that implementation of new measures across all regions can be efficiently accomplished. The higher scores in the North are again due to the high value and volume of shipments from this region, such as gems, petrochemicals, and steel which require additional security. These major industries use the ICEGATE portal for Customs clearance, which allows for higher visibility for ports and government authorities.



## India Cargo Security by Trade Participant

- ≤30% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is 50-74% complete



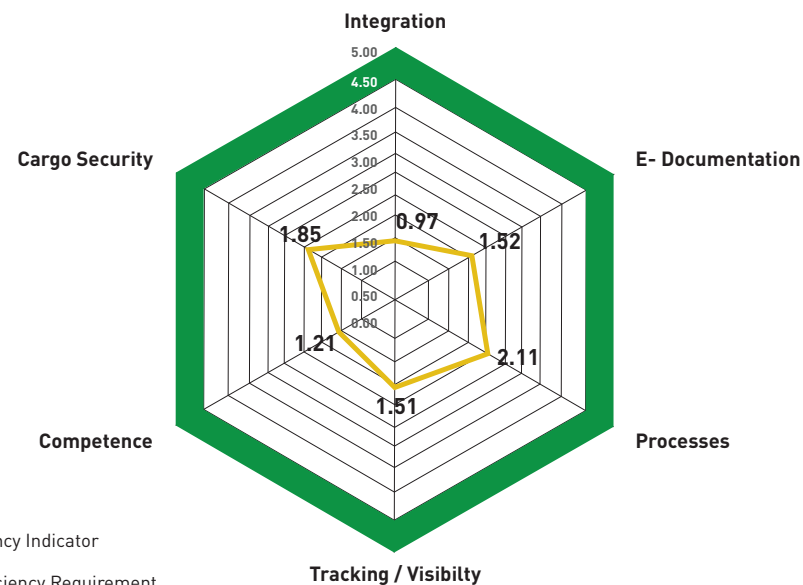


## Indonesia's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Indonesia's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Indonesia Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Indonesia SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon Implementation of the Indonesia SEA Report recommendations, Indonesia can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 104 billion, placing Indonesia at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 159 billion and create 10.6 million jobs by 2030, meeting the economic ambitions of Indonesia.

### Indonesia's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EI)



Indonesia Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

## INTEGRATION

### Findings – Data

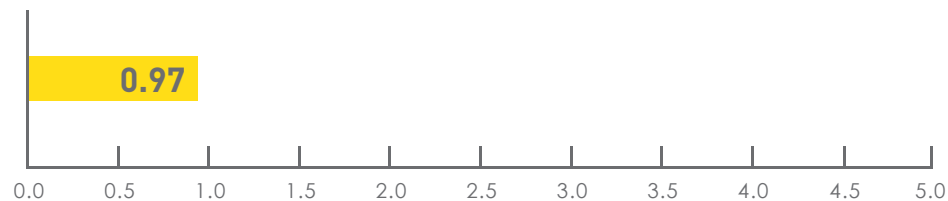
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade lane participants, a participant can score at most 2.5.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

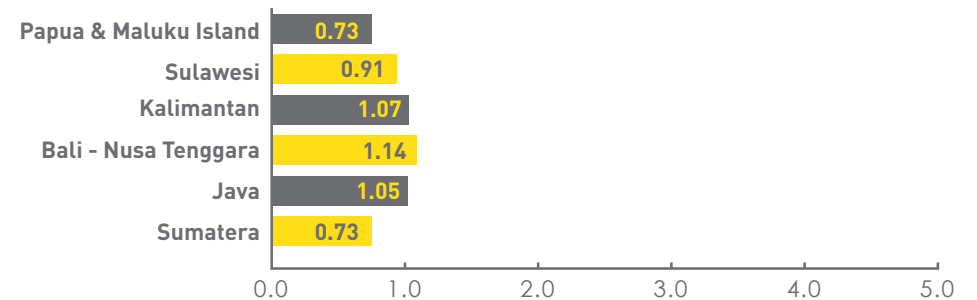
### Indonesia's Overall Integration Score

This represents the aggregate data on a national level from all nineteen clusters surveyed in Indonesia. Collectively they have scored a 0.97 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



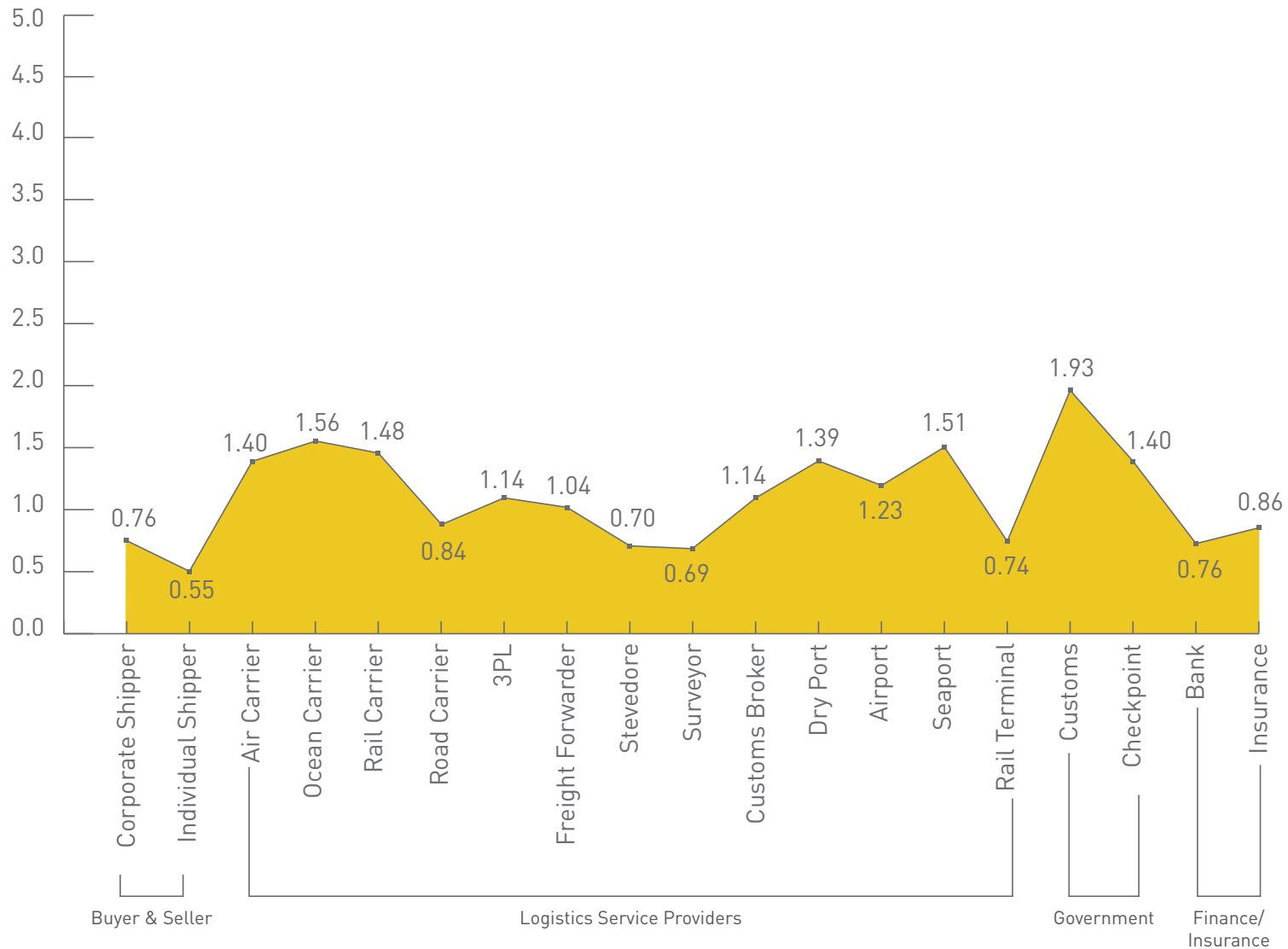
### Integration by Economic Zone

Indonesia's National Logistics Blueprint focuses on establishing Indonesia as an important player in international trade. In fact, Indonesia's logistics is to be locally & globally connected effectively and efficiently, for national competitiveness by 2025. However, In Indonesia, 93.7% of businesses are manually operated with no vertical systems. This high number of companies with no vertical systems further contributes to the lack of Integration within Indonesia and with their trade partners. Thus restrains Indonesia from achieving the trade efficiency required to maximize on Indonesian's potential and realizing the economic ambitions of its citizens. The difference between the highest score (1.14) and the lowest score (0.73) is minimal at 8.2%, which means that when the right innovation is introduced into the country, it will be quickly and evenly adopted across all zones.



## Indonesia's Integration by Trade Participant

- 93.67 % of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 95.74 % of shipment communications related to shipments are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

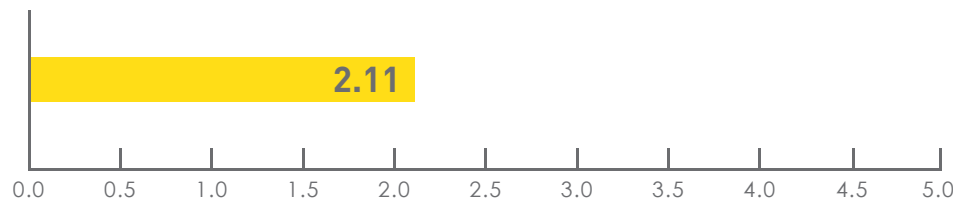
Processes Efficiency scale in brief:

**Level 1** = Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5** = Optimum and complete Processes in a trade pipeline.

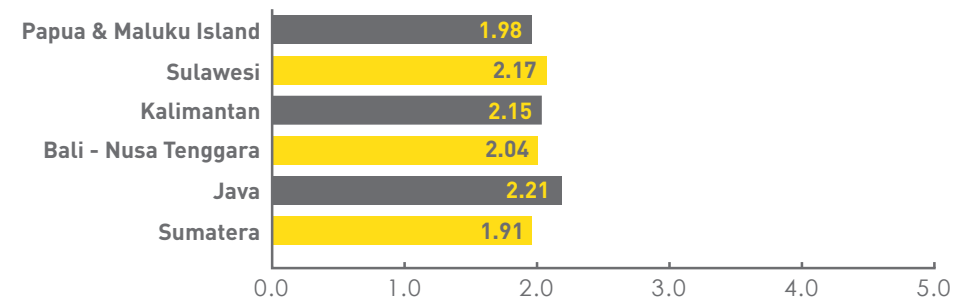
### Indonesia's Overall Processes Score

This represents an overall national Processes score assessing the handling of shipments in the trade pipeline. Collectively the trade participants have scored a 2.11 out of a possible 5.0. The top score of 5.0 represents optimal performance and complete processes throughout the trade pipeline.



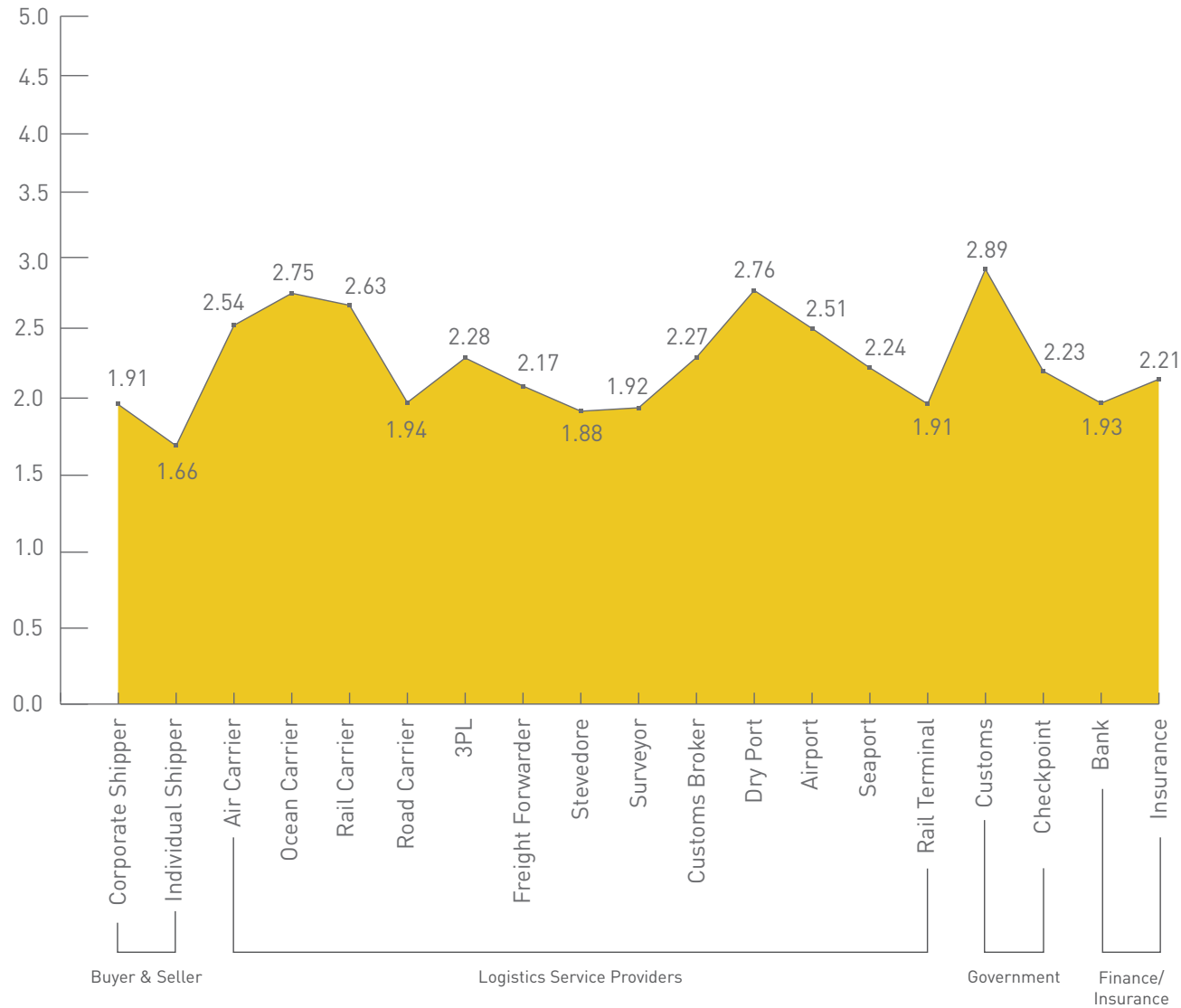
### Processes by Economic Zone

When we look at Processes scores by Economic Zone, all six zones have established processes for the handoff of shipments between trade participants. However, these processes need further integration in order to be optimally efficient. The fairly even distribution indicates a level of national consistency that provides an ideal starting point for horizontal process optimization. The high score of 2.21 in Java is due to the presence of the top international companies that are established in that zone. This zone also contains the major seaports, airports, and rail carrier in Indonesia, all of whom have some level of vertical processes.



## Indonesia's Processes by Trade Participant

- 41-60% of shipment data is re-entered due to Processes incompatibility
- 3.3% of participants use ERP systems; those firms that automated processes, typically use off-the-shelf not customized systems
- >30 days for Buyers/Sellers to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

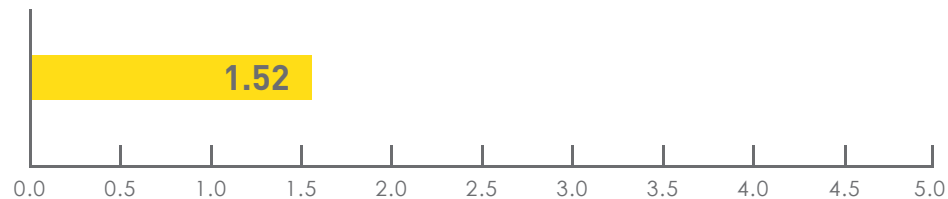
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain at most a score of 2.5.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

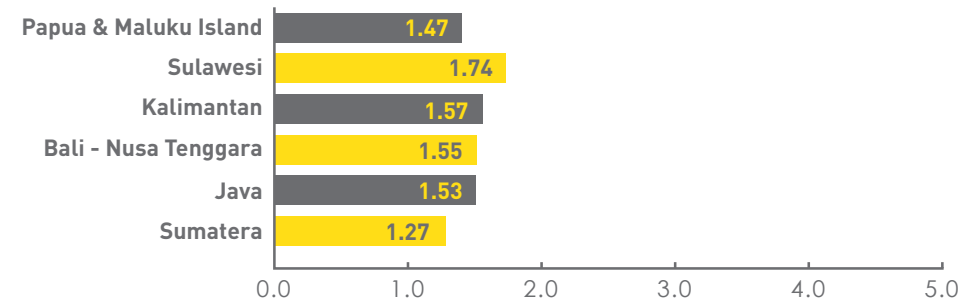
### Indonesia's Overall E-Documentation Score

The overall national E-Documentation score represents aggregate data compiled from responses provided by the 19 clusters. Given that a score of 5.0 indicates optimal efficiency, 1.52 indicates that Indonesia uses primarily paper-based systems. The Indonesian government's implementation of the Indonesia National Single Window (INSW) is a step toward electronic documentation.



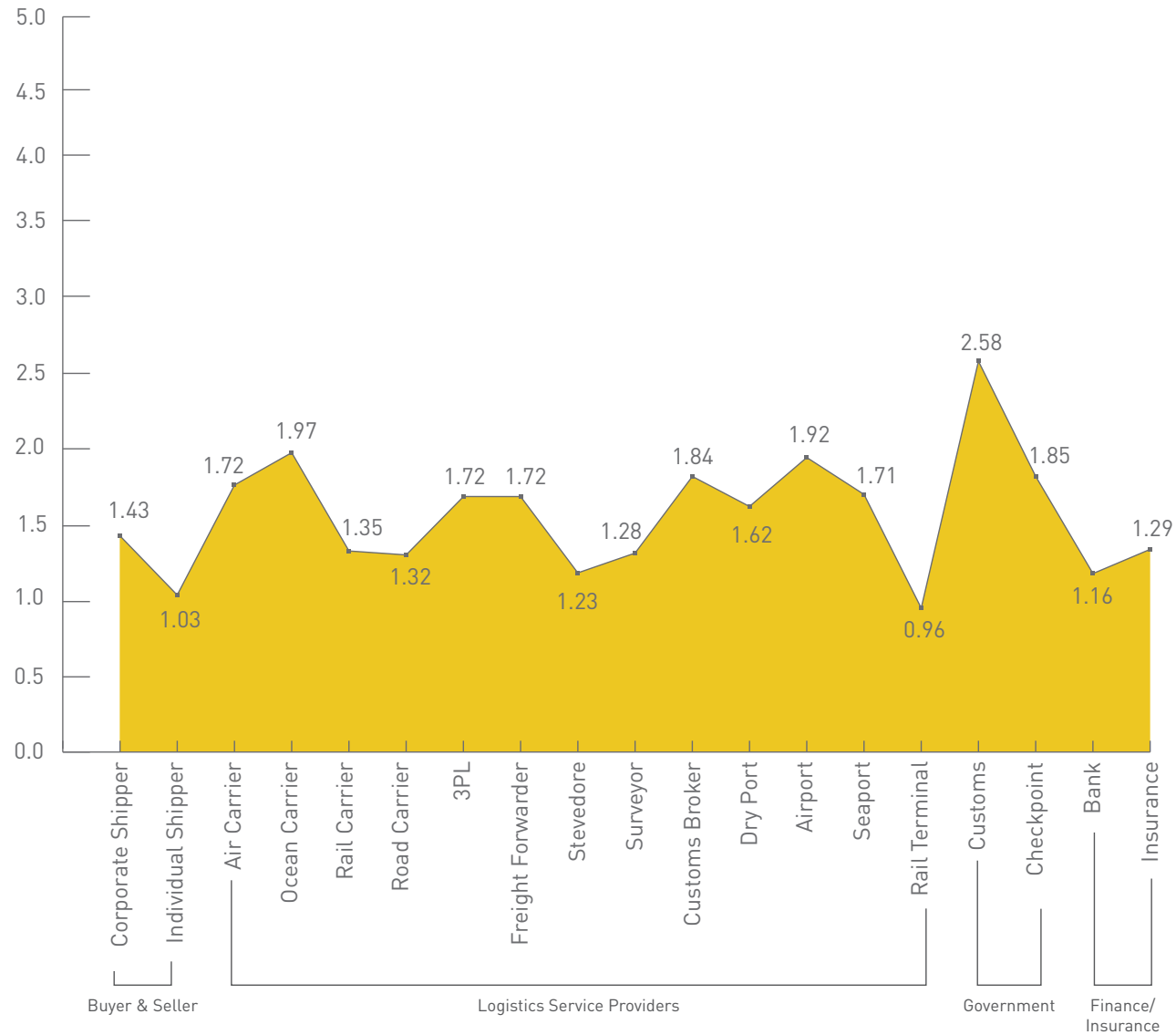
### E-Documentation by Economic Zone

E-Documentation scores are fairly consistent across economic zones. This means that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed. The presence of the energy industry, such as oil and gas, in the Sulawesi and Kalimantan zones contributed to the slightly higher scores in these zones due to industry requirements.



## Indonesia's E-Documentation by Trade Participant

- ▶ 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ▶ ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

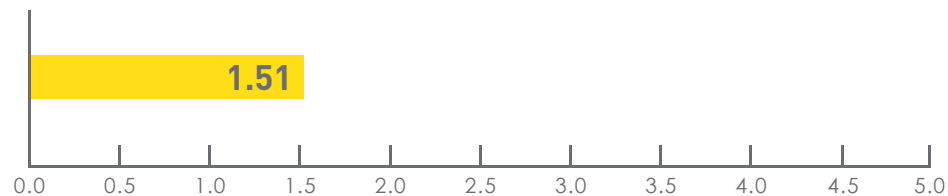
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score at most 2.5. It would require all its trade pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

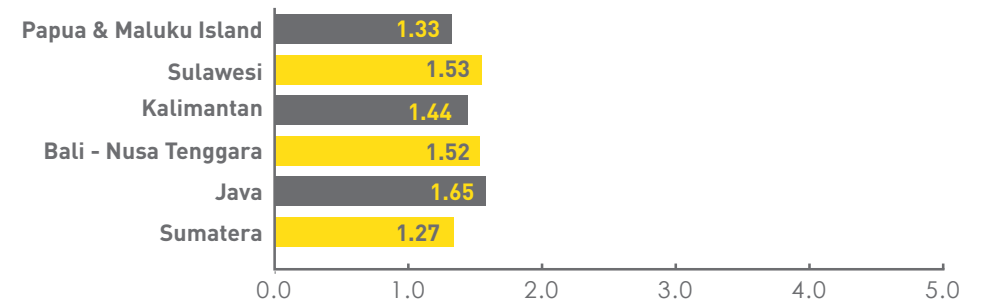
### Indonesia's Overall Tracking and Visibility Score

The overall national Tracking & Visibility score in Indonesia is 1.51, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



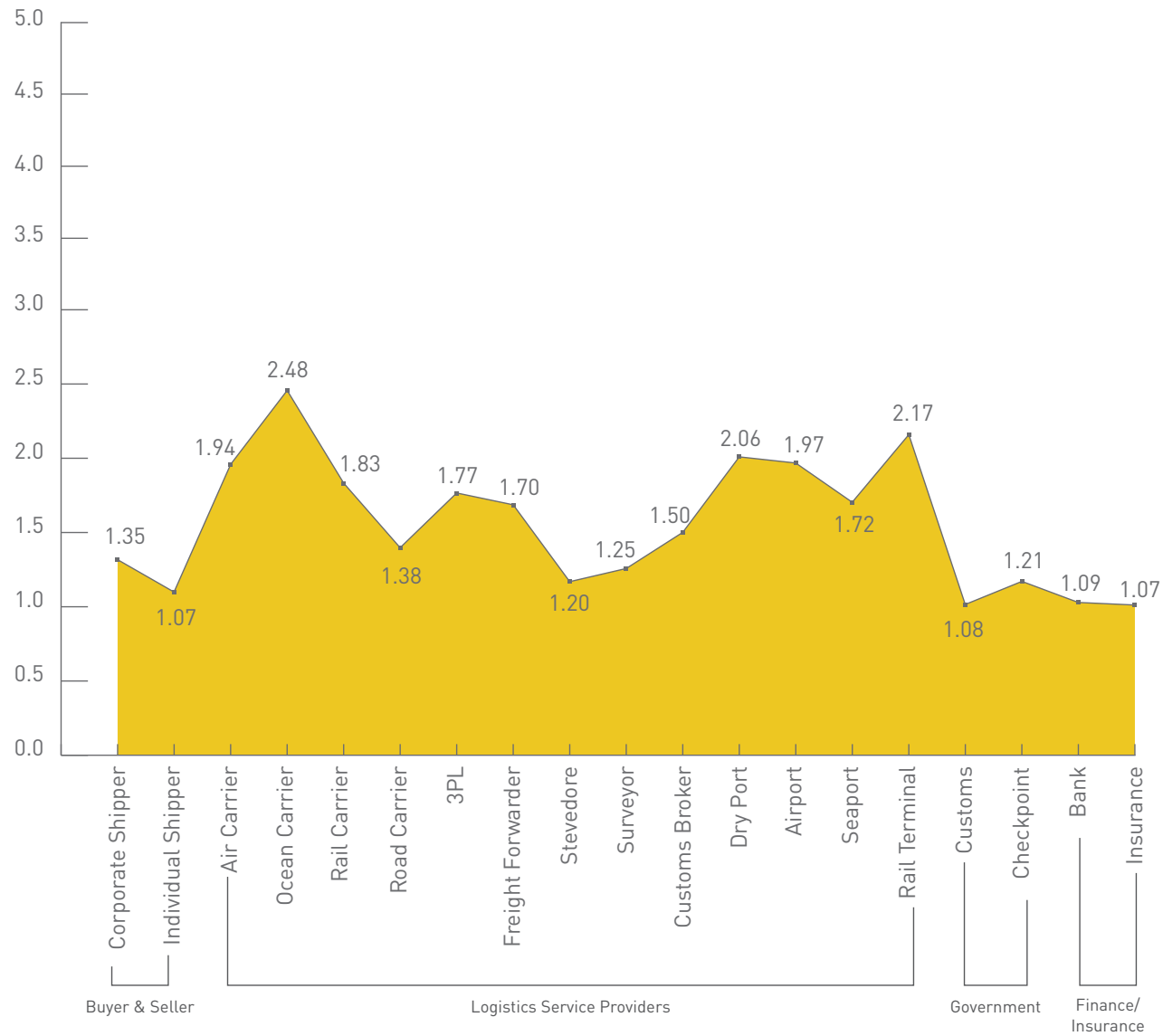
### Tracking and Visibility by Economic Zone

When we look at Tracking & Visibility by Economic Zone, all six zones are consistent. This relatively even distribution indicates that, as with Integration, there is a country-level opportunity to improve Tracking & Visibility through an evenly applied initiative across all zones. The higher score in Java is due to the presence of the major carriers (air and ocean), airports, and seaports. These organizations have the technology necessary for Tracking & Visibility of shipments through GPS, RFID or other methods.



## Indonesia Tracking & Visibility by Trade Participant

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

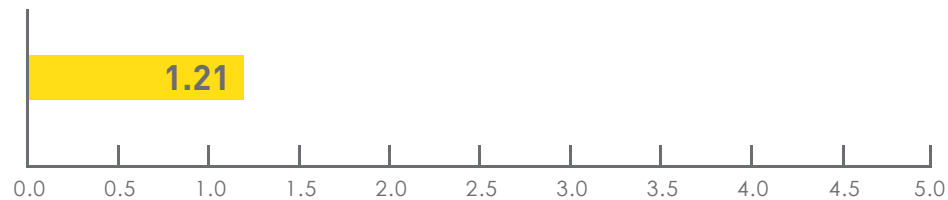
Competence Efficiency scale in brief:

**Level 1=** Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to automate its contractual obligations into operational metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5=** Optimal and complete Competence processes and measurement methods within a trade pipeline.

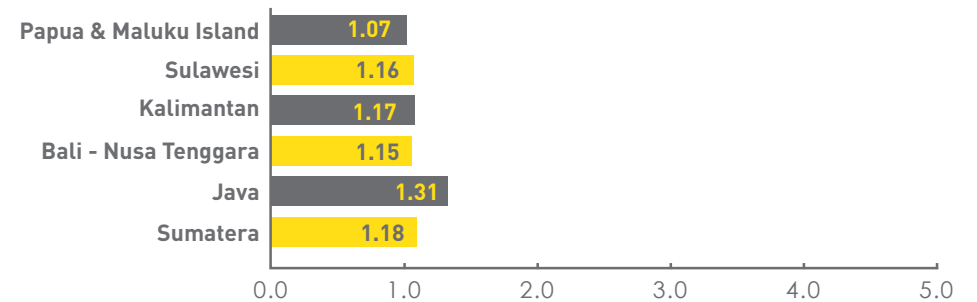
### Indonesia's Overall Competence Score

The overall national Competence score in Indonesia is 1.21. Given that a score of 5.0 indicates maximum efficiency, Indonesia's score indicates a low level of Competence and an opportunity for Indonesia to leverage its workforce to achieve significant improvement.



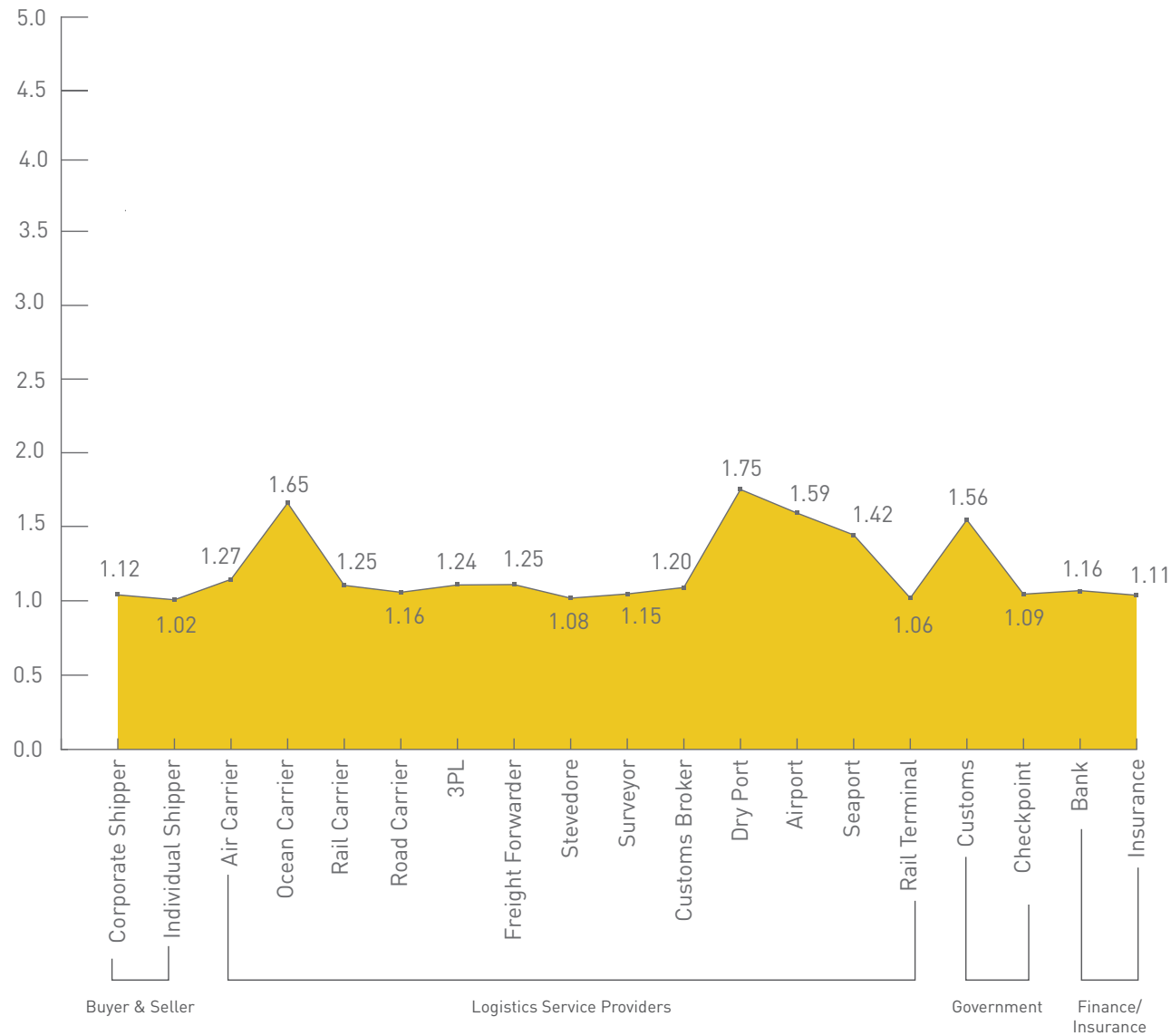
### Competence by Economic Zone

When we look at Competence by Economic Zone, all six zones are consistent. As in other areas, this indicates a comparatively even Competence level across all regions of Indonesia. However, the quality of human resource is a challenge for Indonesia. Only 50% of the workforce has primary education and only 8% have a formal diploma, which is reflected in the scores. The higher score in Java is due to the presence of major international companies and their more educated workforce.



## Indonesia's Competence by Trade Participant

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

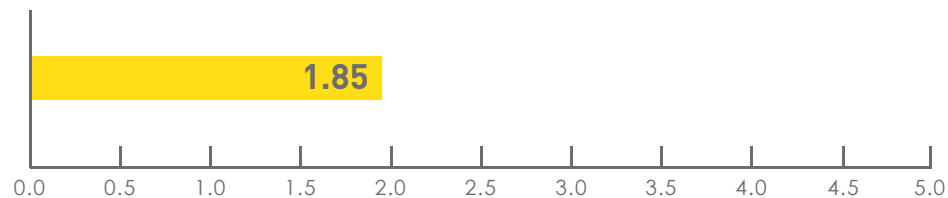
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, it can obtain a Cargo Security score of at most 2.5.

**Level 5** = Presence of effective Cargo Security procedures.

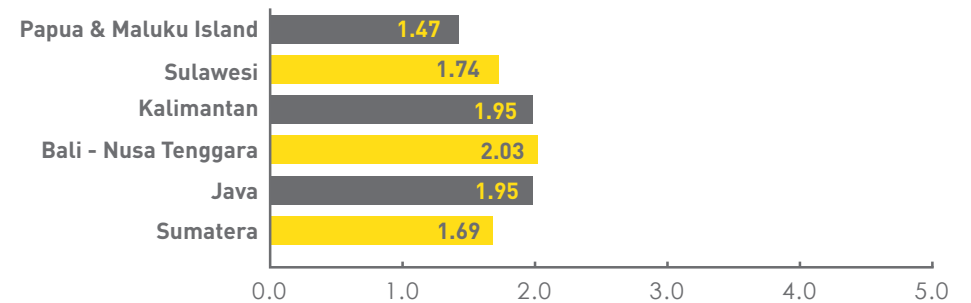
### Indonesia's Overall Cargo Security Score

The overall national Cargo Security score represents aggregated data compiled from all participants surveyed. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, 1.85 indicates the need for additional emphasis on Cargo Security.



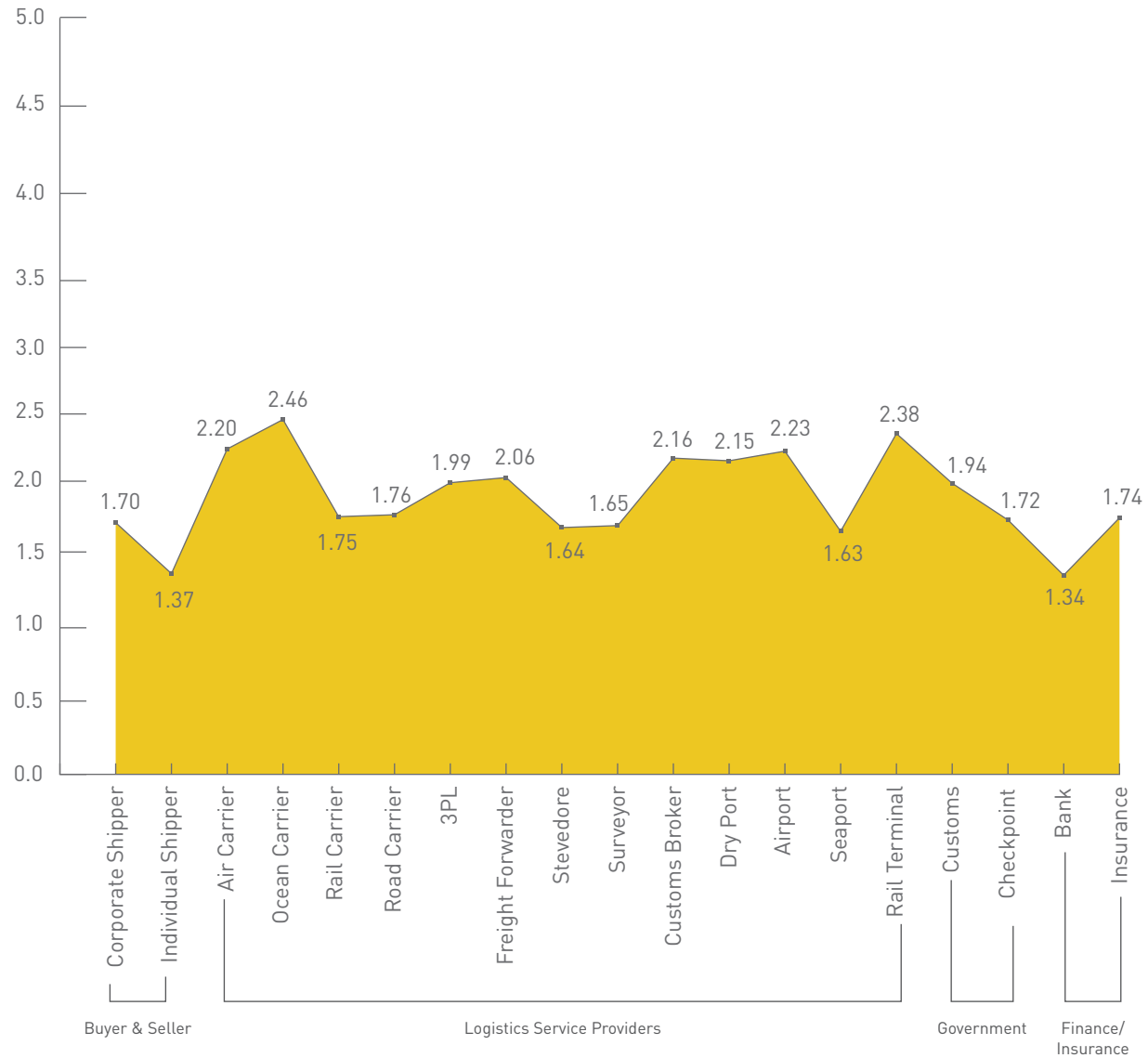
### Cargo Security by Economic Zone

When we look at Cargo Security by Economic Zone, we see that all six zones are consistent. These relatively even scores indicate that implementation of new measures across all zones can be efficiently accomplished. The higher scores in Java and Kalimantan are due to the high value of goods shipped from these zones, such as petroleum, coal, and fertilizer, which require additional security. The major industries use the Indonesia National Single Window (INSW) for Customs clearance, which allows for higher visibility for ports and government authorities.



## Indonesia Cargo Security by Trade Participant

- ≤20% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is 50-74% complete



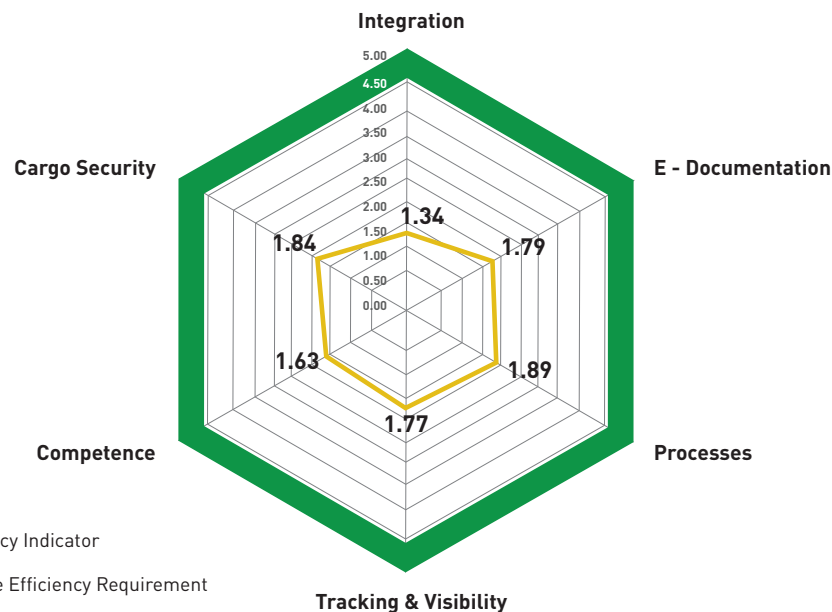


## Italy's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Italy's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Italy Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Italy SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Italy SEA Report recommendations, Italy can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 82.8 billion, placing Italy at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 116 billion and create nearly 1 million jobs by 2030, meeting the economic ambitions of Italy.

### Italy's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



## INTEGRATION

### Findings – Data

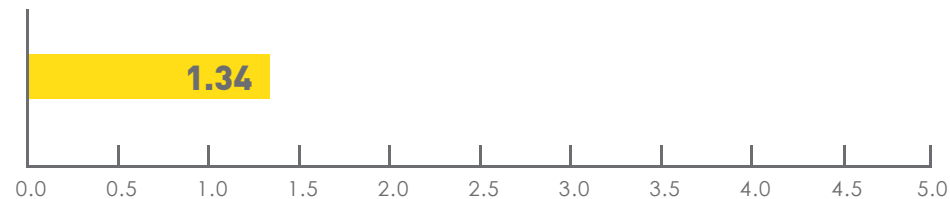
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/postal mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its lowest performing participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

### Italy's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Italy. Collectively they have scored 1.34 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

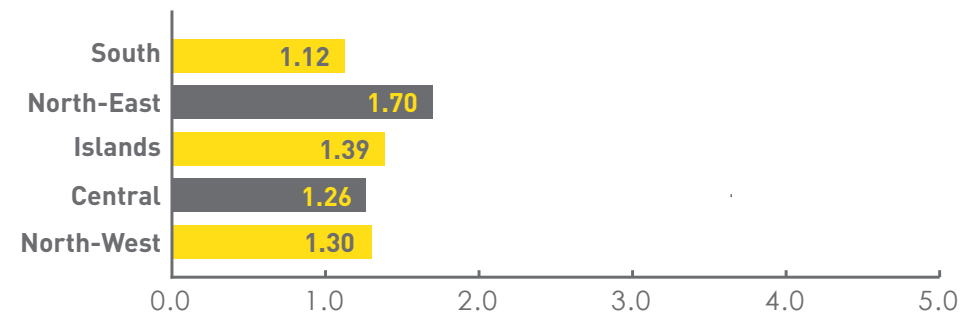


This Integration score reflects the opportunity to further maximize on the Italian government's use of advanced systems such as the AIDA Single Window and AnNa Maritime Single Window to facilitate trade. Similar focus on Integration across all the trade participants globally is necessary to significantly improve Italy's overall Integration score.

### Integration by Economic Zone

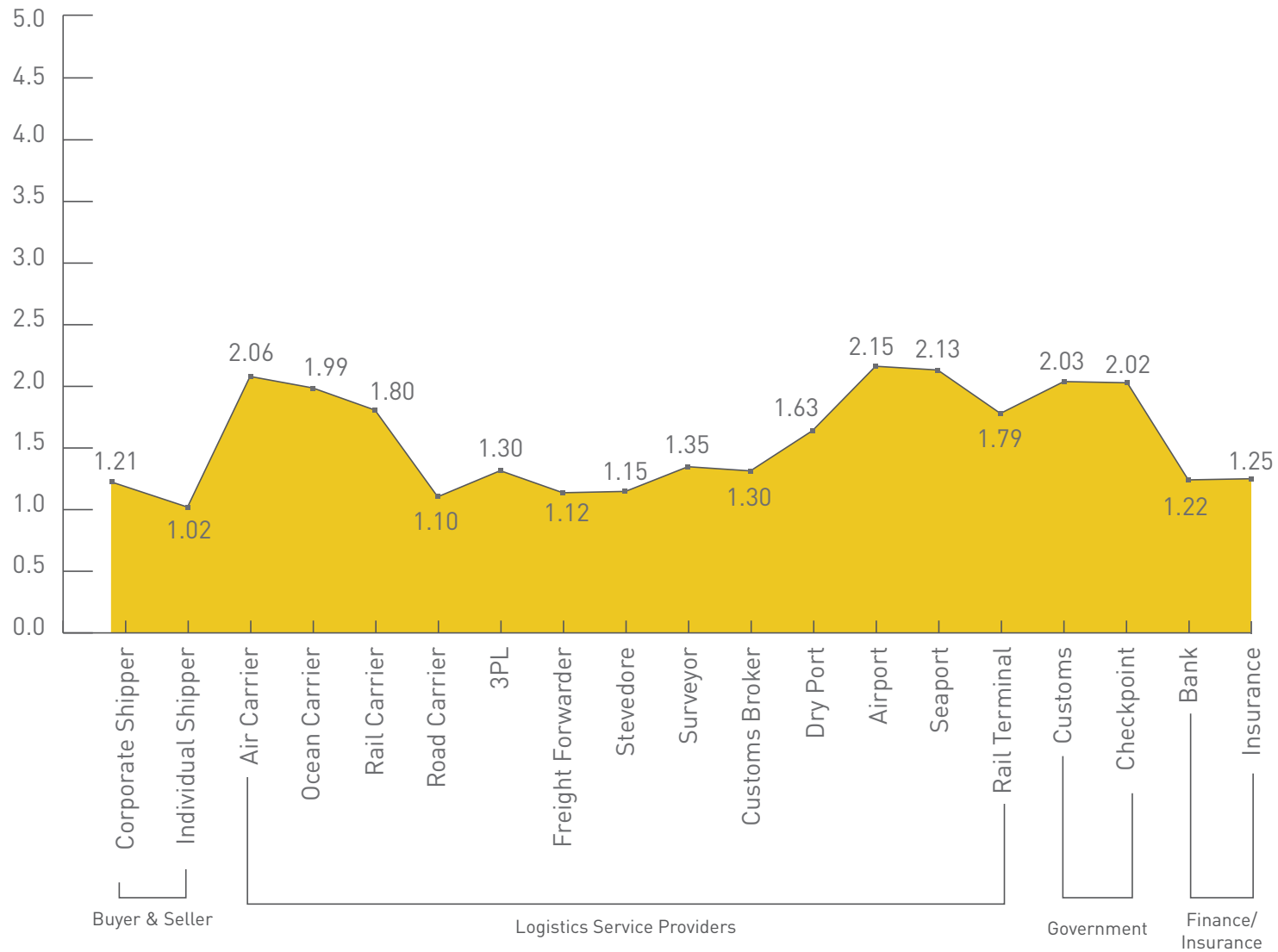
The North-East (1.70) zone achieved the highest score mainly due to the presence of multi-national businesses, as well as machinery, automotive, aerospace and naval equipment manufacturing, and transportation firms, which drive the need for more integrated information systems in such industries.

The difference between the highest and the lowest score is high at 11.6%, indicating significant differences among the zones. When a right innovation is introduced into the country, it can be quickly adopted across the zones.



## Integration Efficiency by Trade Cluster

- 85.6% of trade participants do not have Integrated Systems
- 51–70% of shipment data is re-entered in multiple forms
- 91.1% of shipment communications related to shipments are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

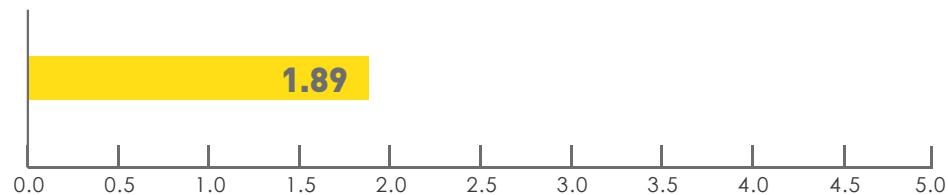
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Italy's Overall Processes Score

The following represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Italy have scored a 1.89 out of a possible 5.0 on the 21-6-ETEI scale.

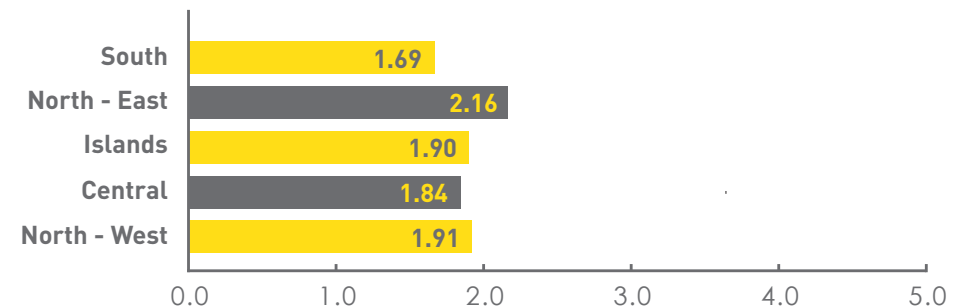


The use of the AIDA National Single Window by the Italian Customs Agency and other systems including ICS-AIS, AES, NCTS, and FALSTAFF has helped streamline some of the processes such as offering advanced cargo clearing services to facilitate trade, which has contributed to this moderate score of 1.89 on Processes.

### Processes by Economic Zone

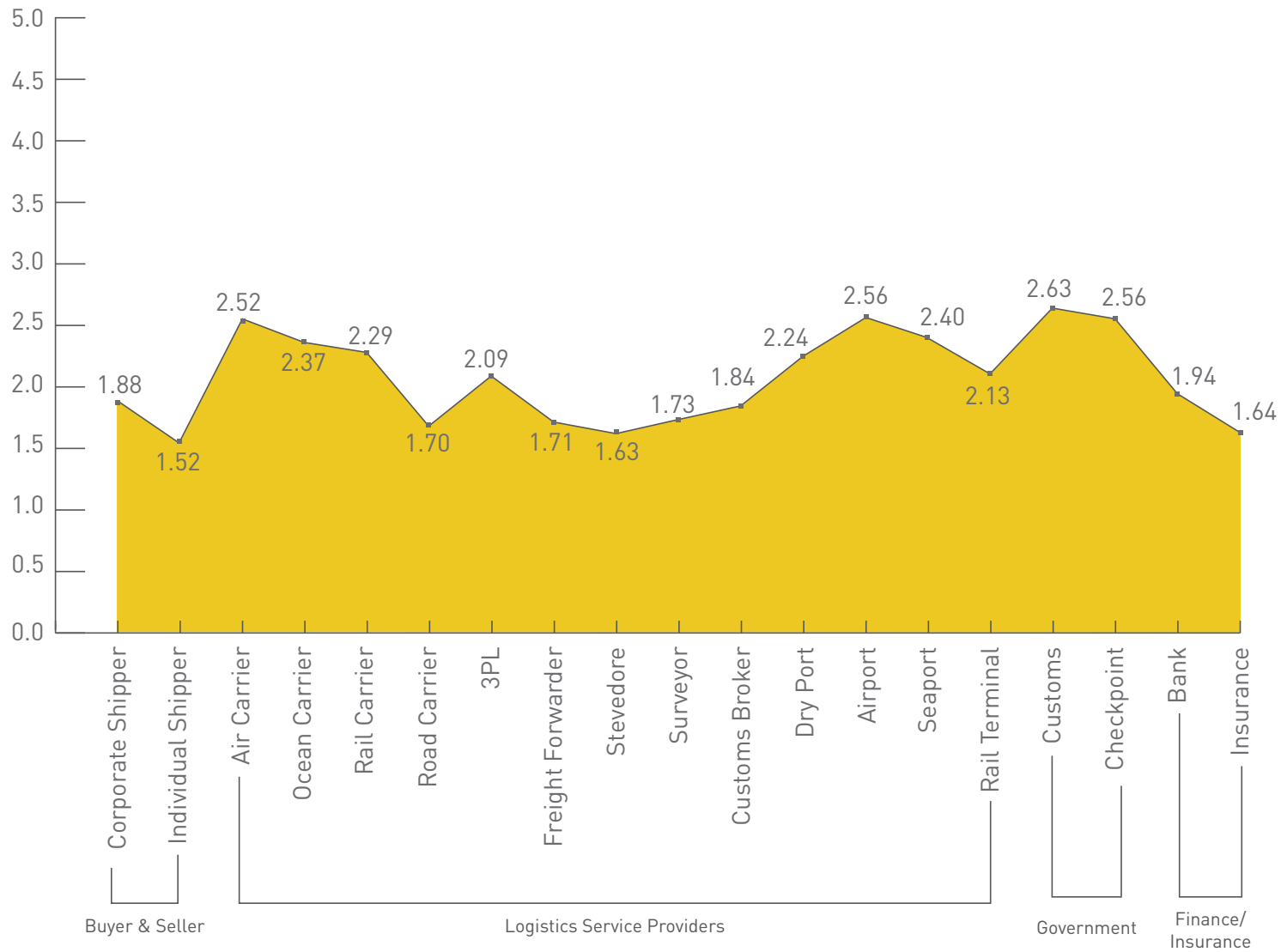
When we examine the Processes scores by Economic Zone, the industrialized and export oriented North-East (2.16) zone scored the highest on Processes. The difference between the highest and the lowest scores is moderate at 9.4%, indicating that there are some disparities among the zones in the way the trade participants manage the handoff of shipment documentation and escalate issues within the trade pipelines.

Italy is driving toward developing technology-enabled capabilities such as intelligent cargo, secure communications, and e-freight management for enhancing trade efficiencies. When such innovations are introduced to the country, they will be adopted across all the zones to enhance horizontal process optimization throughout the global value chains.



## Processes Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to Processes adopted
- 10% of participants use ERP systems; others typically use off-the-shelf not customized systems
- 8 to 30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

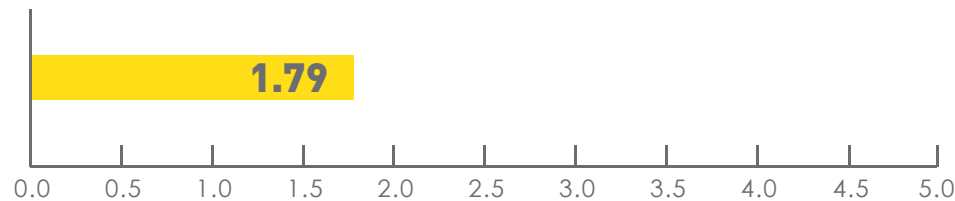
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### Italy's Overall E-Documentation Score

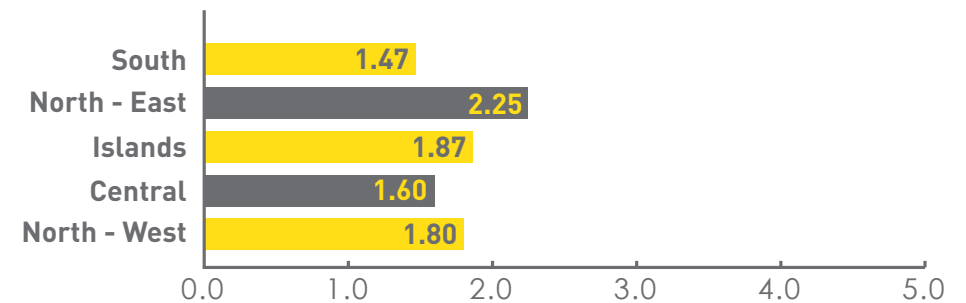
The overall national E-Documentation score in Italy is 1.79, which indicates that some of the 19 clusters are moving from paper to E-Documentation. This has been influenced by the commitment of Italy's government and private organizations to attain an optimal level of E-Documentation capability.



### E-Documentation by Economic Zone

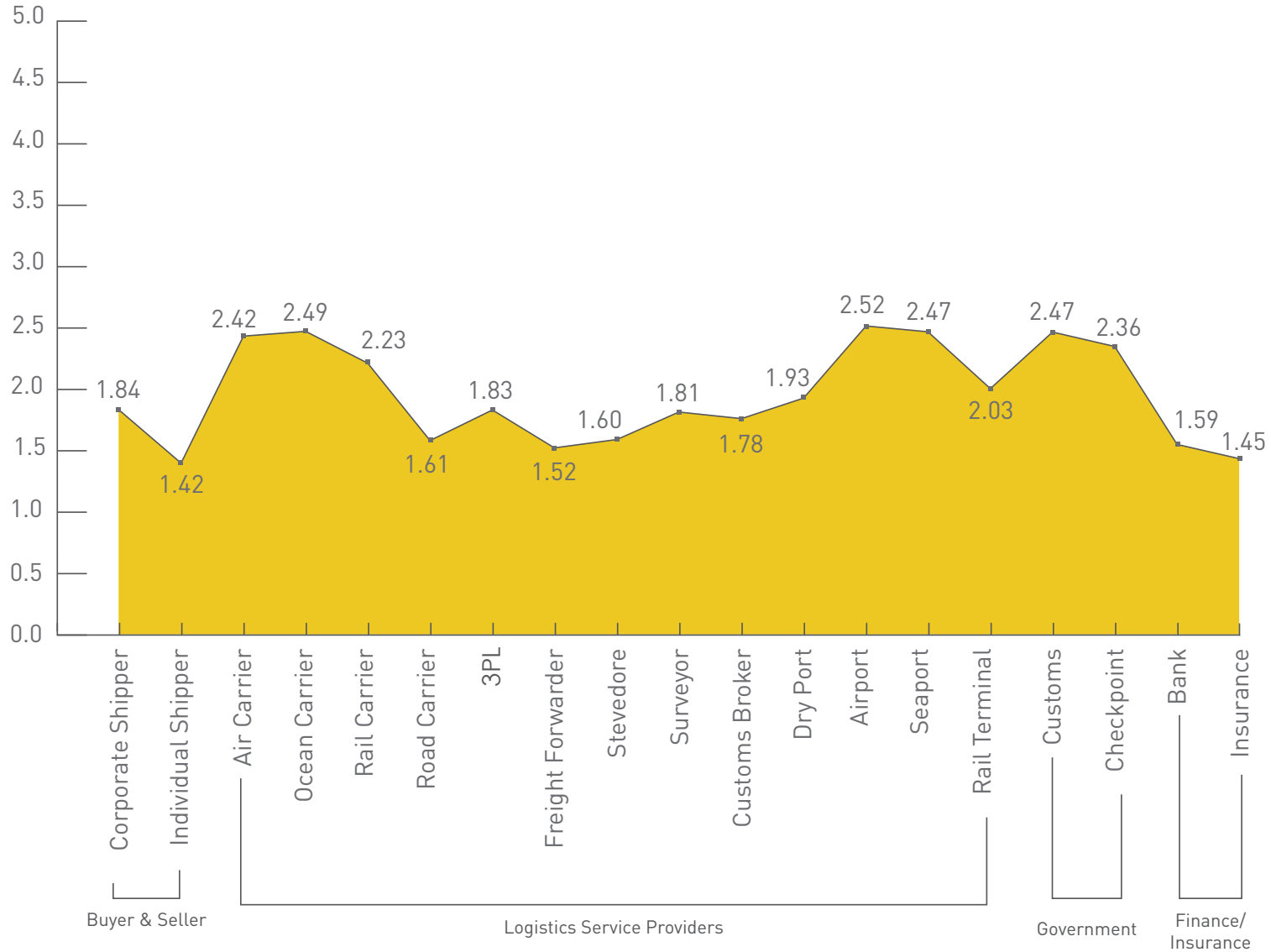
Upon examining the E-Documentation scores by Economic Zone, we see that the industrialized North-East (2.25) zone that produces high value goods scored the highest in relation to the other zones at the lower range of the 21-6-ETEL scale. The difference between the highest and the lowest scores is quite significant at 15.6%.

These modest scores indicate that when an E-Documentation capability is made available, it will be adopted countrywide to achieve optimal efficiency levels.



### Italy's E-Documentation by Trade Participant

- ▶ 61–80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ▶ ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

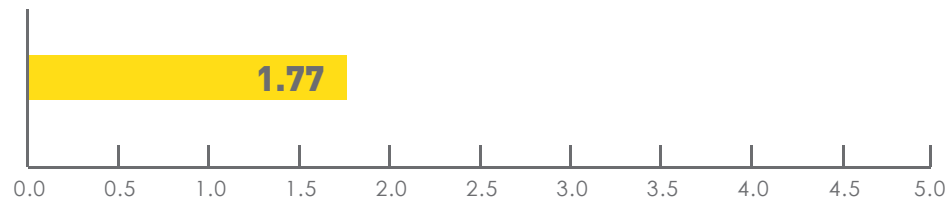
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all of its trade partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### Italy's Overall Tracking & Visibility Score

The overall national Tracking & Visibility level represents aggregated data compiled from responses provided by the 19 clusters. Given that a score of 5.0 indicates an optimum Tracking & Visibility capability, the score of 1.77 indicates that steps are necessary in order to attain an optimum level of Tracking & Visibility performance in Italy.

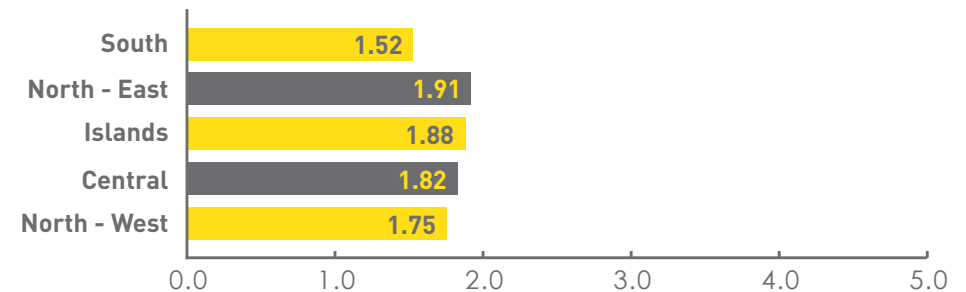


Enhanced Tracking & Visibility of the shipments is important for the trade participants. Tracking enables the Logistics Service Providers to improve the timing for delivery of shipments and provides the ability for the government agencies to achieve greater Cargo Security. Visibility enables timely delivery of shipments, increases planning capabilities, and decreases risks for financial services providers to ease access to trade finance and insurance. Hence, Italy needs to embrace innovations that can improve its Tracking & Visibility score to realize the optimal 21-6-ETEI standard for efficiency.

### Tracking & Visibility by Economic Zone

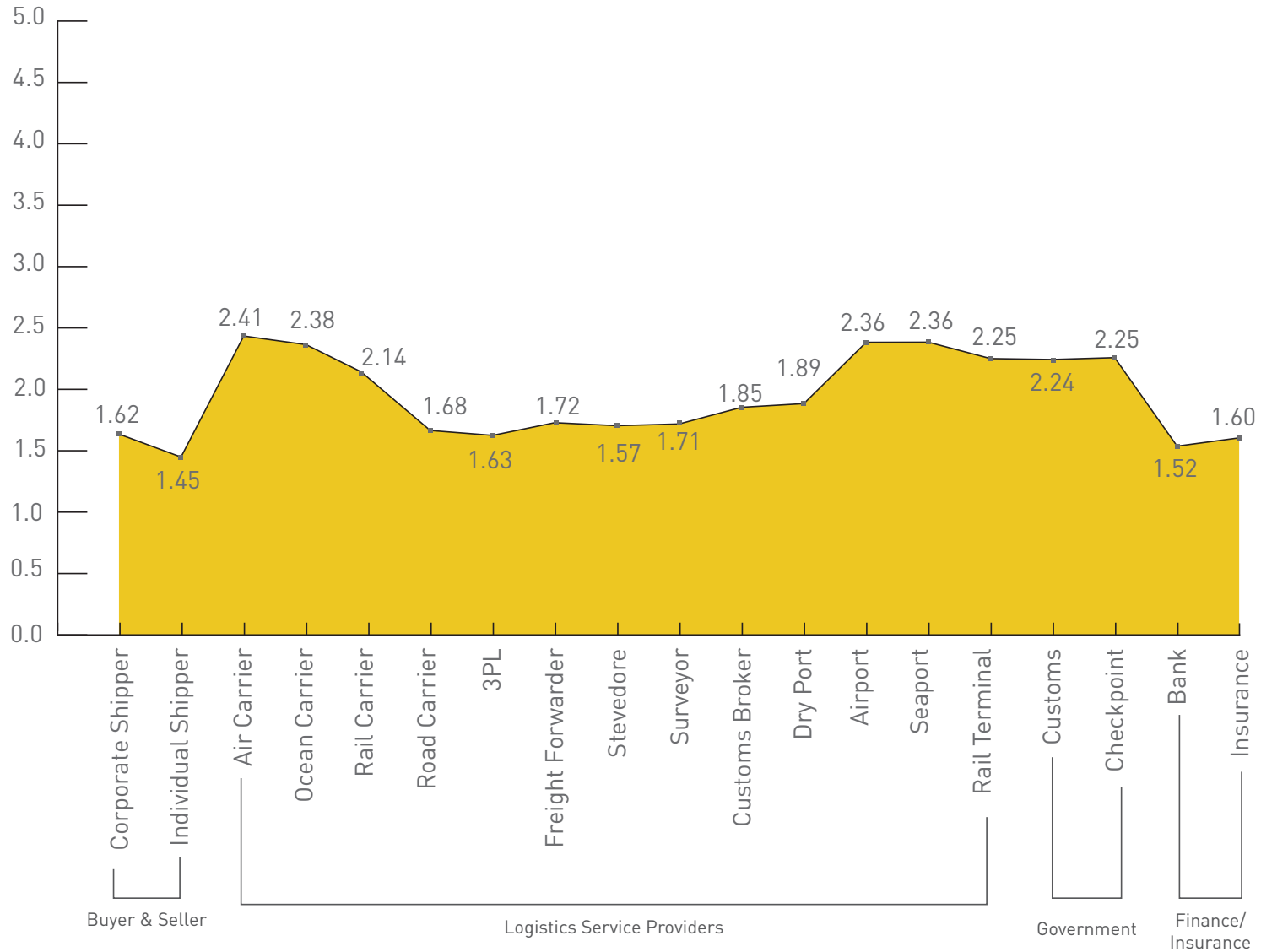
When we examine Tracking & Visibility by Economic Zone, the heavily industrialized North-East (1.91) zone with export-oriented and advanced manufacturing industries has scored the highest. However, the difference between the highest and the lowest scores is moderate at 7.8%, indicating some disparities among the zones in the Tracking & Visibility scores.

When the right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, Italy can enhance its Tracking & Visibility across all the zones to improve its Cargo Security and support its businesses in achieving superior operating efficiencies as well.



### Italy's Tracking & Visibility by Trade Participant

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

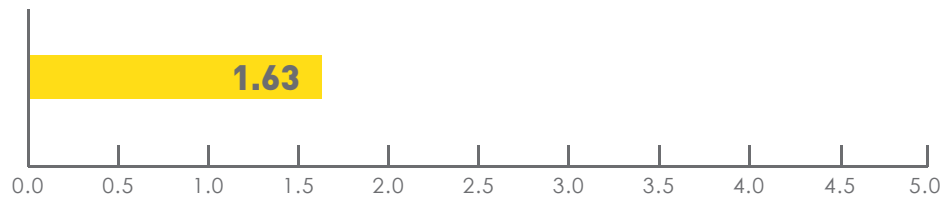
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

## Italy's Overall Competence Score

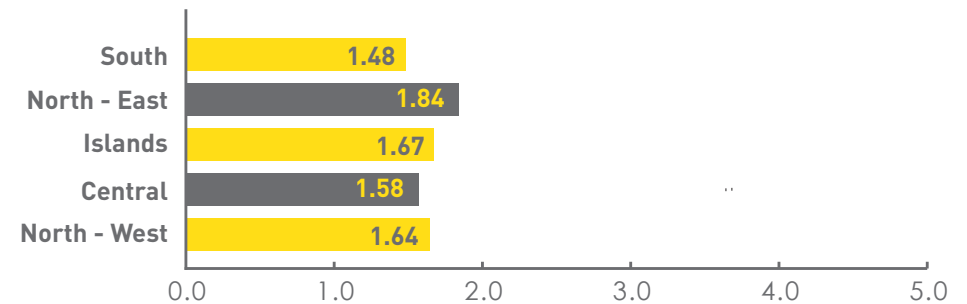
The overall national Competence score in Italy is 1.63. Given that a score of 5.0 indicates maximum efficiency, Italy's score indicates a low level of Competence and an opportunity for Italy to leverage its skilled and talented workforce to achieve significant improvement.



## Competence by Economic Zone

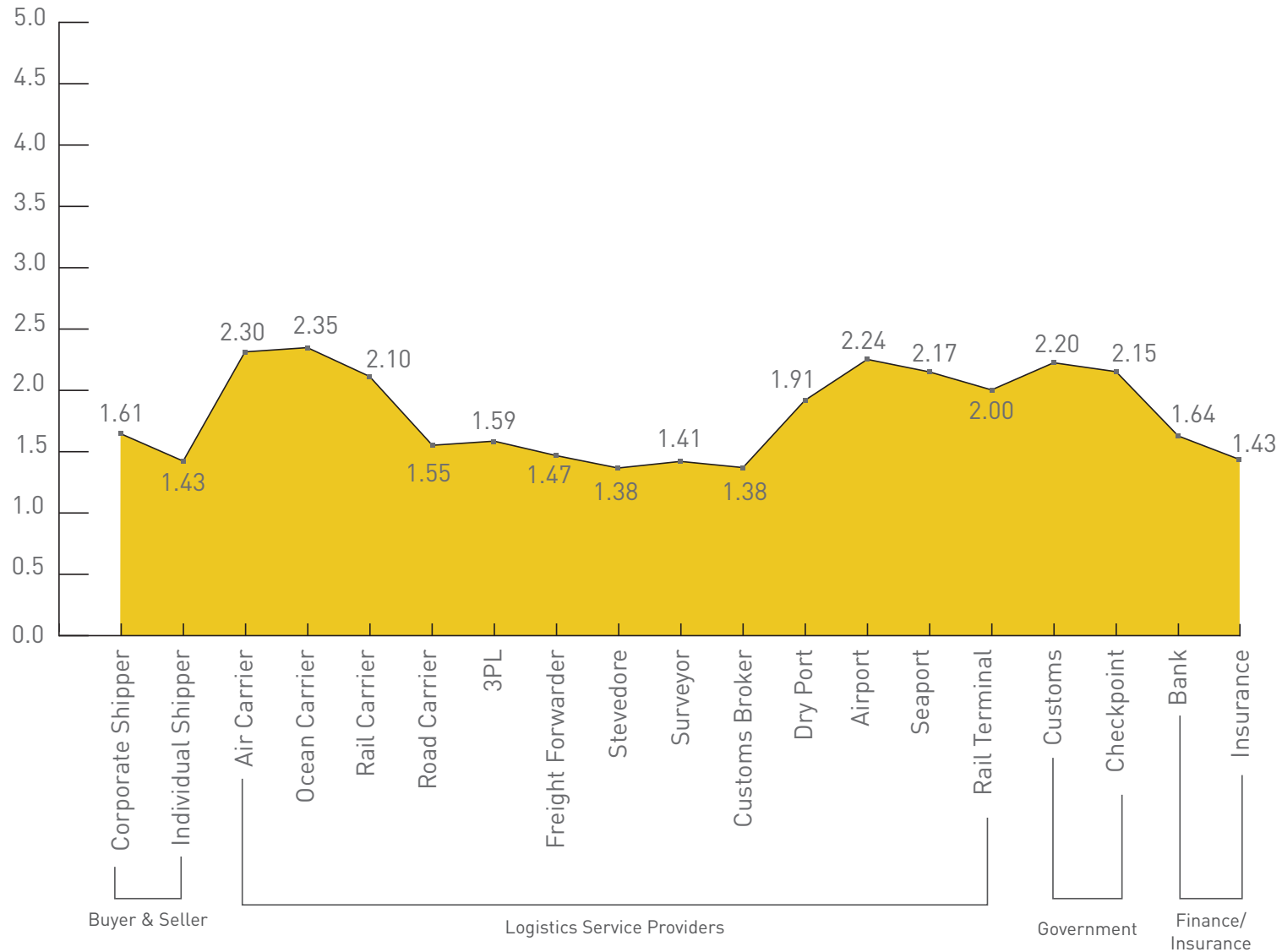
Analyzing the Competence results across the Economic Zones in Italy, the North-East (1.84) zone has scored the highest. The difference between the highest and the lowest scores is moderate at 7.2%, indicating that there are disparities among the zones in terms of their competences to manage contract obligations.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate issues when necessary within the organization and across the trade pipeline, the Competence level of employees can be improved to achieve superior efficiencies in the trade pipelines across all the zones in Italy.



## Italy's Competence by Trade Participant

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

Cargo Security Efficiency scale in brief:

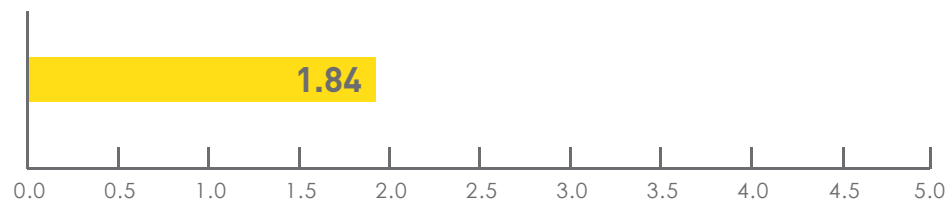
**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

### Italy's Overall Cargo Security Score

The overall national Cargo Security score represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.84 indicates Italy's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Italy's level of Cargo Security Efficiency nationwide can be improved.

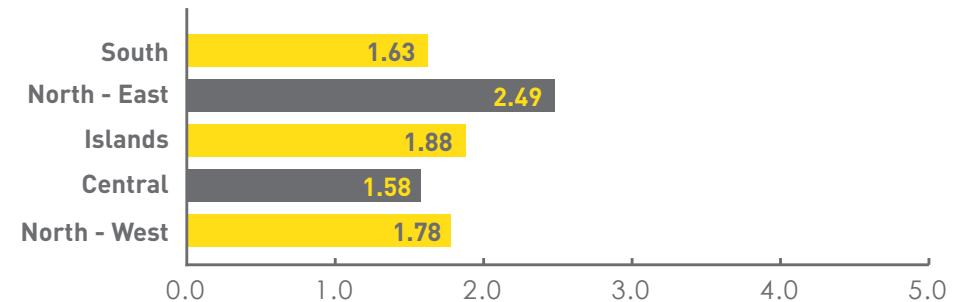
Continuing investments in innovations including the AIDA National Single Window for Customs, AnNa Maritime Single Window, and the counterfeit prevention system of FALSTAFF will help Italy stay abreast of the advances in new technologies that enhance Cargo Security Efficiency.



### Cargo Security by Economic Zone

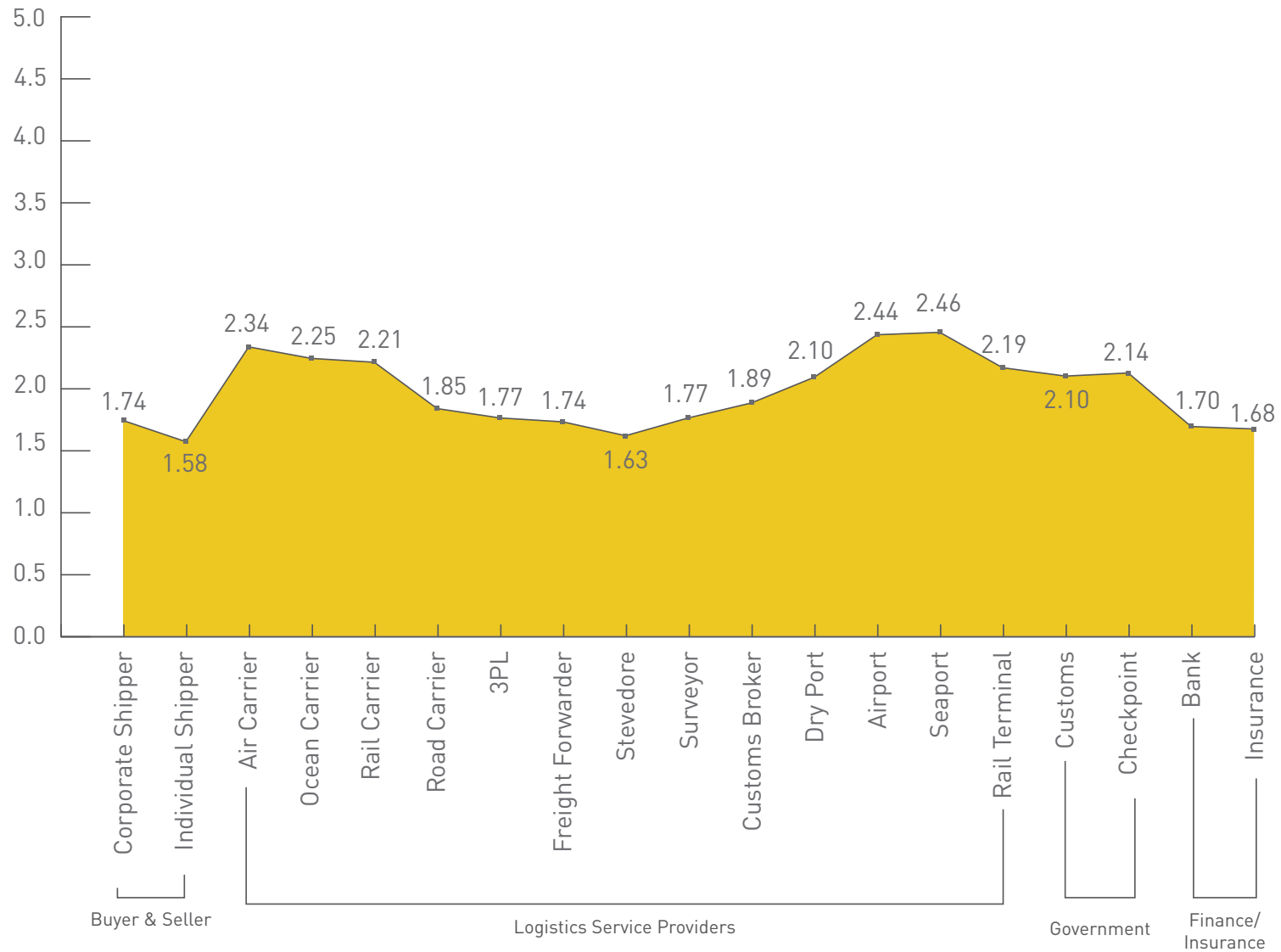
When we view Cargo Security by Economic Zone, the North-East (2.49) zone scored the highest mainly due to its high value and high volume of shipments such as automotive, chemical, electrical, biotech, and gemstones, which require additional security measures. The difference between the highest and the lowest scores is quite significant at 18.2%, indicating widespread disparities among the zones in Cargo Security.

Accordingly, an implementation of new measures can enhance Cargo Security Efficiency and help bridge the gap in Cargo Security Efficiency among the zones.



## Italy's Cargo Security by Trade Participant

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is ≤50% complete



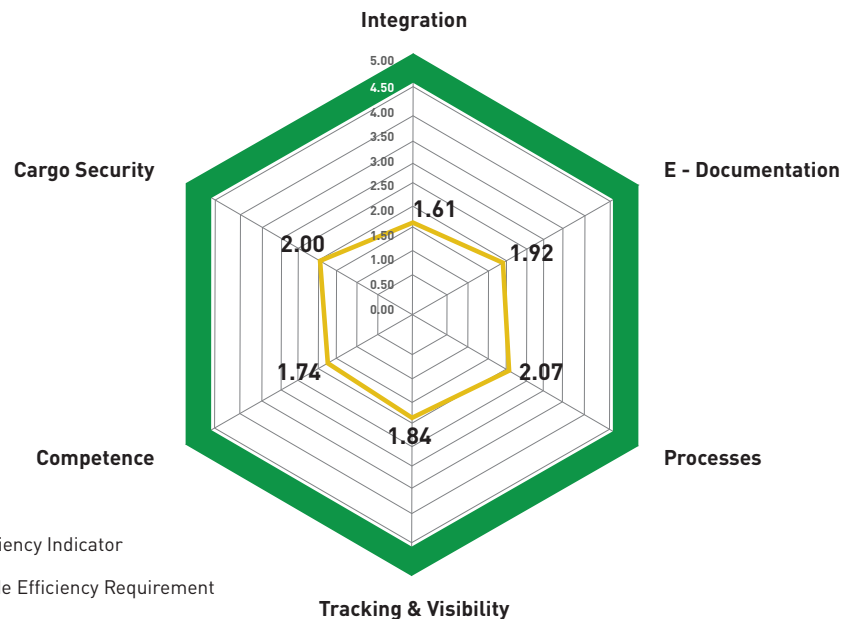


## Japan's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Japan's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Japan Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Japan SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Japan SEA Report recommendations, Japan can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 119.6 billion, placing Japan at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 164 billion and create 1.1 million jobs by 2030, meeting the economic ambitions of Japan.

### Japan's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



## INTEGRATION

### Findings – Data

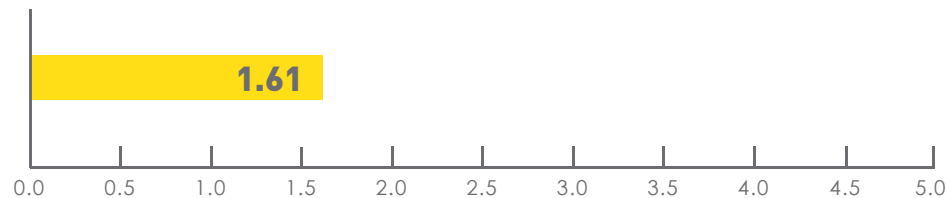
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/postal mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its lowest performing participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

### Japan's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Japan. Collectively they have scored 1.61 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

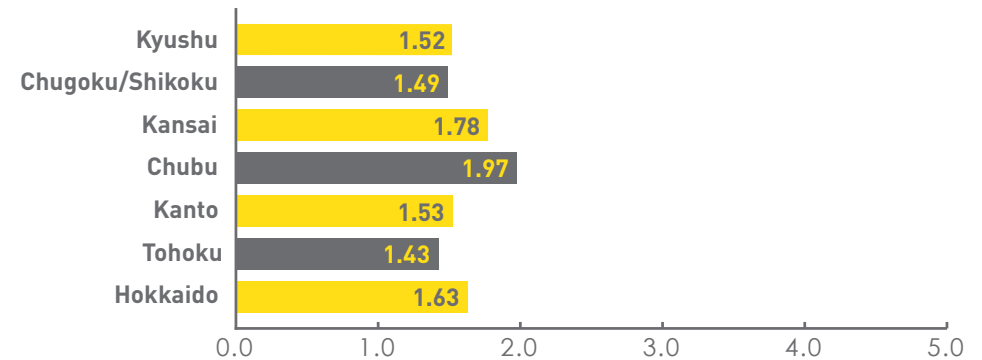


Japan is the 3rd largest economic power in the world after the USA and China, mainly contributed by its manufacturing industry including automobiles and components as well as electronic goods. It is also one of the most technologically advanced countries in the world and ranked 12th according to the World Bank 2016 Logistics Performance Index (LPI). Recognizing the importance of overall efficiency and connectivity in facilitating trade, Japan has established since 2003 its National Single Window called the Nippon Automated Customs Clearance and Ports System (NACCS). Japan has also advocated the establishment of similar national and regional single windows in the Asia Pacific region. Similar focus on Integration across all the trade participants is necessary to significantly improve Japan's overall Integration score to achieve the country's economic objectives and growth plans.

### Integration by Economic Zone

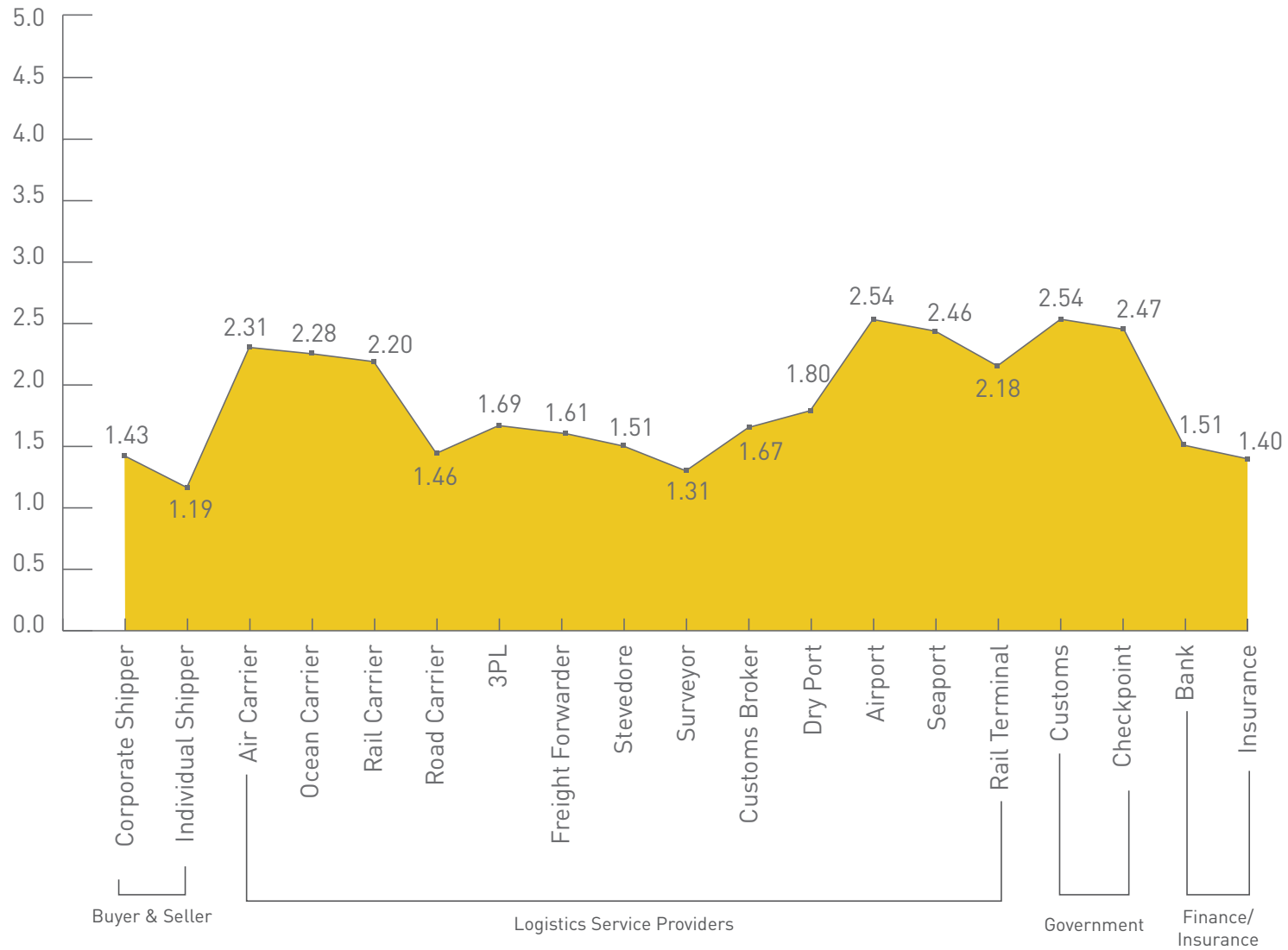
As well-developed central region of the mainland, the Chubu (1.97) zone received the highest Integration score. This region hosts most of Japan's manufacturing plants, automobile, semi-conductor, logistics service providers, and research and development businesses in the fields of electronics, biotechnology, and new materials.

The difference between the lowest and the highest scoring zones is 10.8%, representing a foundation for the country to reap greater trade efficiency when the right innovation to improve Integration is introduced in Japan.



## Integration Efficiency by Trade Cluster

- 92.4% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 97.6% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

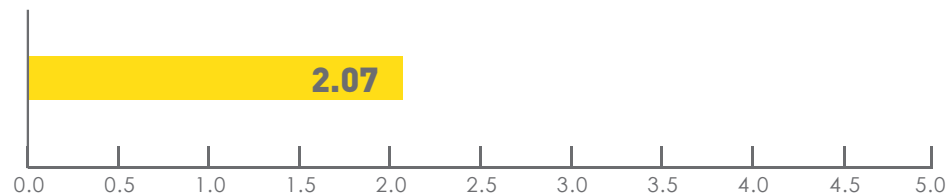
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Japan's Overall Processes Score

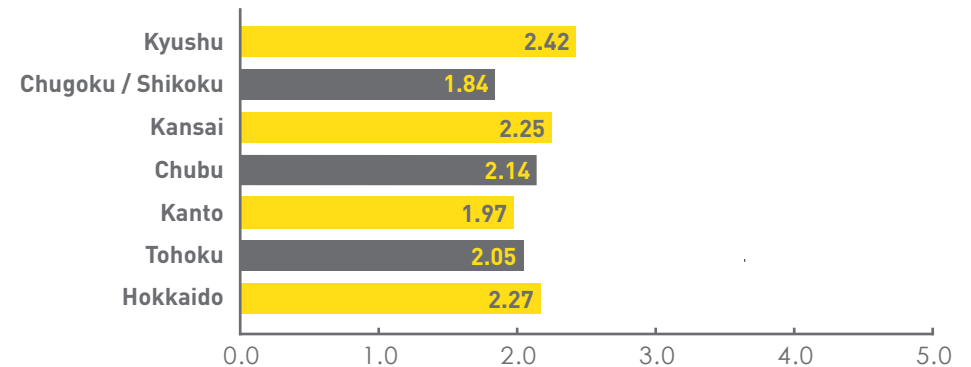
The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Japan have scored a 2.07 out of a possible 5.0 on the 21-6-ETEI standard.



### Processes by Economic Zone

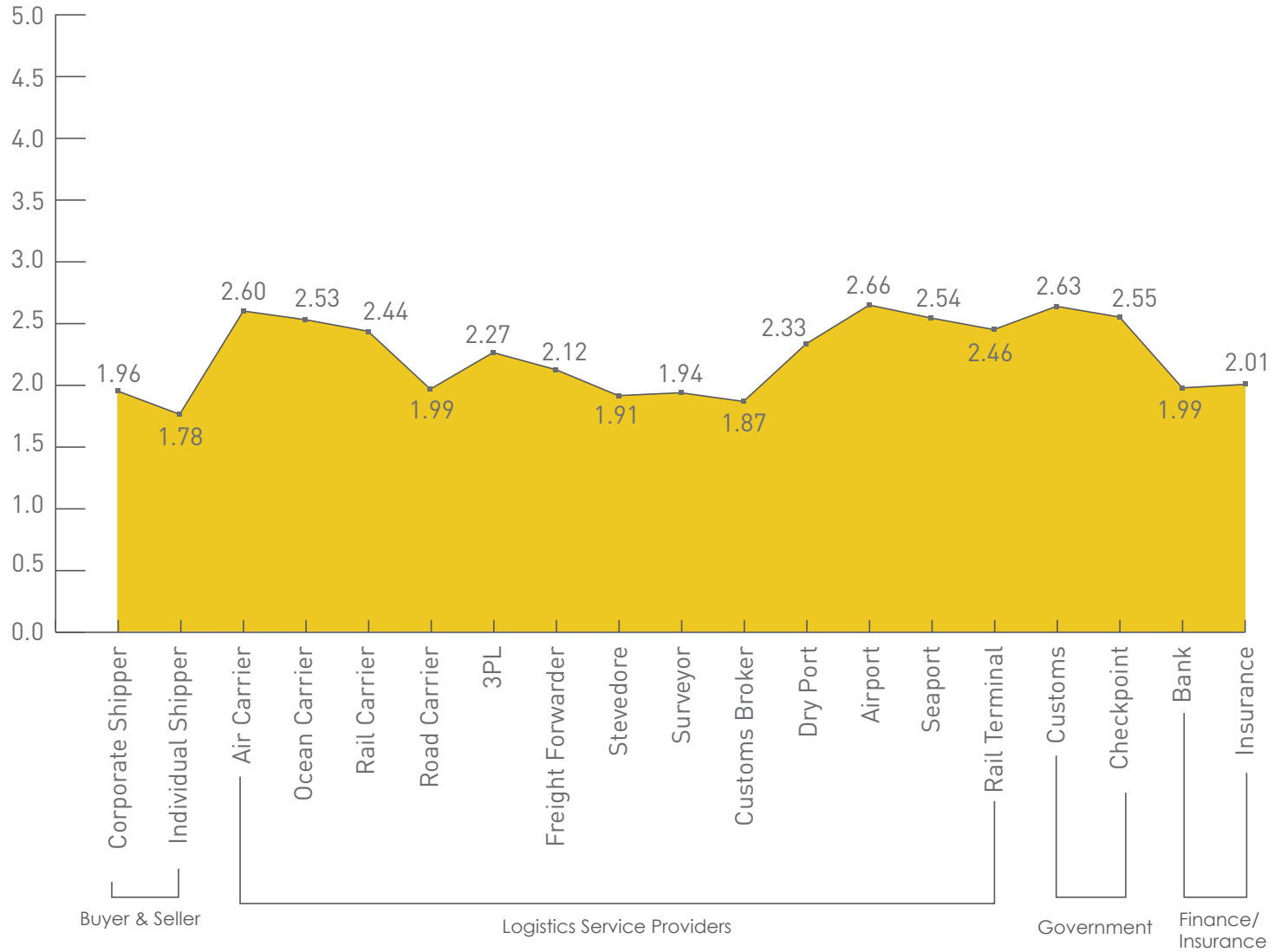
Analyzing the Processes scores by Economic Zone, all seven zones show some established processes due to investment in vertical in-house systems. However, because trade is horizontal in nature, the efficiency that can be gained through further vertical investment is very limited.

The higher scores in the Kyushu (2.42), Hokkaido (2.27), and Kansai (2.25) zones are primarily due to the presence of highly advanced industrial and world class manufacturing facilities in these regions. The organizations in these zones have developed vertical systems to optimize the handling of the shipment within their own jurisdictions.



## Processes Efficiency by Trade Cluster

- 41–60% of shipment data is re-entered due to Processes incompatibility
- 11.3% of participants use ERP systems; those firms that automate processes, typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFA documentation requirements



## E-DOCUMENTATION

### Findings – Data

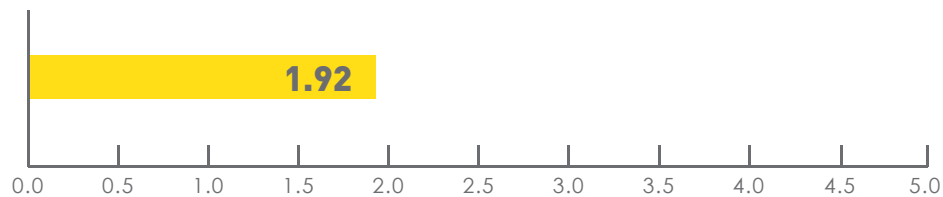
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

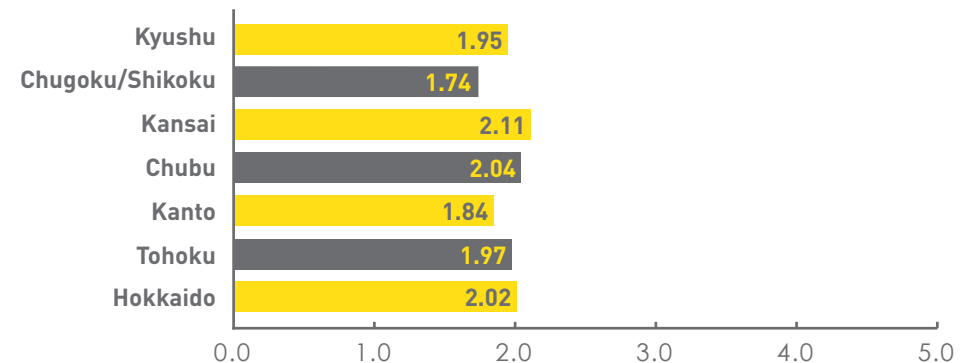
### Japan's Overall E-Documentation Score

The overall national E-Documentation score of Japan is 1.92, which is influenced by the use of the Japan National Single Window NACCS. Under NACCS, the requirements of 6 ministries for the processing of import/export information are consolidated, wherein all data is electronically handled, and data re-entry is minimized. The overall E-documentation score indicates that some additional steps can be implemented by Japan to attain an optimal level of E-Documentation Efficiency capability.



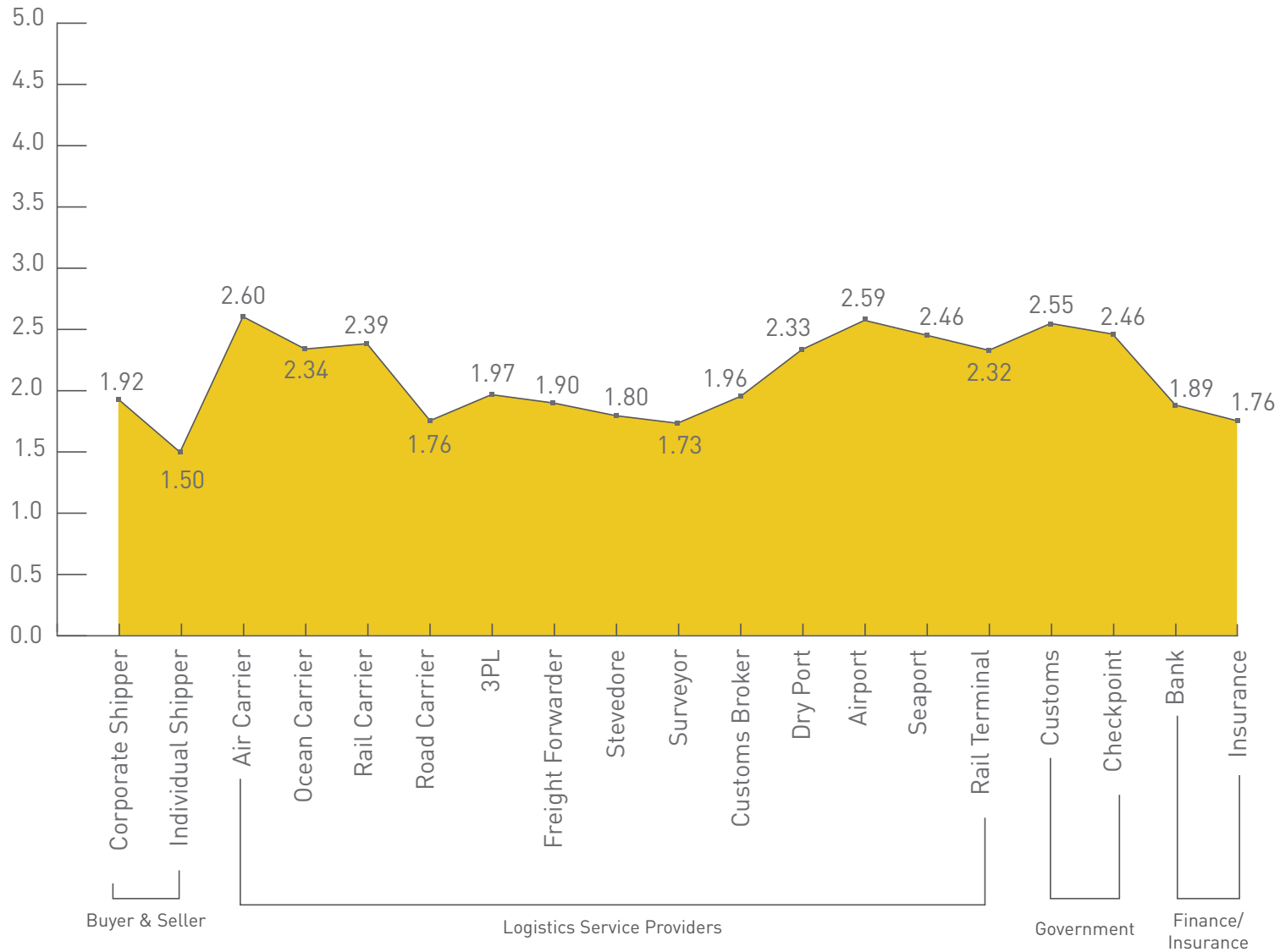
### E-Documentation by Economic Zone

Examining the E-Documentation scores by Economic Zone, all the zones are comparable with a moderate difference of 7.4% between the highest and lowest scores. Hence, there is a countrywide opportunity, especially in the less densely populated zones, to achieve optimal levels of efficiency when an E-Documentation capability is made available.



### E-Documentation Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

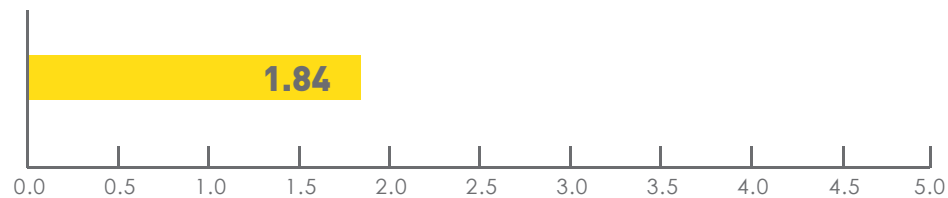
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability.

### Japan's Overall Tracking & Visibility Score

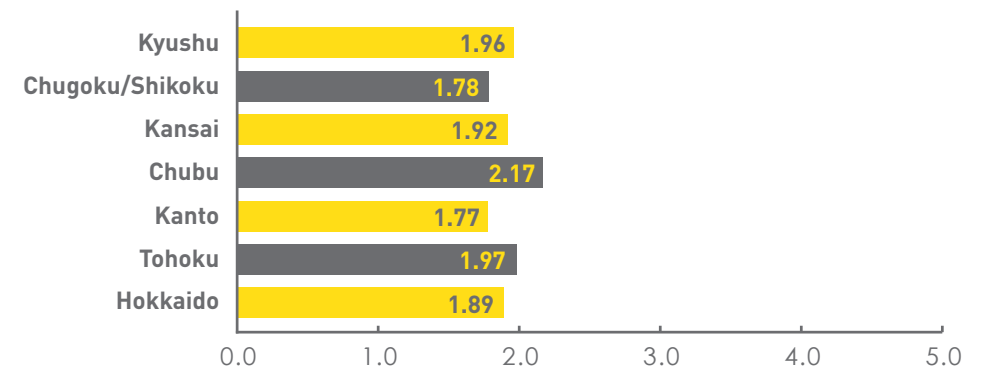
The overall national Tracking & Visibility score in Japan is 1.84, which indicates that some steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



Considering the modest score of 1.84 for Tracking & Visibility, Japan is headed in the right direction by continuing the roll out of innovative systems such as the NACCS National Single Window to further enhance its ability to track and better manage its shipments across the global value chains.

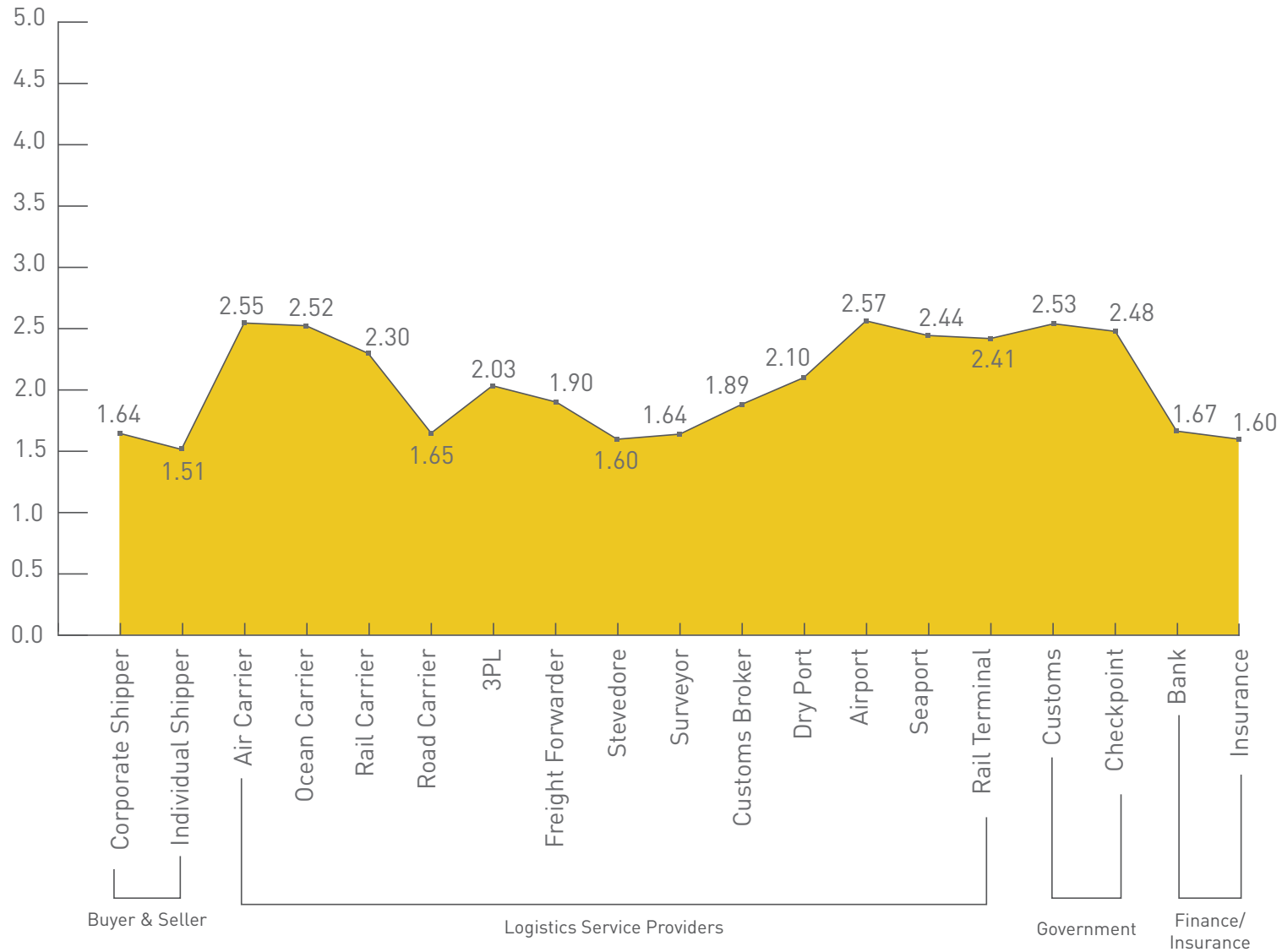
### Tracking & Visibility by Economic Zone

When we analyze the Tracking & Visibility by Economic Zone, the moderate difference of 8% between the highest scoring zone of Chubu (2.17) and the lowest scoring zone of Kanto (1.77) indicates that there is a countrywide opportunity to improve Tracking & Visibility. When the right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, Japan can enhance its Tracking & Visibility to improve its security and achieve superior operating efficiencies as well.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



# COMPETENCE

## Findings – Data

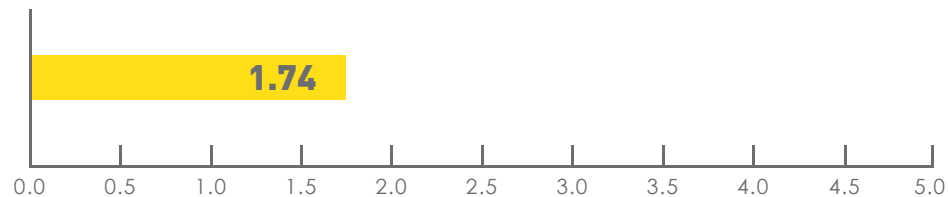
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, it needs all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade pipeline.

## Japan's Overall Competence Score

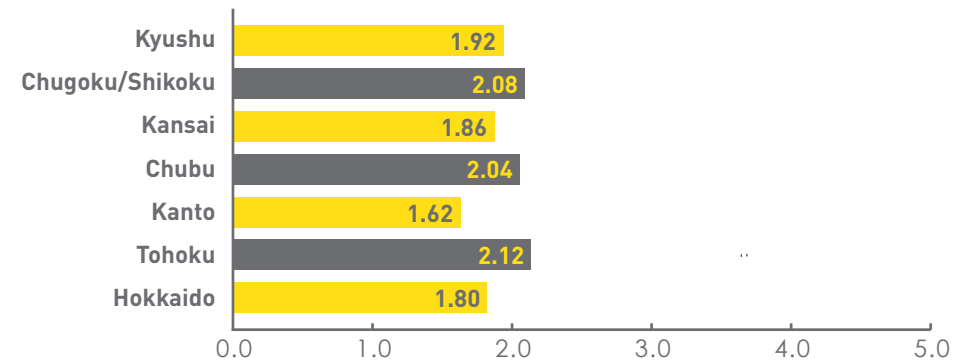
The overall national Competence score in Japan is 1.74. Given that a score of 5.0 indicates maximum efficiency, Japan's score indicates a moderate level of Competence and an opportunity for Japan to leverage its skilled and talented workforce to achieve significant improvement.



## Competence by Economic Zone

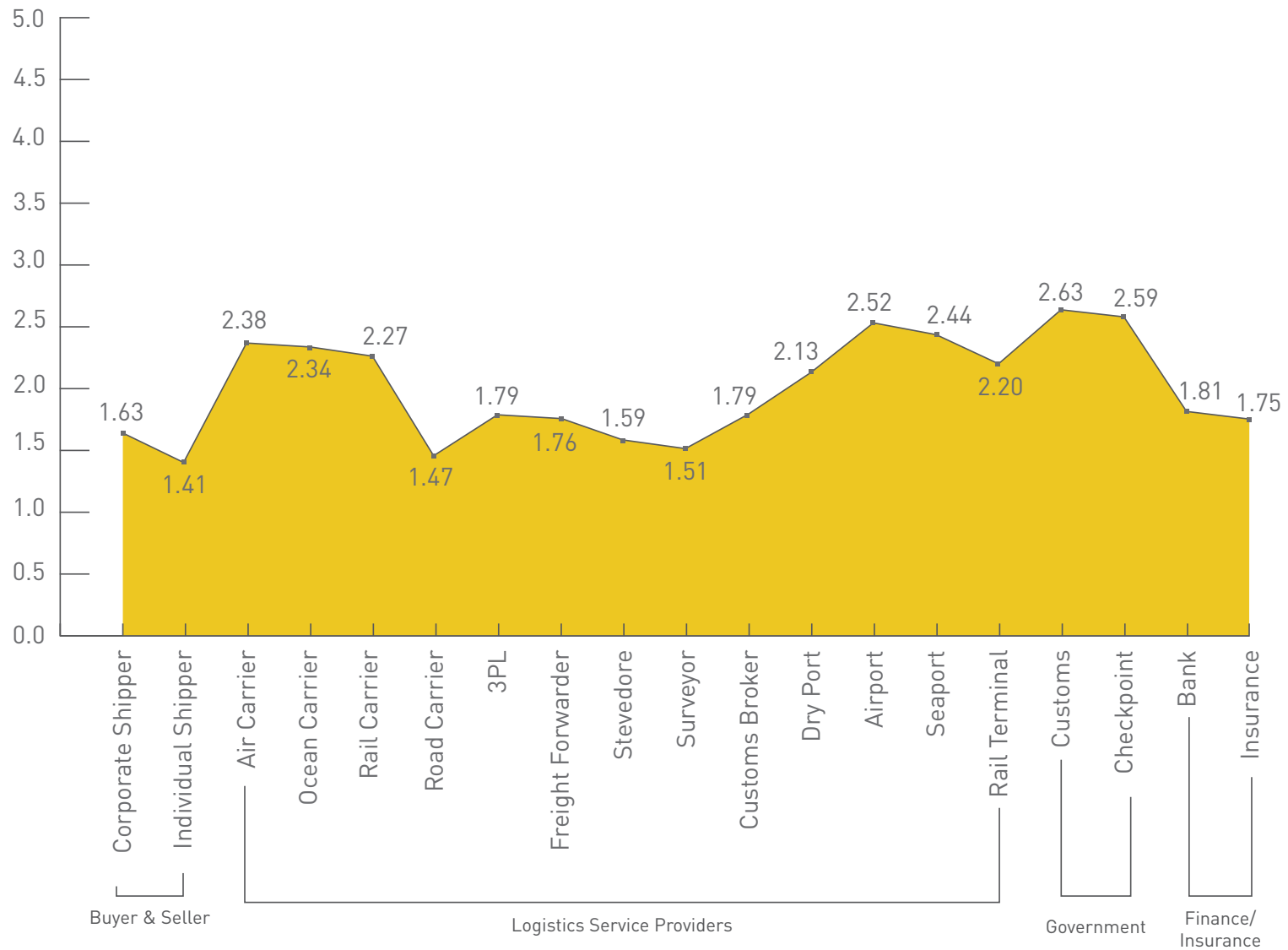
All the zones achieved moderate Competence scores with the difference between the highest and the lowest being 10%, indicating a countrywide opportunity to enhance Competence.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job performance completion as well as escalate issues when necessary, the Competence level of employees can be improved to achieve a superior level across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines across Japan.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

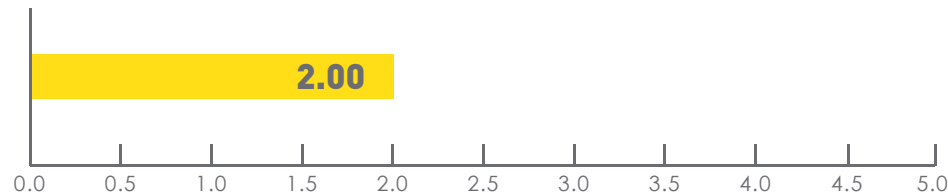
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in the trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures.

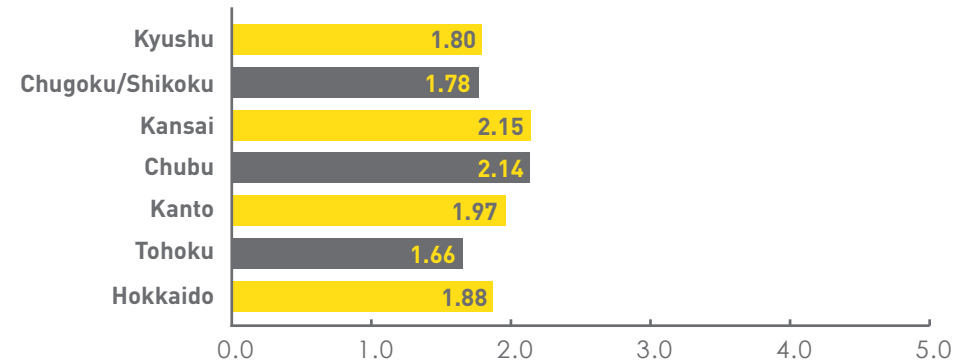
### Japan's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 2.00 indicates Japan's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Japan's level of Cargo Security Efficiency can be improved nationwide.



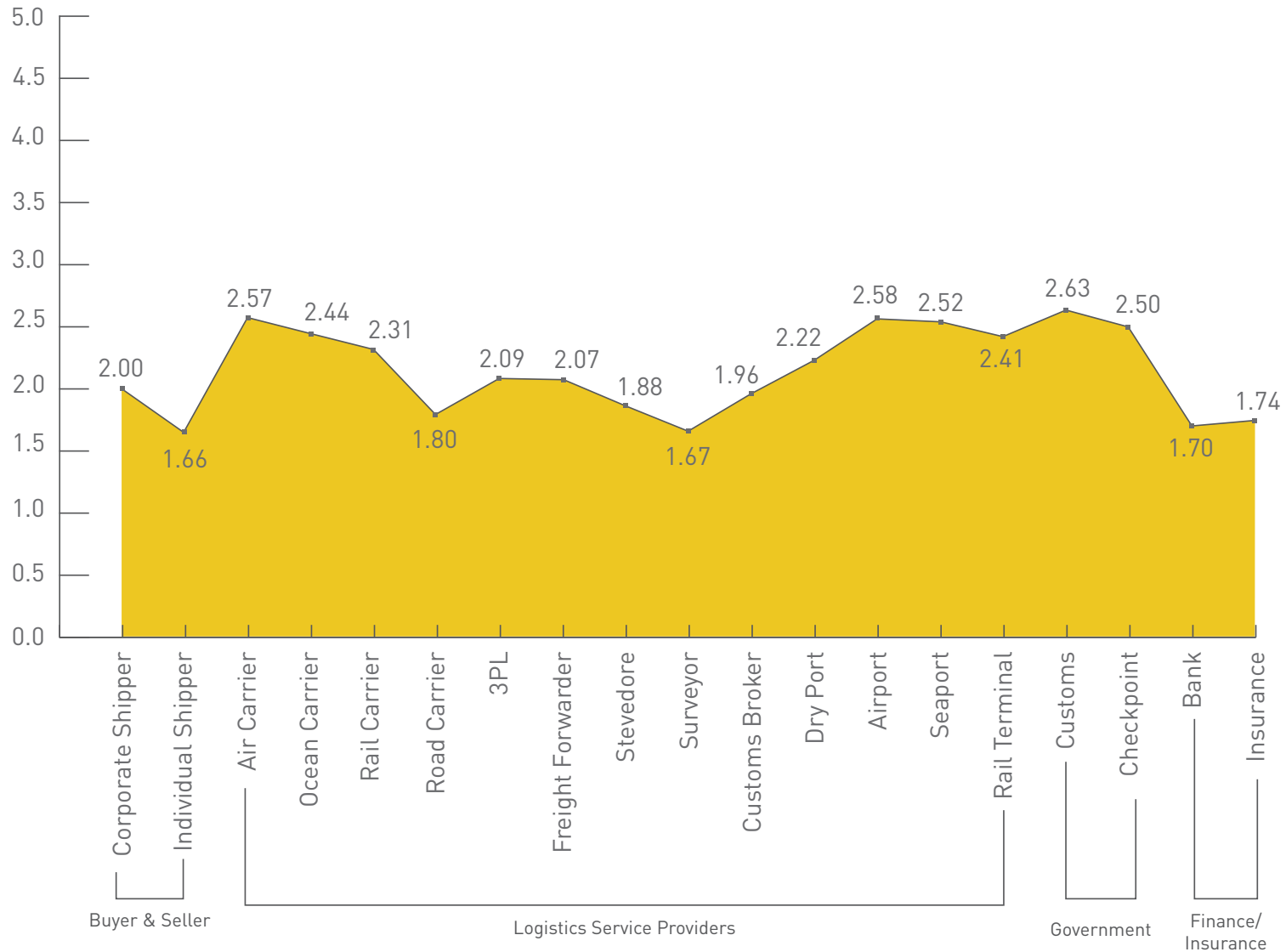
### Cargo Security by Economic Zone

The high scores in the Kansai (2.15) and Chubu (2.14) zones reflect the high volume and nature of goods shipped in these regions, such as automotive, petroleum oil, petroleum gas and other gaseous hydrocarbons and solid fuels which require additional security and availability of shipment security data. The difference between the highest and the lowest scores is moderate at 9.8%, indicating that innovations in Cargo Security will be effective equally across all the economic zones in improving their scores.



## Cargo Security Efficiency by Trade Cluster

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is 51-75% complete



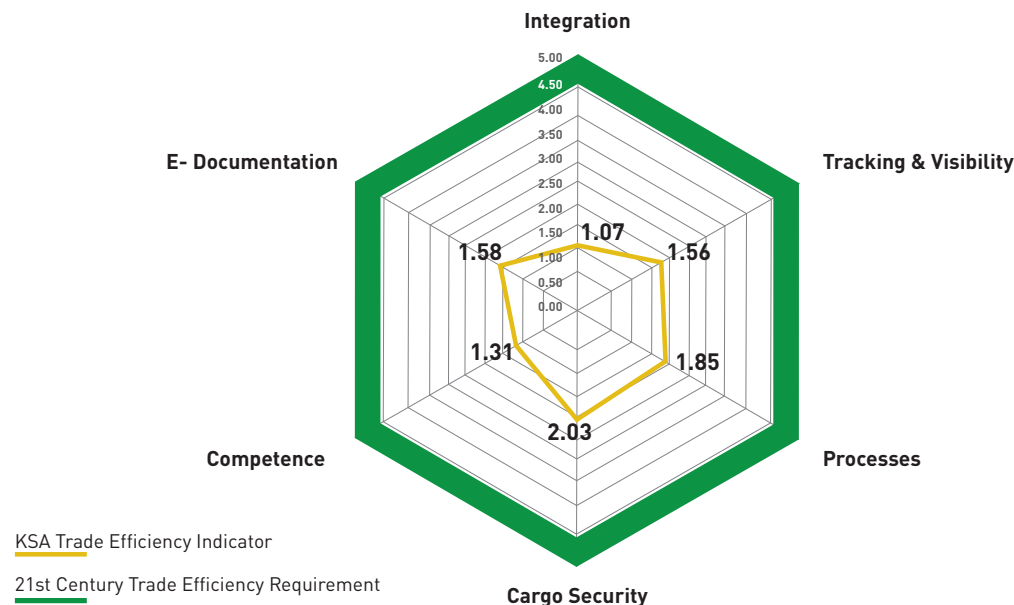


## KSA's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated KSA's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the KSA Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the KSA SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the KSA SEA Report recommendations, KSA can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 12.6 billion, placing KSA at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 190 billion and create 12.8 million jobs by 2030, meeting the economic ambitions of KSA.

### KSA's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



# INTEGRATION

## Findings – Data

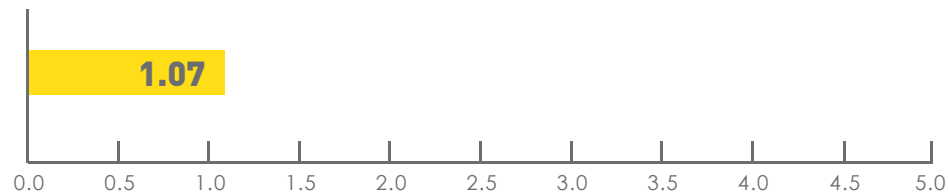
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## KSA's Overall Integration Score

This represents the aggregate data on a national level from all 19 clusters surveyed in KSA. Collectively they have scored a 1.07 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



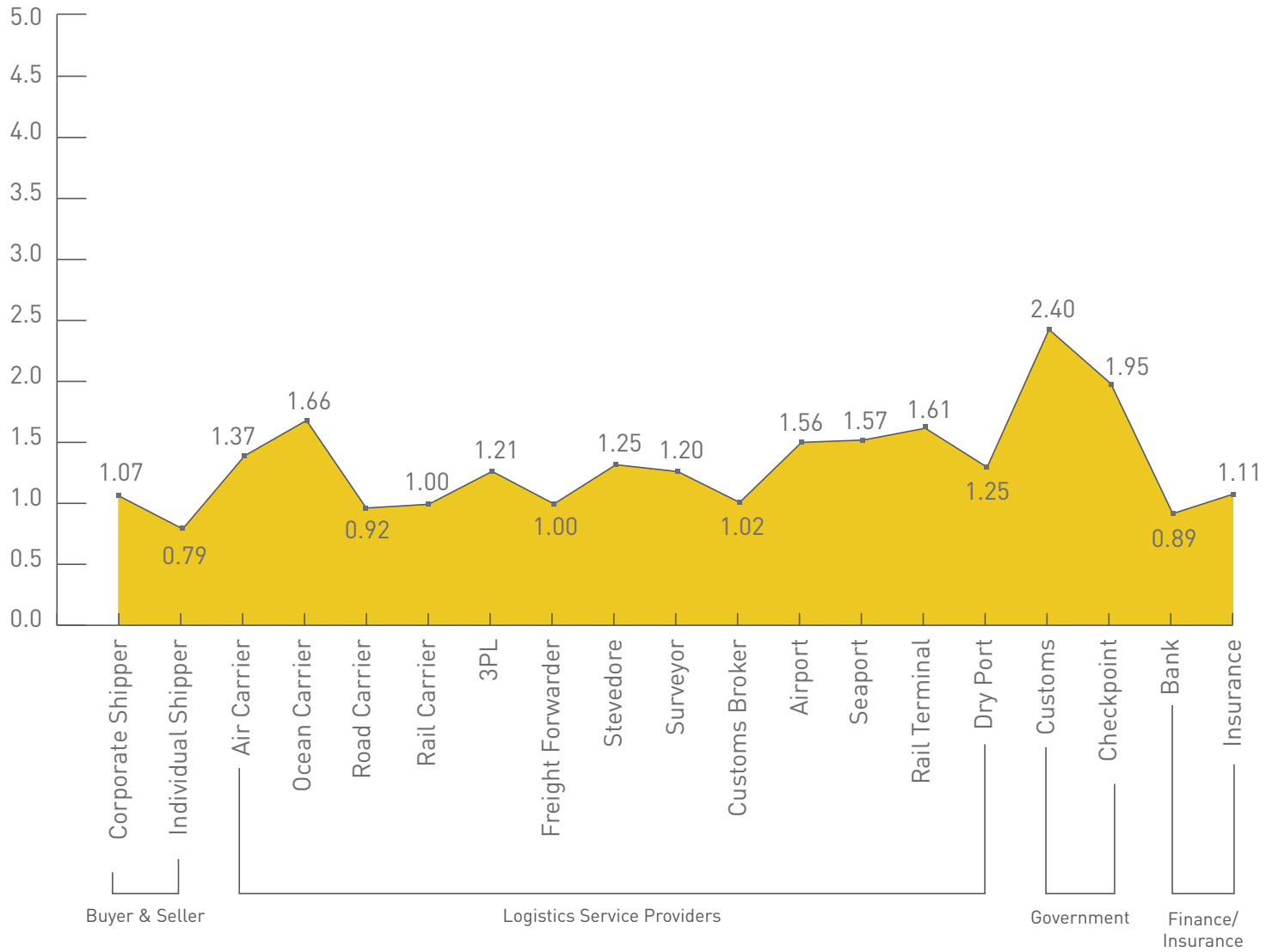
## Integration by Economic Zone

KSA's strategy is to diversify and grow the non-oil sector of the economy and take full advantage of its position at the crossroads of Asia, Europe, and Africa to expand its role in international trade. Already the largest economy in the GCC, Saudi Arabia has started developing a world-class logistics infrastructure, including Free Trade Zones for transshipment and re-exportation of goods. However, technology adoption in the KSA logistics industry remains low. In fact, 76.17% of businesses are manually operated, and have no vertical systems, which contributes to the lack of integration, both within KSA, and with international trading partners. This holds KSA back from achieving the trade efficiency required to maximize its potential, and realizing the economic ambitions of Saudi citizens. The difference between the highest score (1.19) and the lowest score (1.00) is minimal, which means that when the right innovation is introduced into the country, it can be quickly and evenly adopted across all zones.



### KSA Integration by Trade Participant

- 76.17 % of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 97.46 % of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

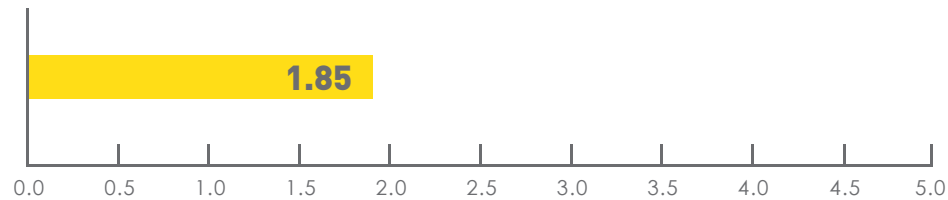
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline.

**Level 5=** Optimum and complete Processes in a trade pipeline.

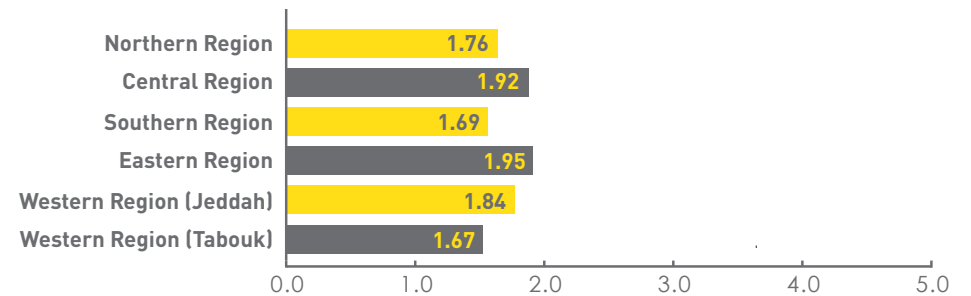
### KSA's Overall Processes Score

This represents an overall national Processes score assessing the handling of shipments in the trade pipeline. Collectively, the trade participants in KSA have scored a 1.85 on the 21-6-ETEI scale of 5.0. The top score of 5.0 represents optimal performance and complete processes throughout the trade pipeline.



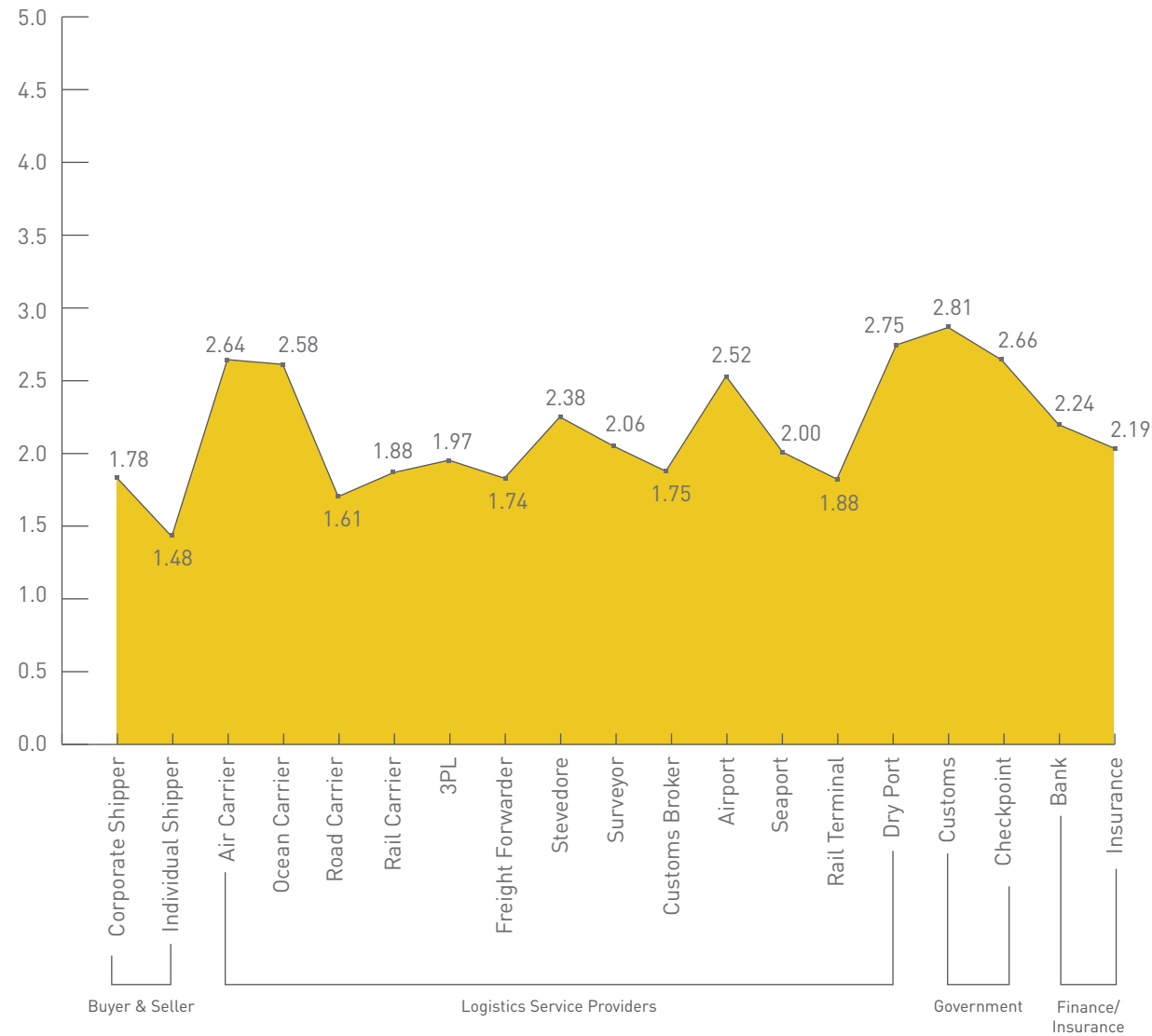
### Processes by Economic Zone

When we analyze the results of Processes by Economic Zone in KSA, there is a 5.6% difference between the highest and lowest result. These close results demonstrate an even distribution of the Processes level, which represents an ideal starting point to establish optimal horizontal processes. The higher scores of 1.95 in Eastern, 1.92 in Central and 1.84 in Western (Jeddah) zones are primarily due to the presence of major ports, large asset based carriers, and global logistics companies that have established internal vertical processes.



## KSA Processes by Trade Participant

- 71-90% of shipment data is re-entered due to Processes incompatibility
- 5.49% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8 to 30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

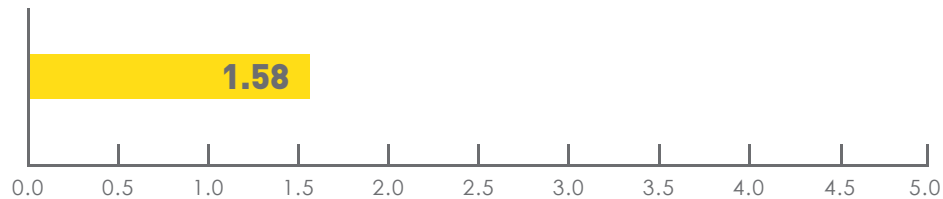
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

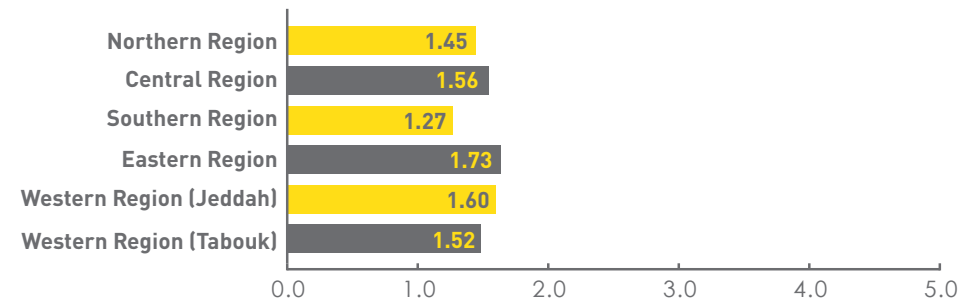
### KSA's Overall E-Documentation Score

The overall national E-Documentation score in KSA is 1.58, which indicates that some of the 19 clusters are moving from paper to E-Documentation, primarily influenced by the Customs clearance process provided through the Saudi EDI portal.



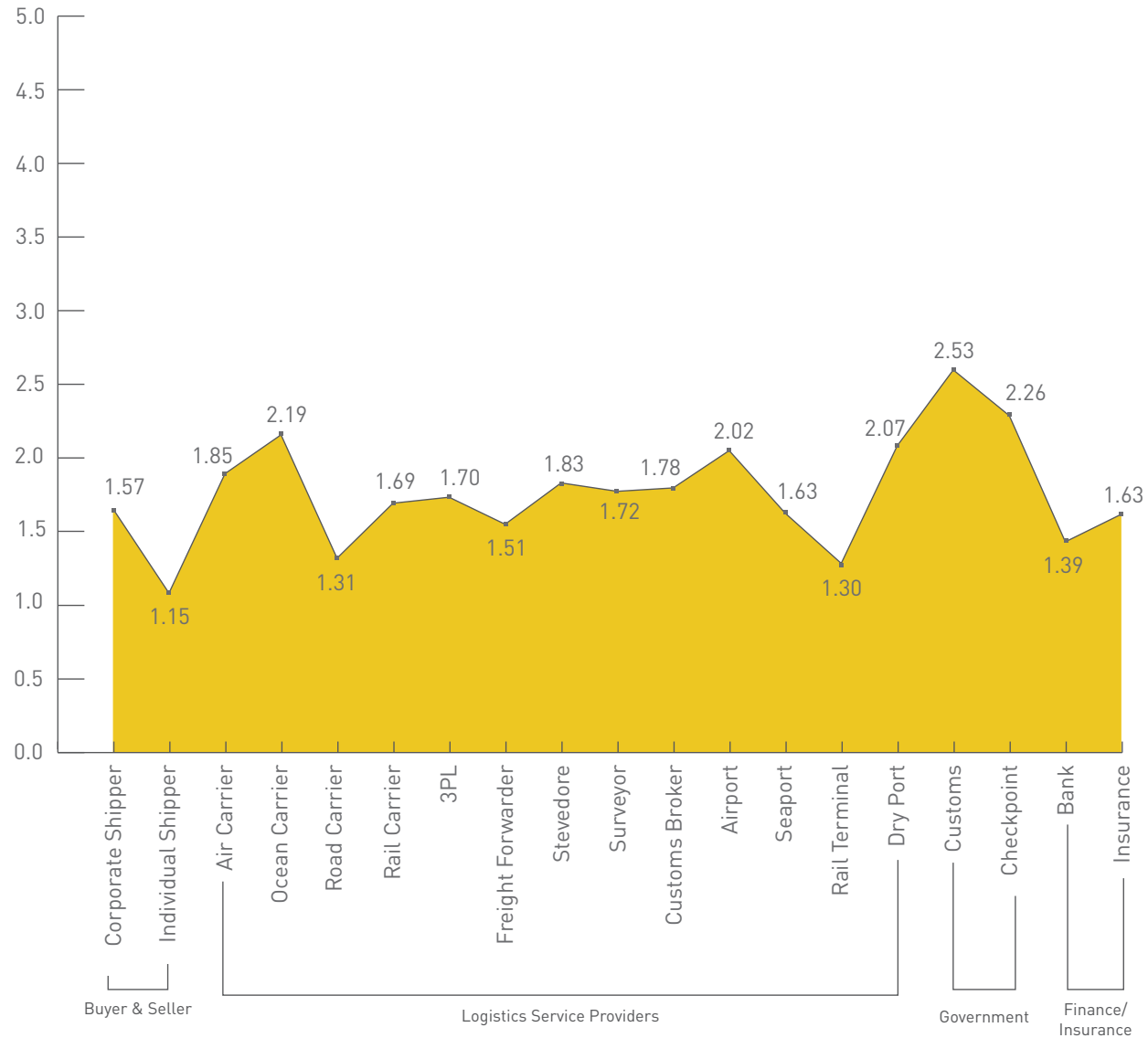
### E-Documentation by Economic Zone

When we analyze the E-Documentation results achieved across Economic Zones in KSA, the difference is 9.2% between the highest and lowest results. This means that all regions will share the benefits as their trade participants integrate with a system that offers E-Documentation capability. The concentration of asset based ocean and air carriers, along with the major seaports and airports, primarily accounts for the higher scores in the Western (Jeddah) (1.60) and Eastern (1.73) zones. Some of these businesses have developed their own web-based portals that allow for the electronic transfer of some of the shipment data exchanged with the other clusters.



## KSA E-Documentation by Trade Participant

- ▶ 61–80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ▶ ≤10% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

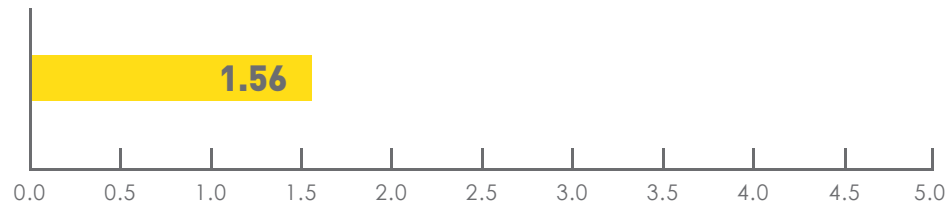
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability.

**Level 5** = Optimum level of global Tracking & Visibility capability.

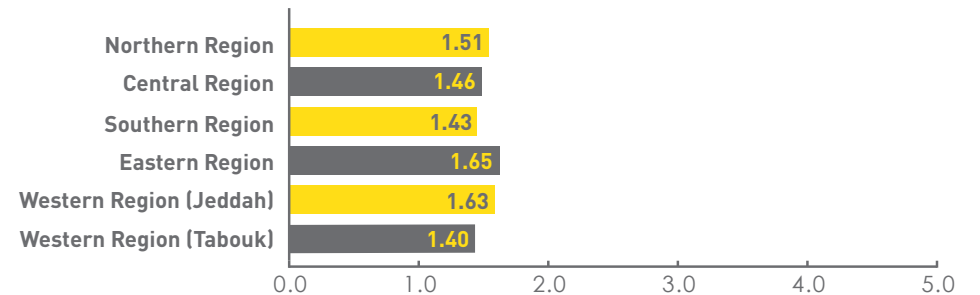
### KSA's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in KSA is 1.56, which indicates that significant steps are necessary in order to attain an optimum level of Tracking & Visibility Efficiency performance.



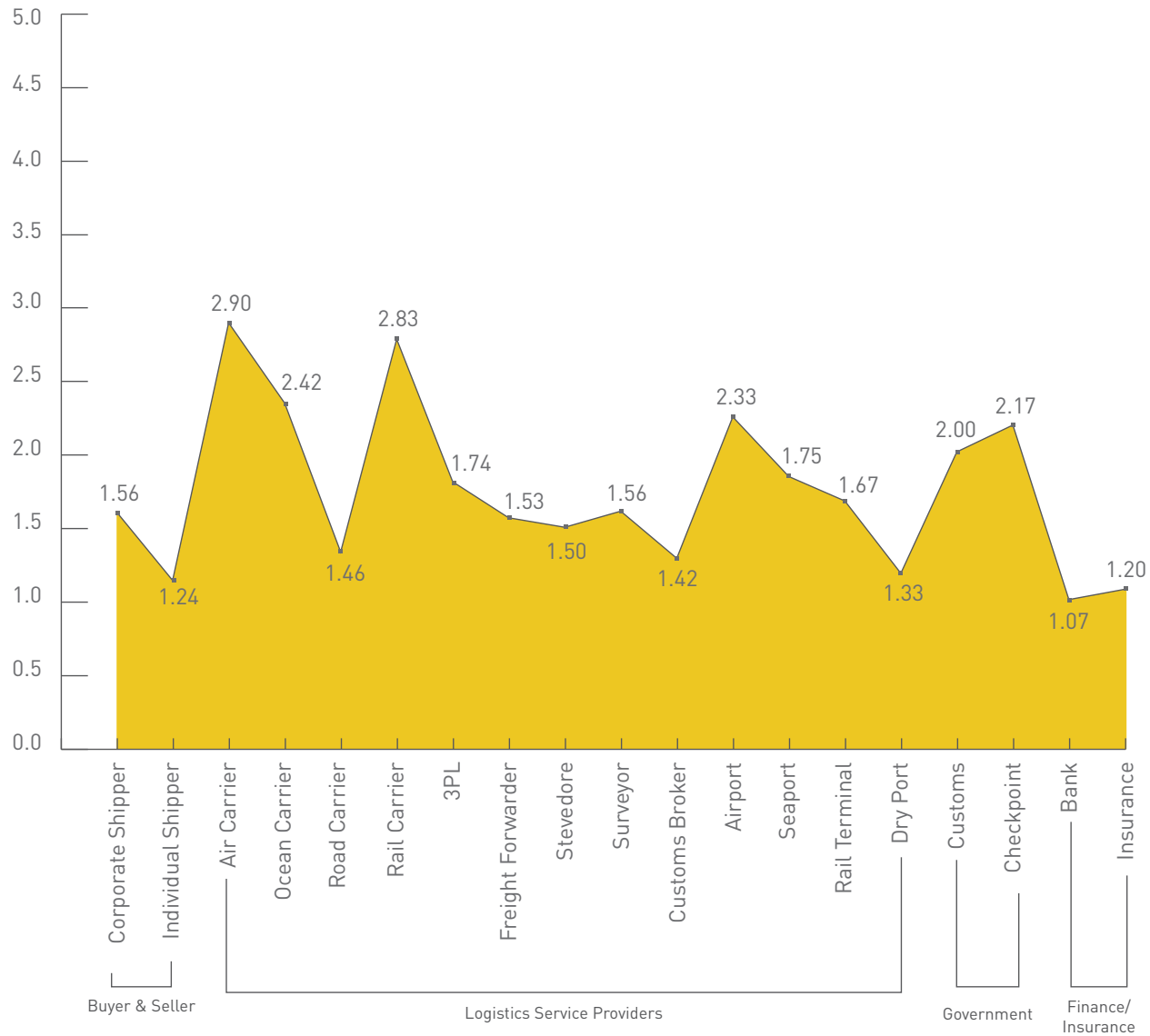
### Tracking & Visibility by Economic Zone

When we analyze the Tracking & Visibility results achieved across Economic Zones in KSA, we find that all six zones are consistent. This relatively even distribution indicates that there is a country-wide level opportunity to improve Tracking & Visibility when the report's recommendations are implemented. The higher scores in the Western (Jeddah) (1.63) and Eastern (1.65) Zones are mostly due to the presence of major air and ocean carriers, airports, and seaports. These organizations have the technology necessary to provide Tracking & Visibility of shipments through GPS, RFID or other technologies.



## KSA Tracking & Visibility by Trade Participant

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



## COMPETENCE

### Findings – Data

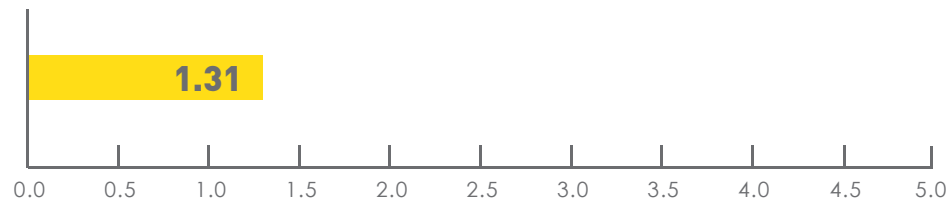
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

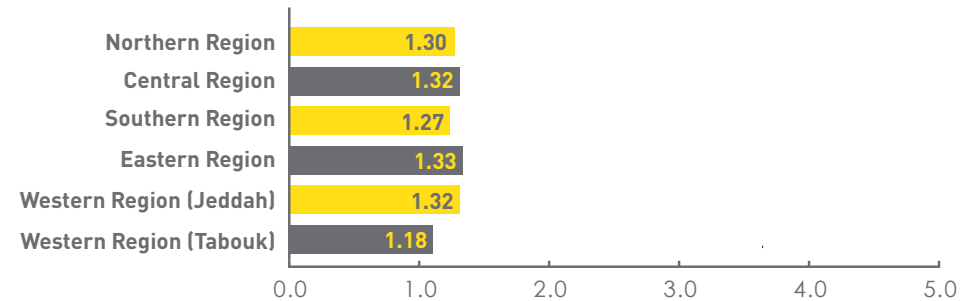
### KSA's Overall Competence Score

The overall national Competence score in KSA is 1.31, indicating an opportunity to improve Competence Efficiency.



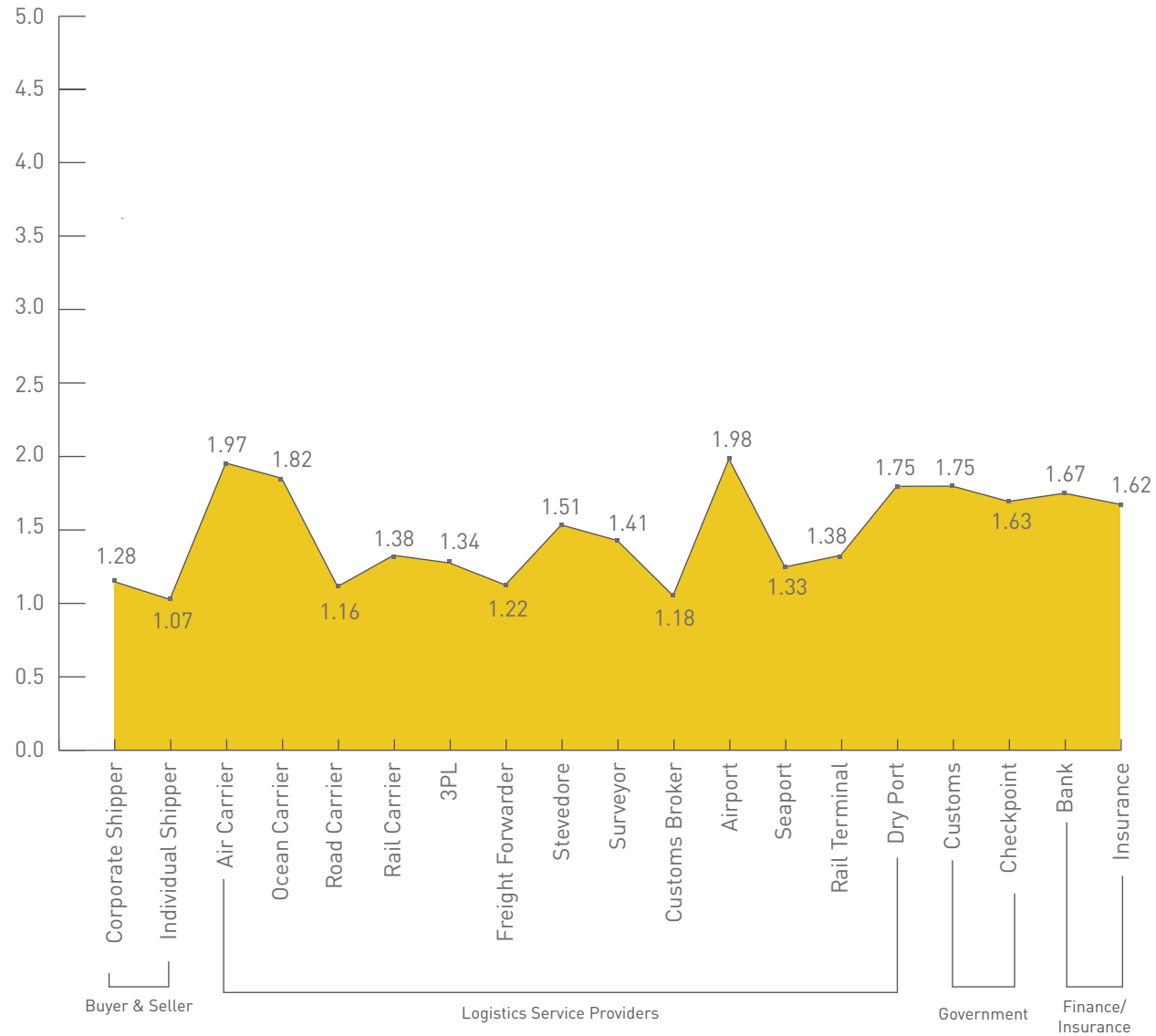
### Competence by Economic Zone

When we analyze the Competence results achieved across Economic Zones in KSA, there is a difference of 3% between the highest and lowest results. This indicates a comparatively even Competence level across KSA regions.



## KSA Competence by Trade Participant

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

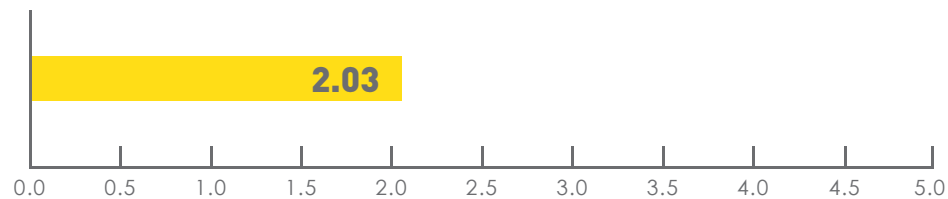
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures.

**Level 5** = Presence of effective Cargo Security procedures.

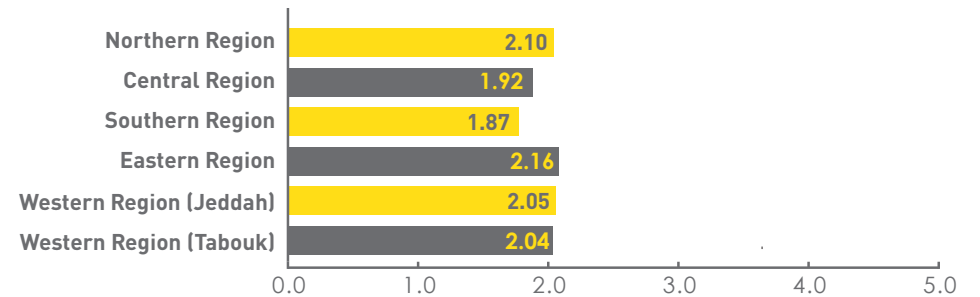
### KSA's Overall Cargo Security Score

The overall national Cargo Security score in KSA is 2.03, which indicates the need for additional emphasis on Cargo Security.



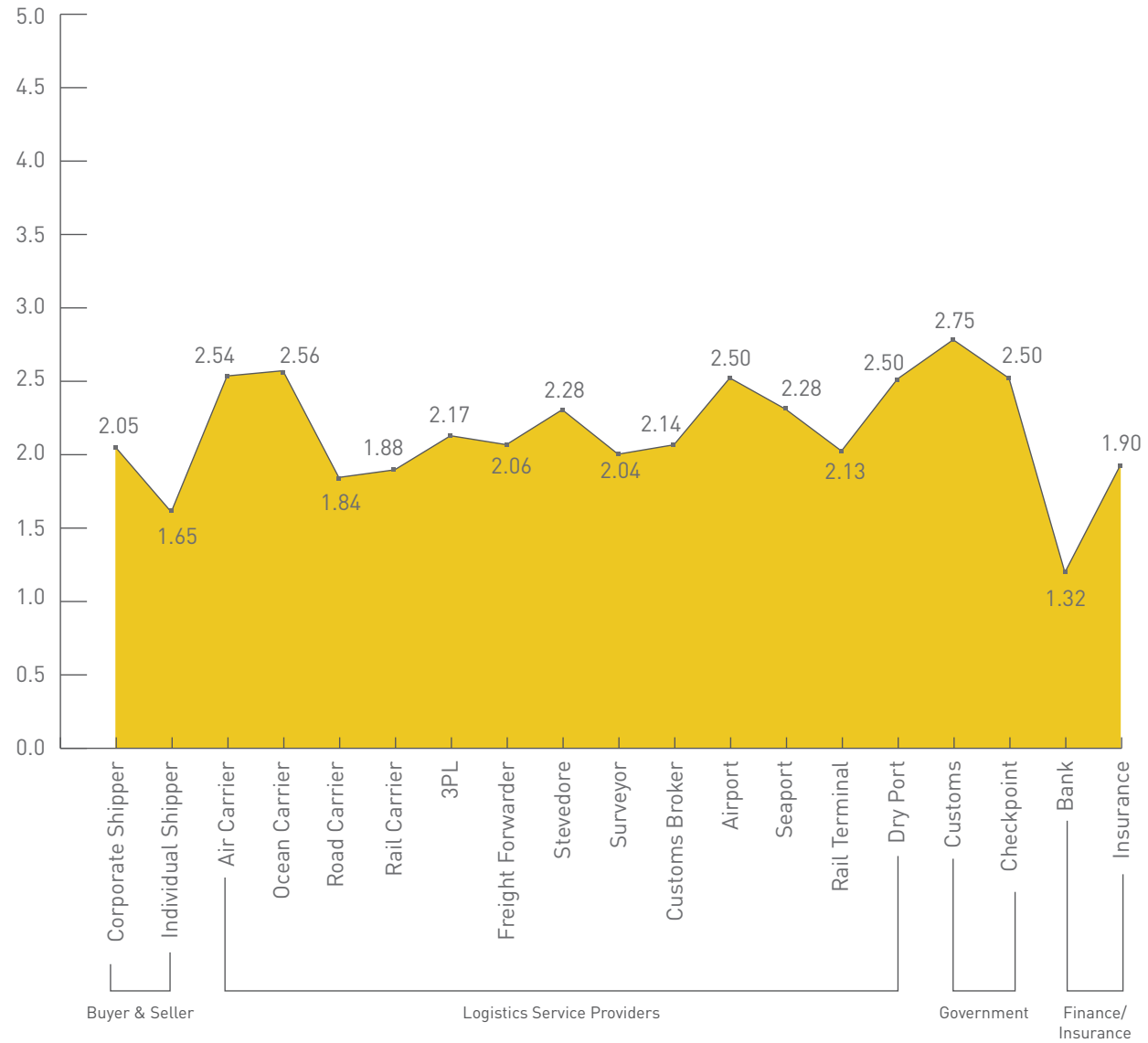
### Cargo Security by Economic Zone

When we analyze the Cargo Security results achieved across Economic Zones in KSA, the difference is 5.8% between the highest and lowest results. This comparatively even Cargo Security level across KSA regions indicates that efficient implementation of new Cargo Security initiatives across all regions is possible.



## KSA Cargo Security by Trade Participant

- > <40% of trade partners ask for Cargo Security information—domestically or globally
- > The shipment security information sent and received is between ≤50% complete



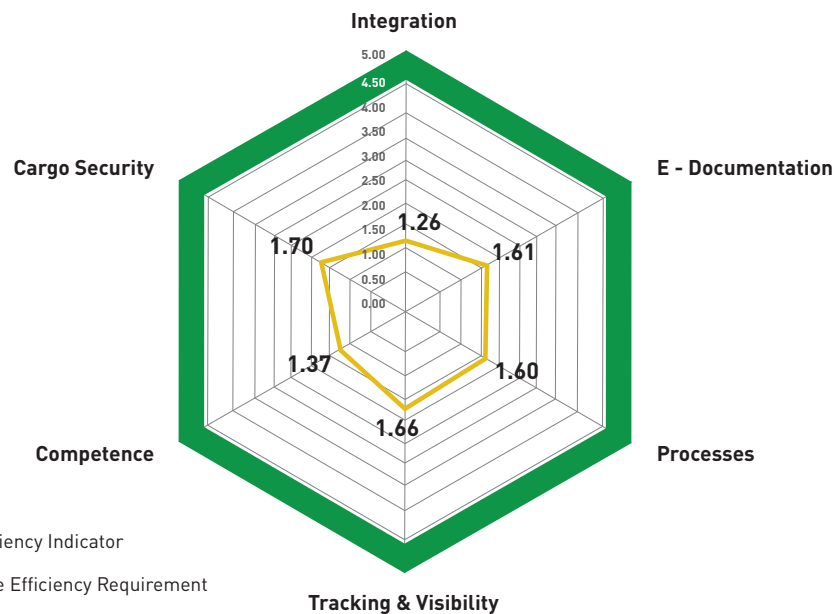


## Mexico's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Mexico's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Mexico Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Mexico SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Mexico SEA Report recommendations, Mexico can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 126.5 billion, placing Mexico at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 353 billion annually and create 11.8 million jobs by 2030, meeting the economic ambitions of Mexico.

### Mexico's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



Mexico Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

## INTEGRATION

### Findings – Data

Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade pipeline participants, a participant can score 2.5 at the most.

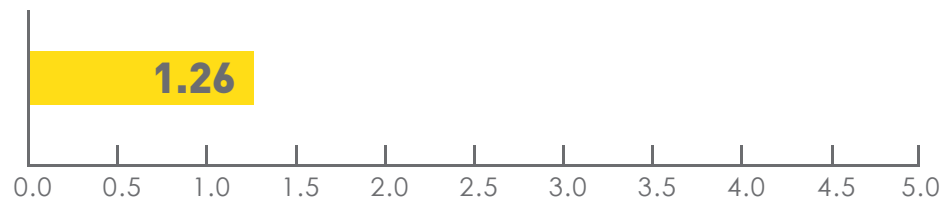
**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

### Mexico's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Mexico. Collectively they have scored 1.26 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

This moderate score is supported by the Mexican Government's implementation of the VUCEM National Single Window portal for the submission and receipt of all trade documentation, thus facilitating trade in the country to improve compliance, decrease shipment delays, and improve the efficiency of its businesses.

However, similar focus on Integration across all the trade participants in Mexico is necessary to significantly improve its overall Integration score.

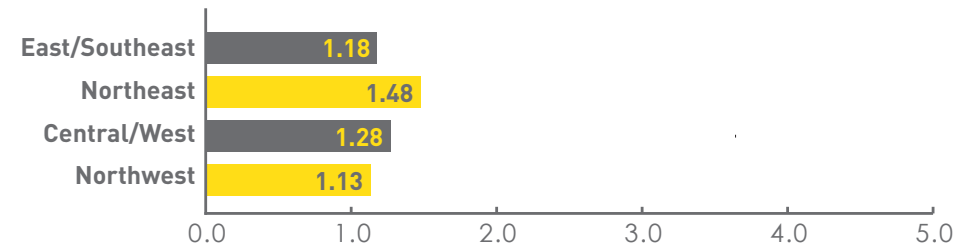


### Integration by Economic Zone

Mexico is striving to improve its global competitiveness by establishing foreign trade zones focused on promoting exports by permitting duty free import of raw materials and components for manufacturing. It is also investing in new infrastructure to improve trade and goods movement.

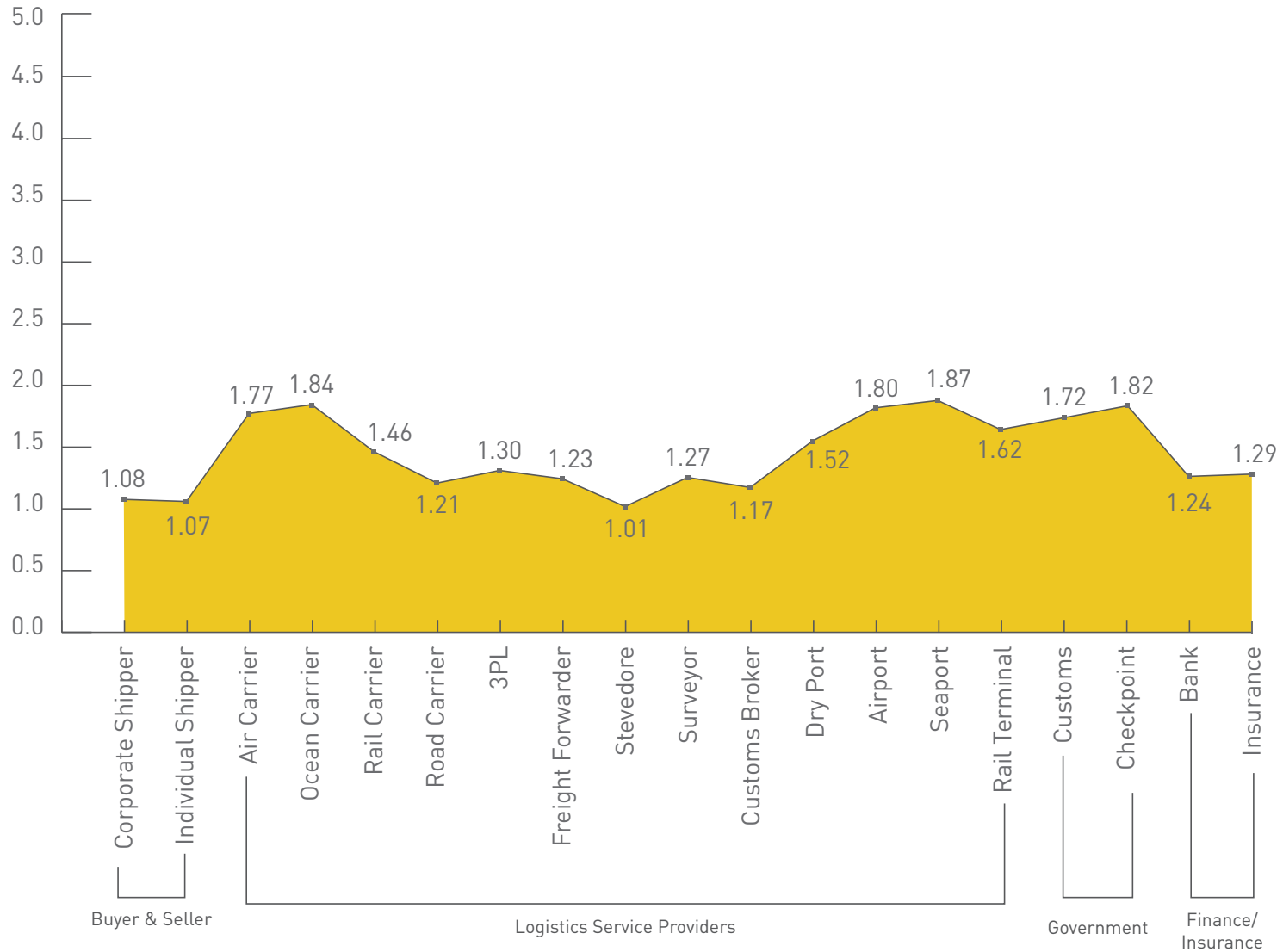
The Northeast (1.48) zone, with its presence of export oriented advanced manufacturing industries including automobiles, heavy machinery, and chemicals that utilize complex supply chains, has scored the highest on Integration.

It is worth noting that the difference in the Integration scores between the highest and the lowest scores is moderate at 7%, indicating that when the right innovation is introduced to the country, it will be quickly and evenly adopted across all zones.



### Integration Efficiency by Trade Cluster

- 93.2% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 96.2% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

Processes Efficiency scale in brief:

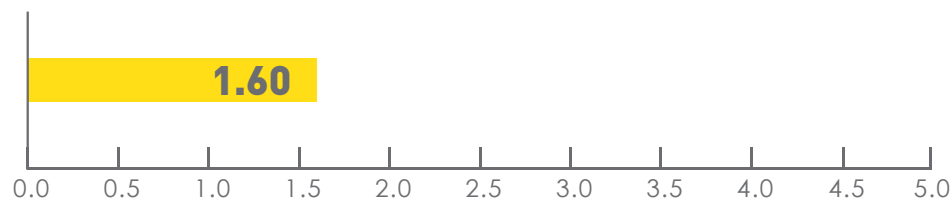
**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing on such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Mexico's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Mexico have scored 1.60 out of a 5.0 on the 21-6-ETEI scale.

The Mexican government's investments in its VUCEM National Single Window for trade facilitation and e-governance systems for connecting with its businesses have assisted in realizing this modest Processes score. However, Mexico needs to continue this focus on empowering its businesses to integrate their systems with those of the other participants in their trade pipelines this will significantly improve its horizontal processes of coordination towards increasing shipment efficiency in order to compete effectively in the global markets.

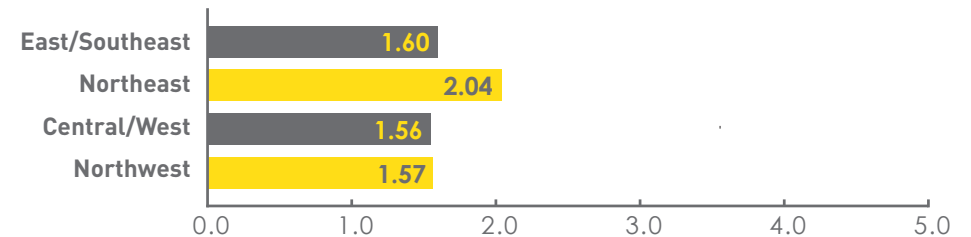


### Processes by Economic Zone

Analyzing Processes scores by Economic Zone, the Northeast (2.04) has scored significantly higher than the other zones. With the relocation of several automobile manufacturing and advanced manufacturing plants from the United States to Mexico due to the onset of NAFTA, this zone has attracted significant foreign direct investments to build vertical systems that contributed to its high Processes score. The other three zones scored uniformly lower.

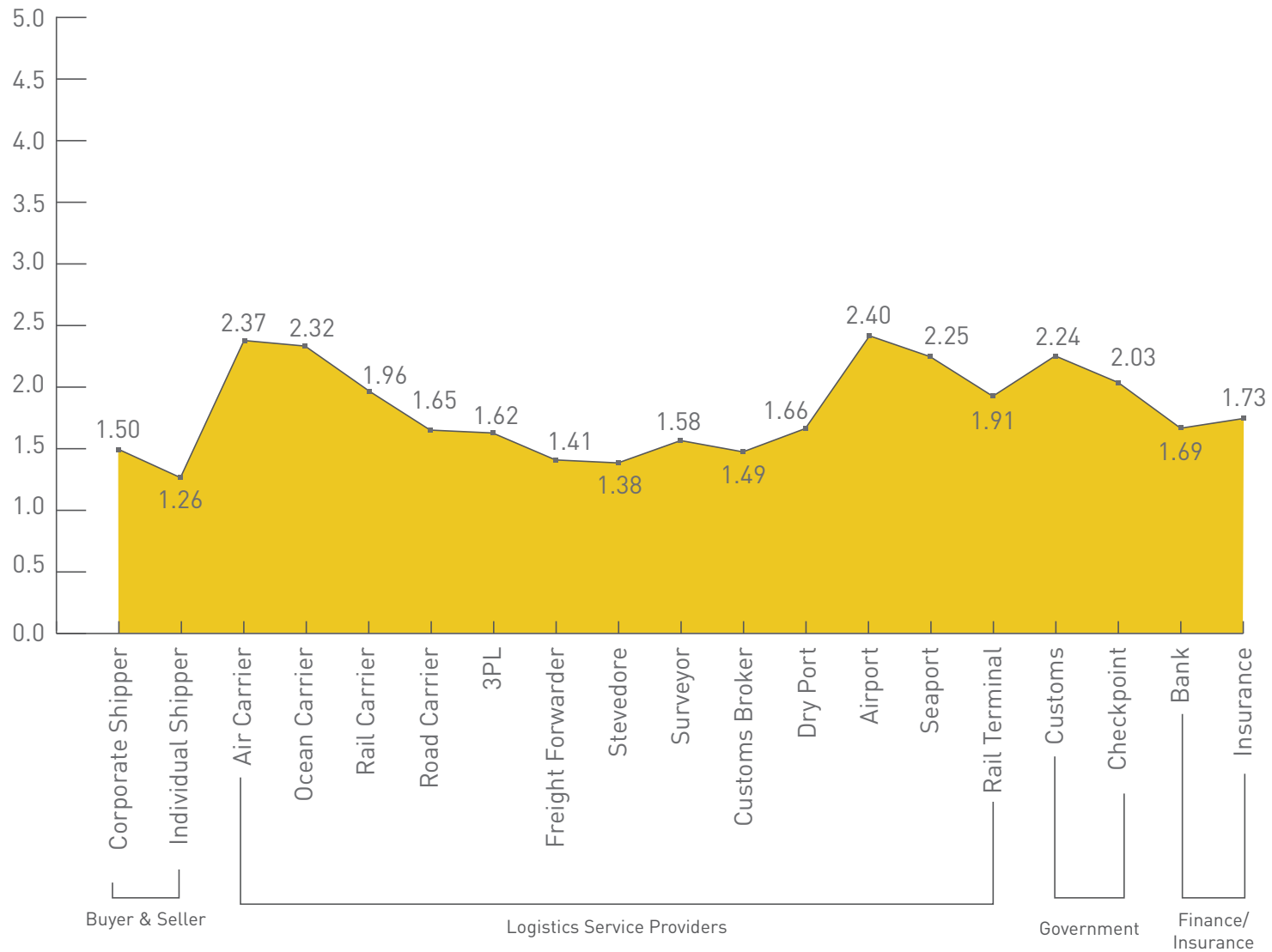
The difference between the highest and the lowest scores among the zones is moderate at 9.6%.

For the Processes in Mexico to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across Mexico, further efficiency gains will be achieved in the horizontal processes in all the Economic Zones. With the right innovation, there is a countrywide opportunity to enhance Processes scores across all the regions of the country.



## Processes Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to Processes incompatibility
- 10.9% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- >30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

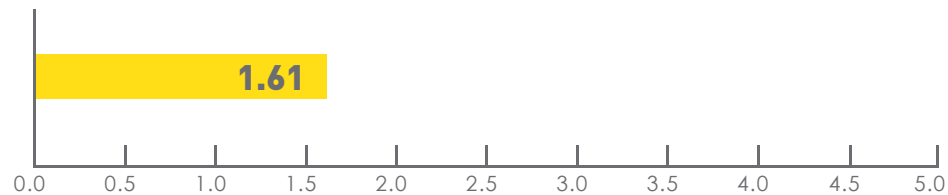
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### Mexico's Overall E-Documentation Score

The overall national E-Documentation score in Mexico is 1.61, which indicates that some significant steps can be implemented by Mexico to attain an optimal level of E-Documentation capability.



The Mexican government has enacted policies to promote the use of information technology systems in the businesses including its VUCEM National Single Window system for trade facilitation. As a result, the Mexican businesses have become more comfortable with the online environment and the use of E-Documentation is increasing.

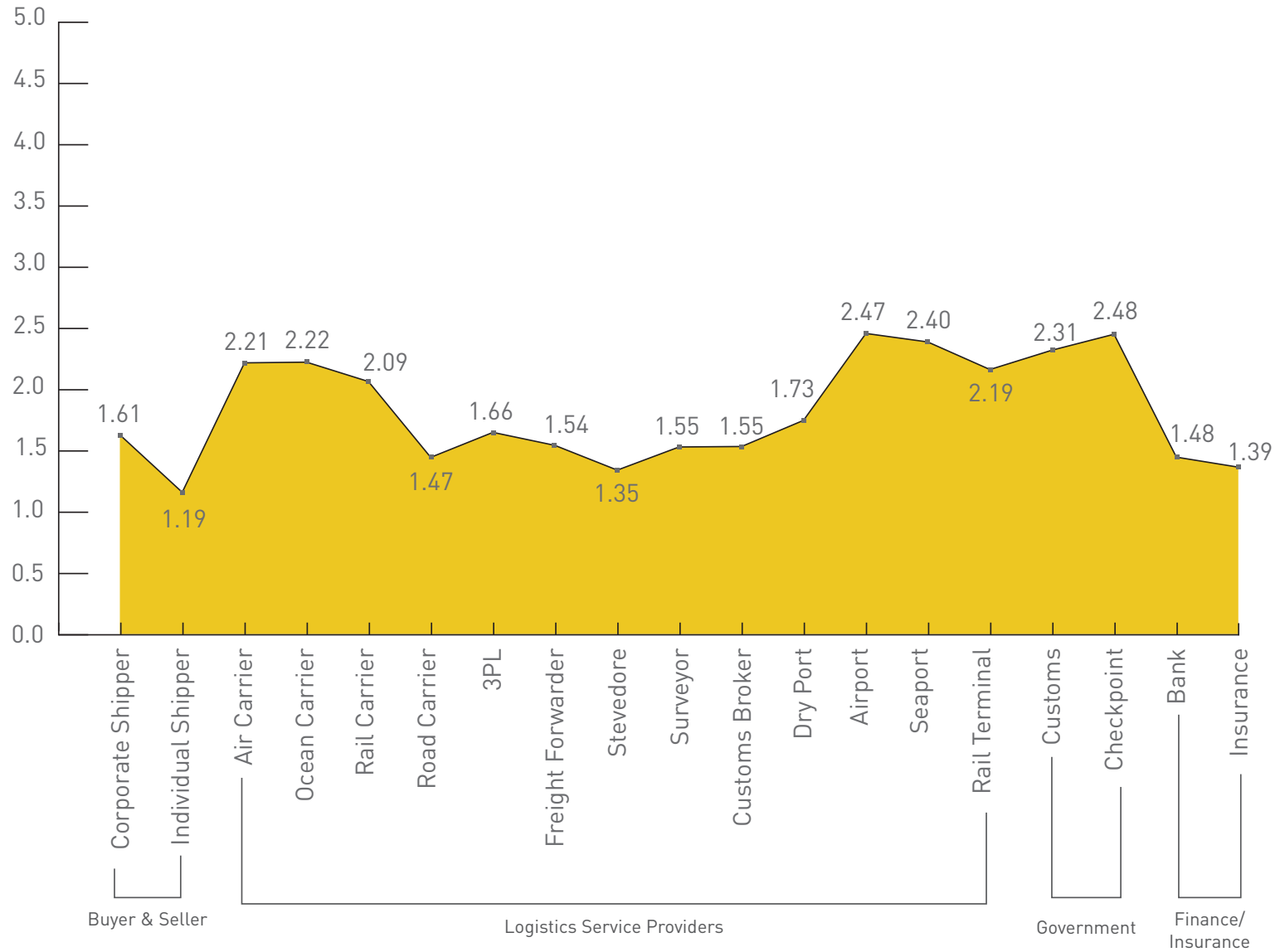
### E-Documentation by Economic Zone

Mexico has one of the best-developed manufacturing sectors in Latin America. Its principal manufacturing industries are in the Northern states and include chemicals, electronics, iron and steel, petroleum, textiles, and motor vehicles. Several of the major car manufacturers including General Motors, Ford, Chrysler, BMW, Toyota, Honda, Volkswagen and Mercedes Benz have set up their manufacturing operations in the Northeast (1.70) zone. Those organizations have developed complex supply chains and use E-Documentation extensively to coordinate their operations.



## E-Documentation Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- 21-40% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

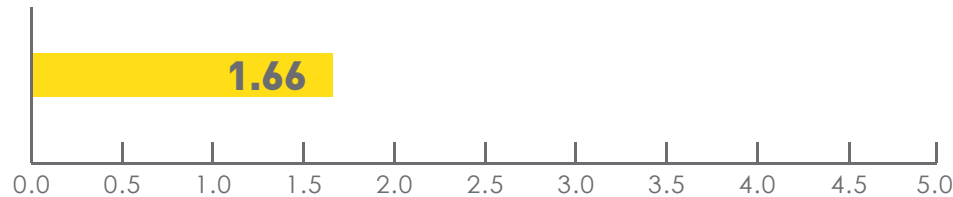
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5. It would require all its trade partners to have such capabilities, and be integrated, in order to increase its score above 2.5 at the most.

**Level 5** = Optimum level of global Tracking & Visibility Efficiency capability.

### Mexico's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in Mexico is 1.66, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



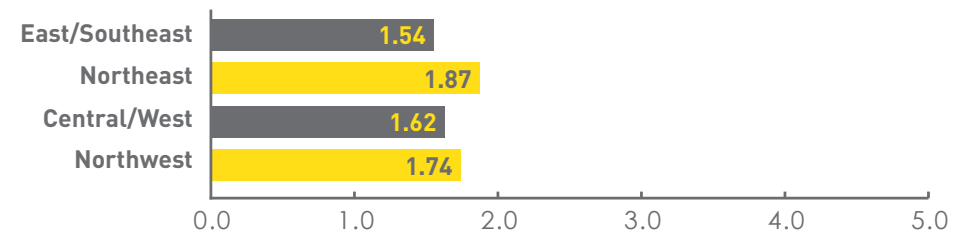
The deployment of the VUCEM National Single Window portal by Mexico is an initial step towards allowing better visibility for its agencies. However comprehensive tracking and visibility with fully validated data requires all trade participants to be integrated among themselves as well.

### Tracking & Visibility by Economic Zone

When we analyze Tracking & Visibility by Economic Zone, the Northeast (1.87) zone connected with Texas and Northwest (1.74) zone connected with California have scored the highest. The investment by Mexican businesses in tracking technologies to make the best use of the NAFTA provision of allowing expedited clearance of commercial vehicles across the border to deliver goods within 100 miles of the USA border have succeeded in enhancing the scores in these zones.

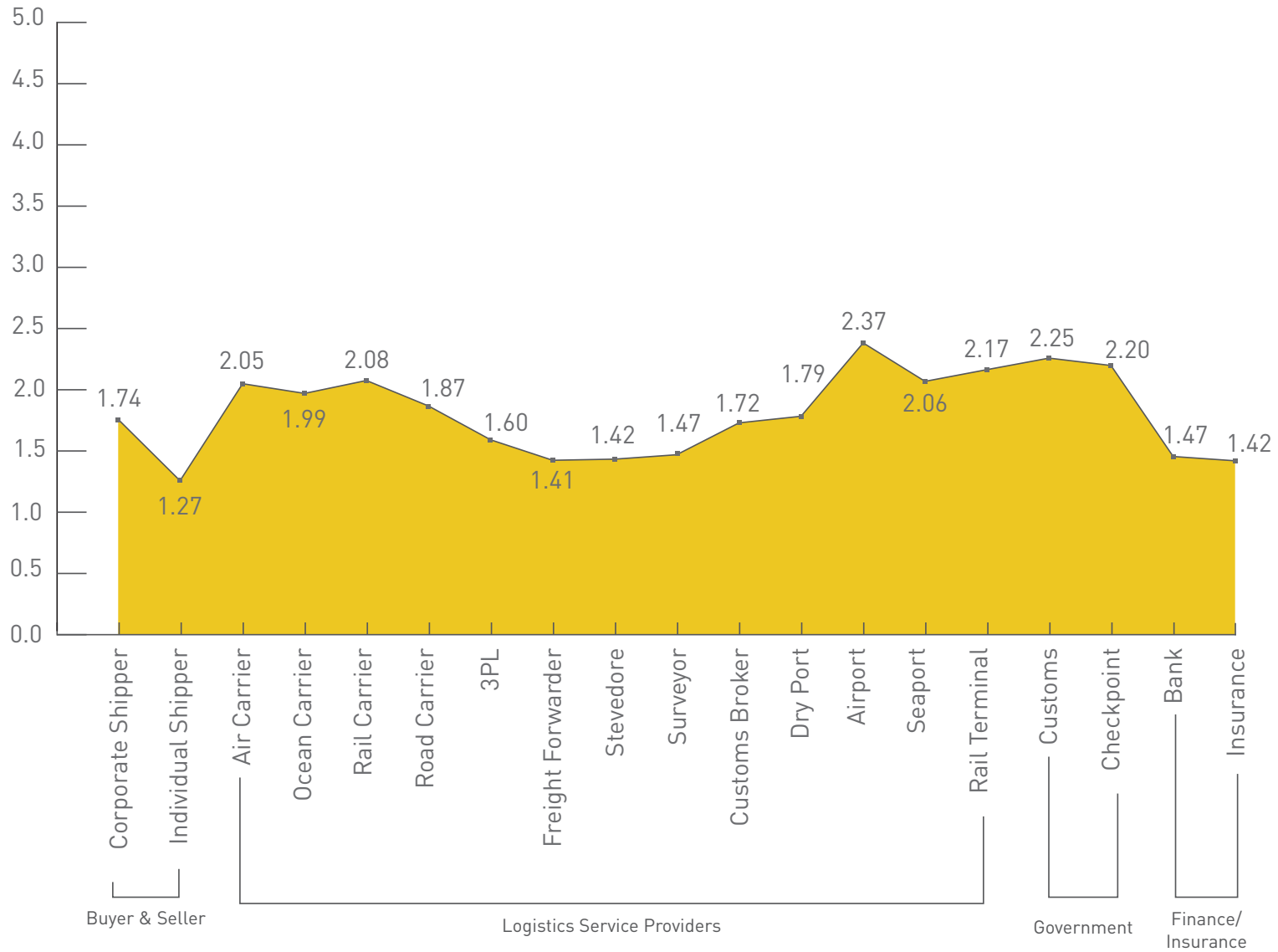
The difference between the highest and lowest score is moderate at 6.6%, indicating some disparities among the zones in the scores.

When the right type of innovation that can improve Integration and E-Documentation is introduced, along with the other elements of trade efficiency, Mexico can enhance its Tracking & Visibility to improve its security and achieve superior operating efficiencies, as well.



## Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

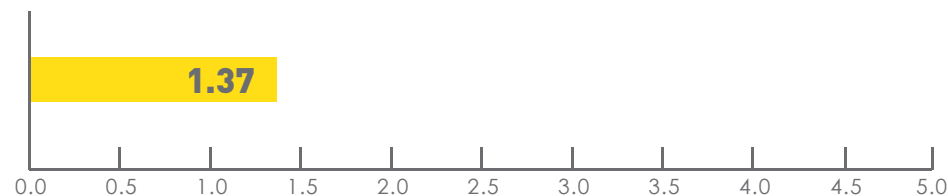
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

## Mexico's Overall Competence Score

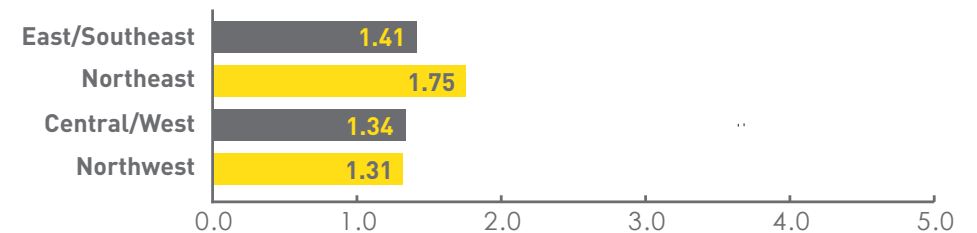
The overall national Competence score in Mexico is moderate at 1.37. Given that a score of 5.0 indicates maximum efficiency, Mexico's score indicates a low level of Competence and an opportunity for Mexico to leverage its skilled and talented workforce to achieve significant improvement.



## Competence by Economic Zone

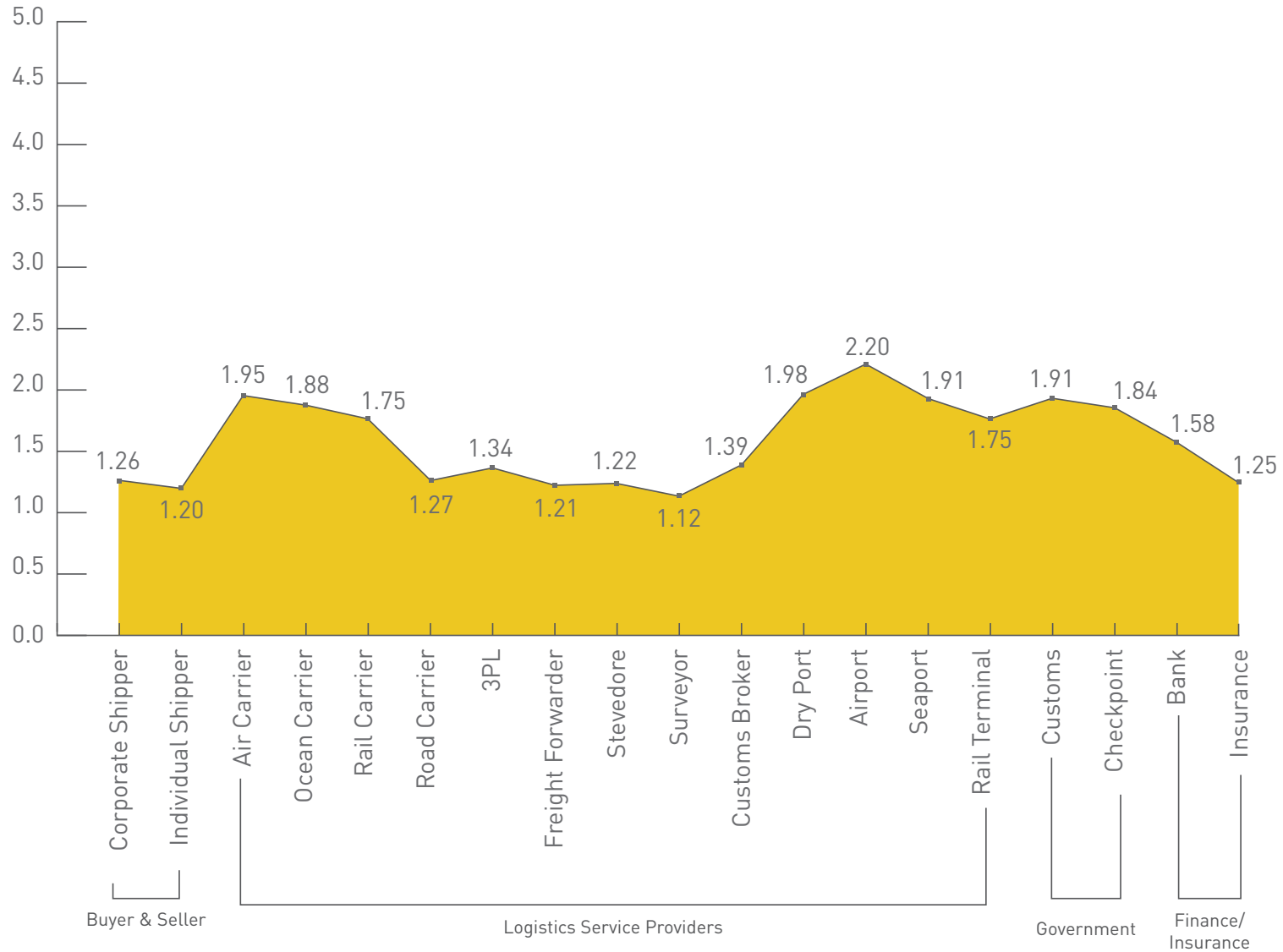
When we analyze the Competence scores across the Economic Zones in Mexico, the industrialized Northeast (1.75) zone with its concentration of academic and technical institutions has scored the highest. The difference between the highest and lowest scores is moderate at 6.8%, indicating a countrywide opportunity to enhance Competence of the workforce involved in logistics and bridge the disparities among the zones.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate when necessary, the competence level of employees can be improved to achieve a more superior level across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines across all Mexico.



## Competence Efficiency by Trade Cluster

- Participants train a few employees some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

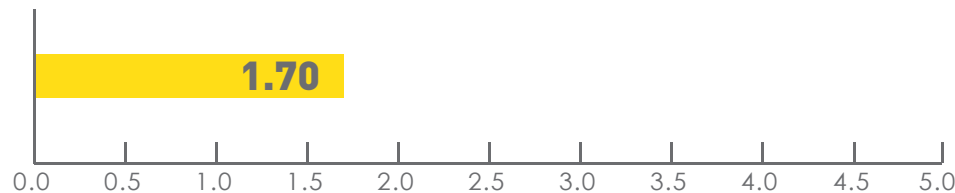
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures

### Mexico's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.70 indicates Mexico's emphasis on the importance of and investments in improving Cargo Security Efficiency.



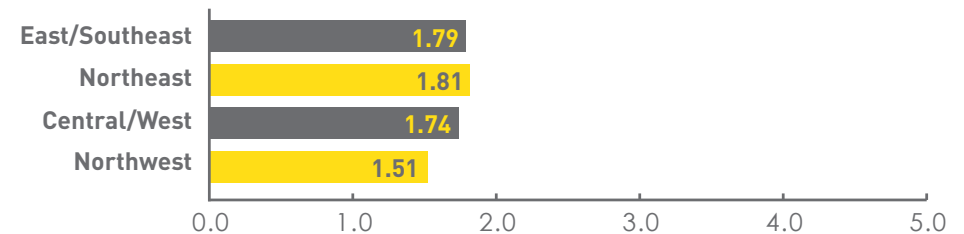
This is supported by the implementation of the VUCEM National Single Window portal, which provide some level of shipment related real-time information to enhance Cargo Security. The need for coordinating international trade with the NAFTA partners has also contributed to this score. However, security, crime and corruption have been some of the major concerns for the trade pipeline in Mexico. The country ranks 106th worldwide on the Corruption Perceptions Index; according to FreightWatch, an information provider on global logistics security, Mexico is among the highest-risk countries.

Hence, Mexico needs to embrace innovation and implement more comprehensive digital tools to enhance the level of Cargo Security Efficiency nationwide to compete more effectively in the global trade arena.

### Cargo Security by Economic Zone

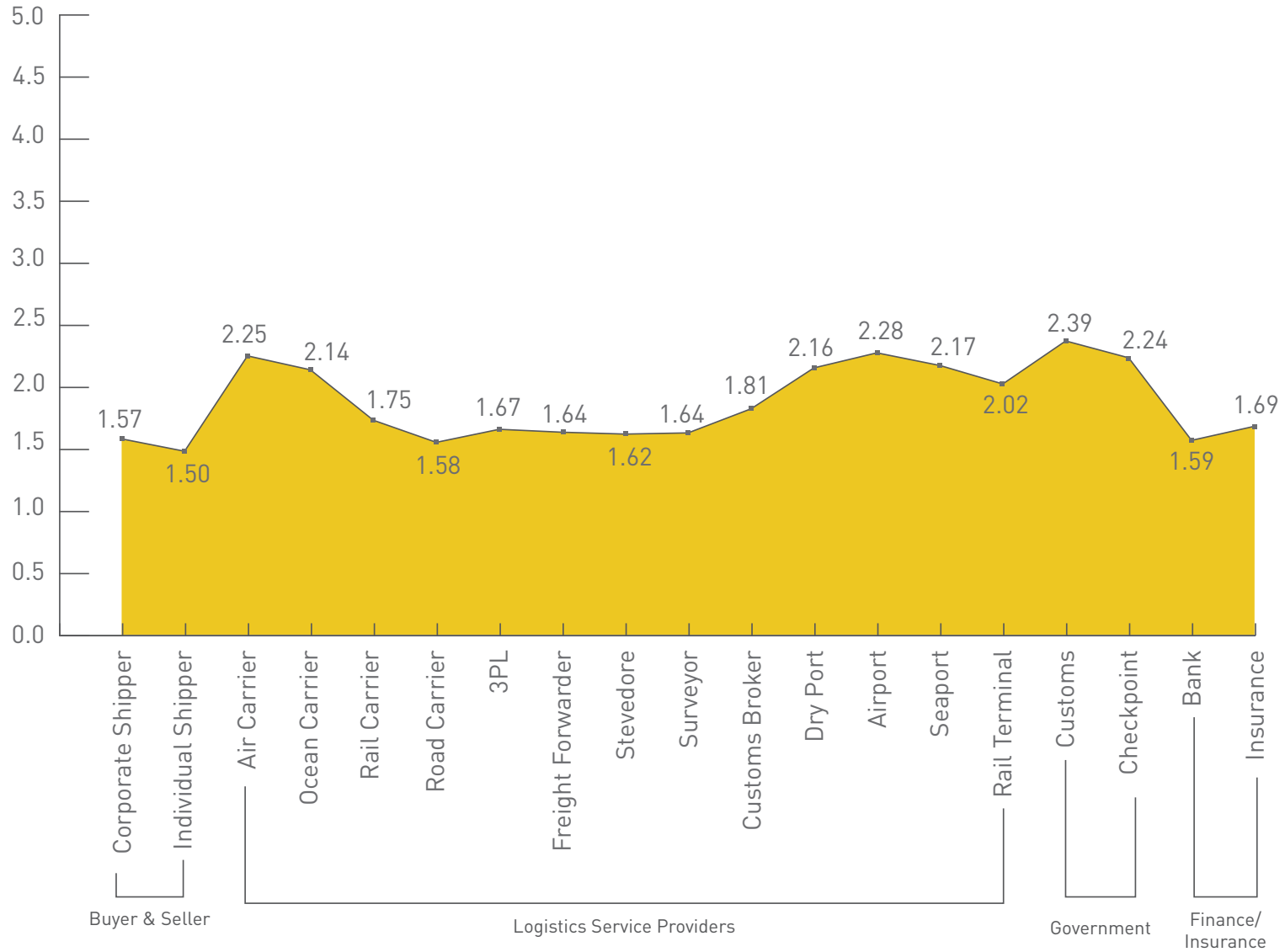
Analyzing Cargo Security by Economic Zone, the Northeast (1.81) zone with its concentration of export-oriented automobile manufacturing, chemicals, textiles, and other industries has scored the highest. The higher scores on Integration and E-Documentation has helped increase the Northeast on Cargo Security score by reducing the lead time for the government agencies to analyze risk profiles based on the electronic documents such as Bills of Lading and Advanced Shipment Notices submitted by the trade participants to flag suspicious shipments for additional scrutiny.

East/Southeast (1.79) zone scored almost as much as the Northeast due to the dominant presence of oil industry operations in the zone.



## Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



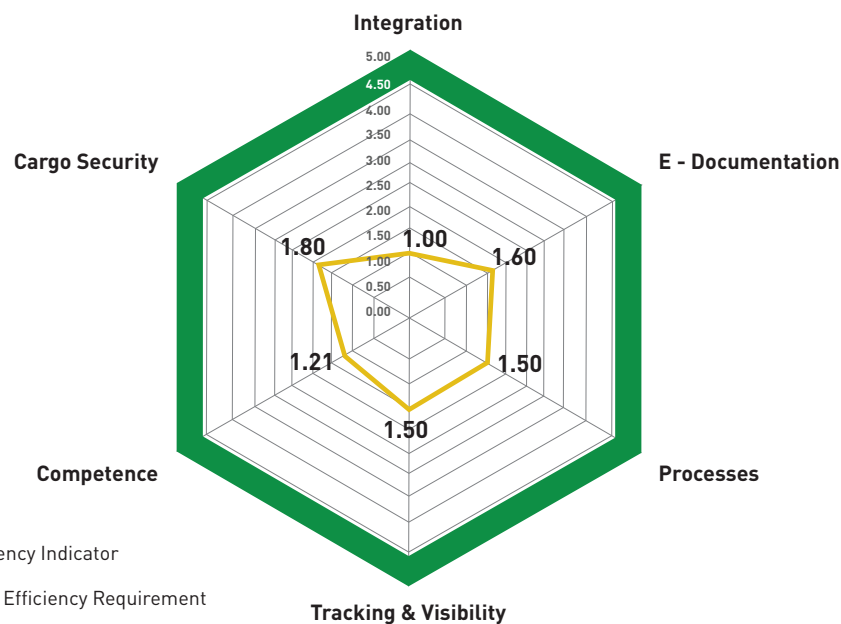


## Russia's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Russia's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Russia Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Russia SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Russia SEA Report recommendations, Russia can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 169 billion, placing Russia at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 343 billion annually and create 16.1 million jobs by 2030, meeting the economic ambitions of Russia.

### Russia's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



Russia Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

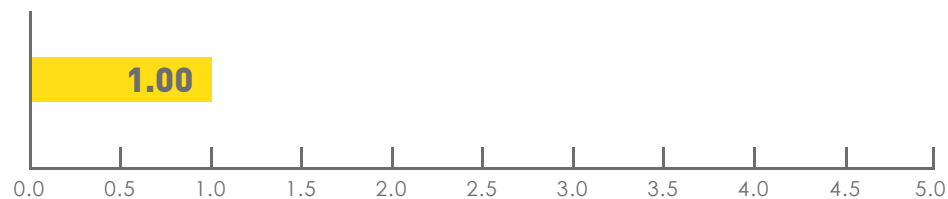
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## Russia's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in Russia. Collectively they have scored 1.00 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of integration.



This Integration score for Russia is one of the lowest among the G20 Nations despite the Russian government's efforts to promote the use of information technology by mandating the use of its online secure portal to submit trade data electronically. Similar focus by Russia is needed to catch up with other nations and leapfrog in Integration to realize the trade efficiencies that are made possible by the 21st century digital technologies.

## Integration by Economic Zone

The Integration scores across the Economic Zones are uniformly low with the difference between the highest and lowest scores being moderate at 6.4%, indicating the need for Russia to take a comprehensively new approach to enhancing Integration across its global value chains.

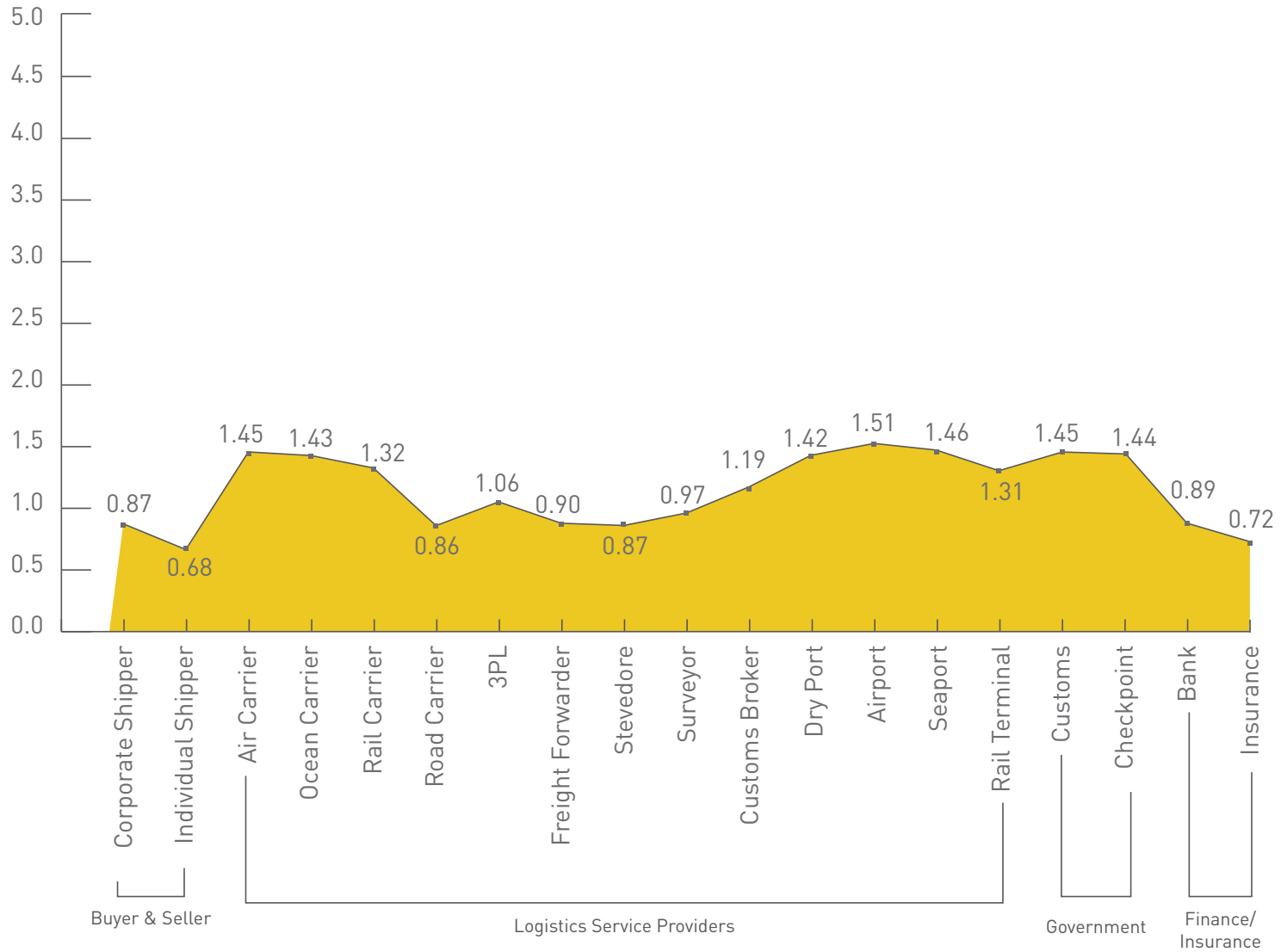
The Northwestern/Northern (1.12) zone, with the country's leading port of St. Petersburg, established presence of logistics service industries, and advanced manufacturing, has scored the highest in Integration. The Far Eastern (1.11) zone, with its Vladivostok port that plays an important role in growing trade with Asian partners including China, has scored nearly as high in Integration, reflecting the investments being made by Russia to facilitate trade.

The uniformly low application of technology between the different Economic Zones in Russia affirms the need for the Russian government to devise economic development strategies and policies that promote the trade efficiencies of its global value chains.



### Integration Efficiency by Trade Cluster

- 90.8% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 94.4% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

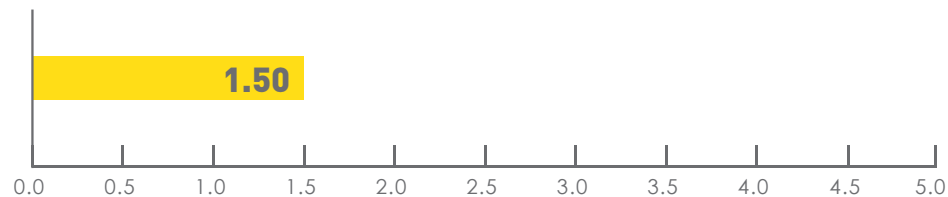
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline.

### Russia's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in Russia have scored a 1.50 out of a possible 5.0 on the 21-6-ETEI scale.



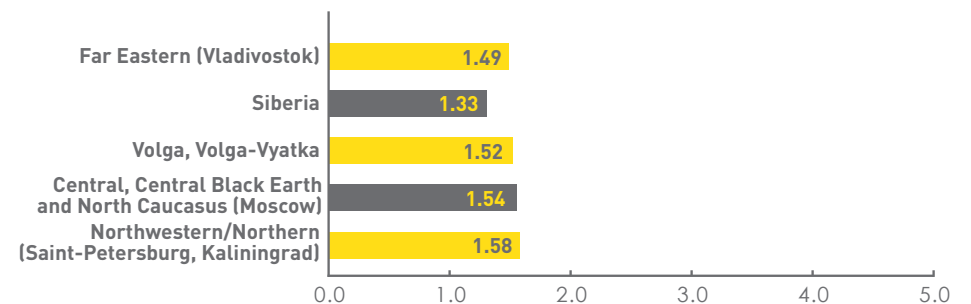
The processes score of 1.50 for Russia under the 21-6-EETI standard, which is one of the lowest among the G20 Nations, is a call to action for Russia to invest on innovative capabilities that enable the development of horizontal processes required for succeeding in global value chains.

### Processes by Economic Zone

All the five Economic Zones exhibit moderately low scores for Processes. The difference between the highest and lowest scores is low at 5%, indicating a countrywide opportunity to enhance Processes scores through innovation that benefits all the zones.

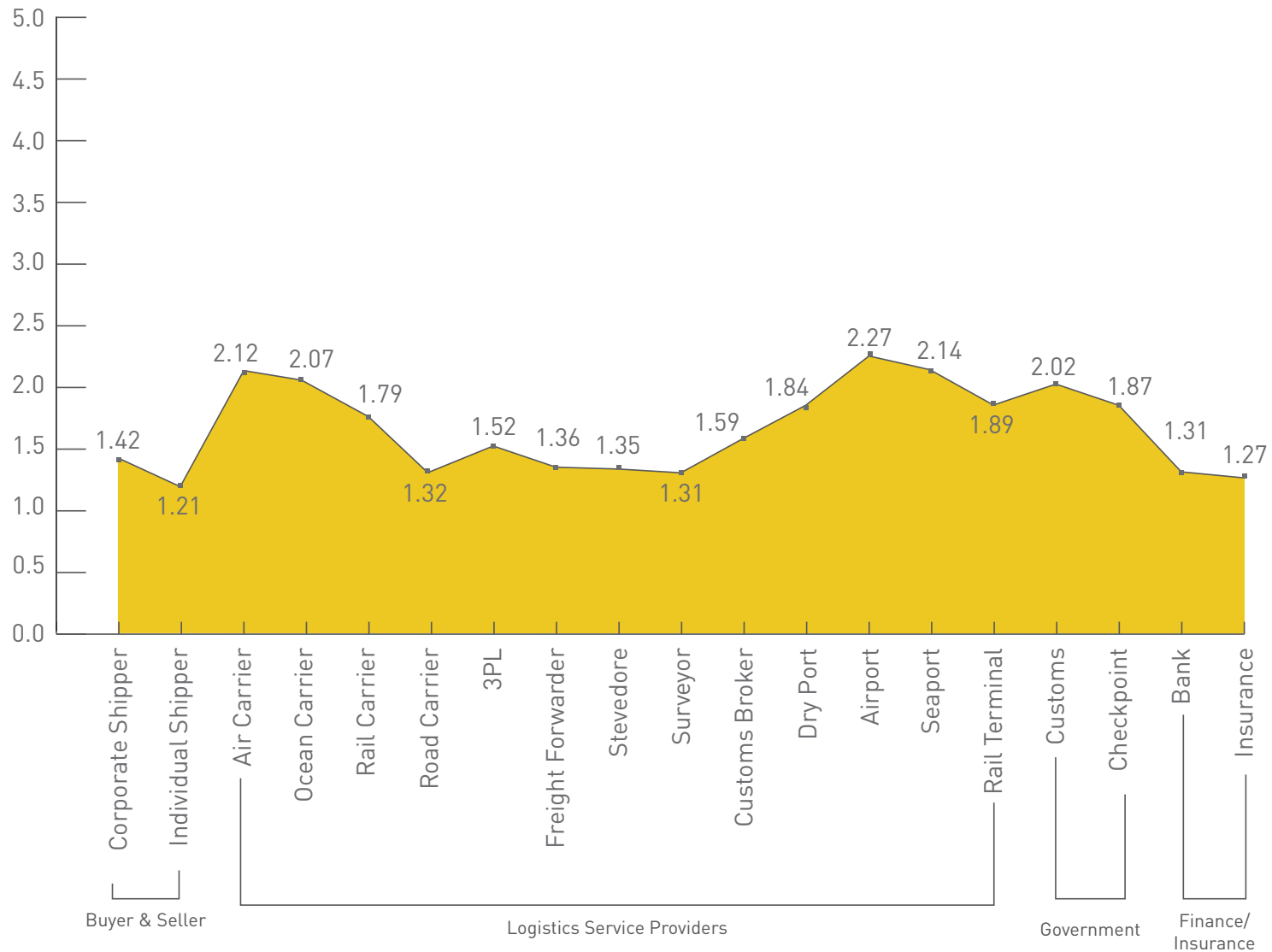
Relatively industrialized Northwestern/Northern (1.58), Central-Central Black Earth-North Caucasus (1.54), and Volga-Volga Vyatka (1.52) zones in Europe have scored relatively higher Processes scores due to investments in vertical in-house systems. However, since trade is horizontal in nature, the efficiency that can be gained through further vertical investment is very limited.

For the Processes in Russia to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, embracing innovations that improve the maturity of the horizontal Processes across its trade pipelines, Russia can improve the Processes scores of all the economic zones and increase the overall trade efficiency of its businesses.



## Processes Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to Processes incompatibility
- 22.8% of participants use ERP systems; those firms that automate processes, typically use off-the-shelf not customized systems
- >30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

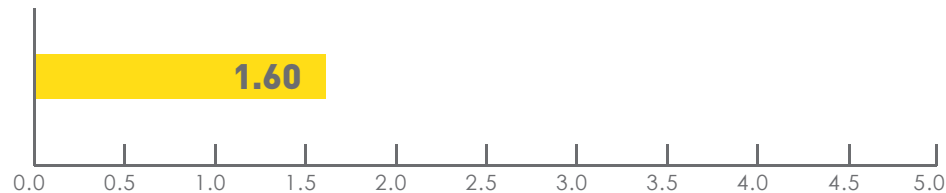
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation Efficiency.

### Russia's Overall E-Documentation Score

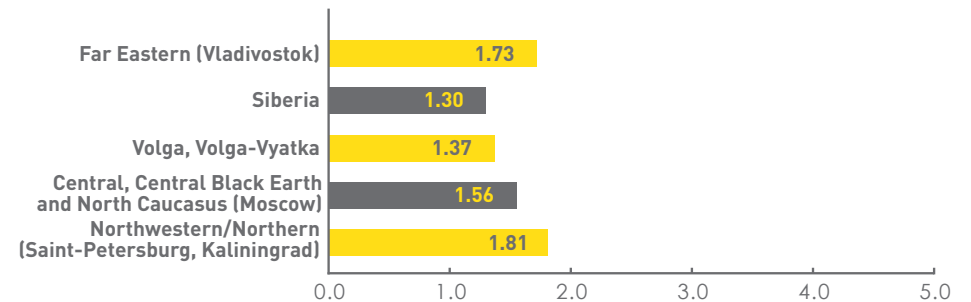
The overall national E-Documentation score of Russia is 1.60, which indicates that some significant steps can be implemented by Russia to attain an optimal level of E-Documentation Efficiency capability.



The Russian government has enacted policies to promote the use information technology systems, which has increased the use of E-documents by its businesses. Similar policies and programs are necessary for Russia to promote aggressively the adoption of systems by its trade participants in the government as well as businesses to systematically promote its E-Documentation Efficiency score.

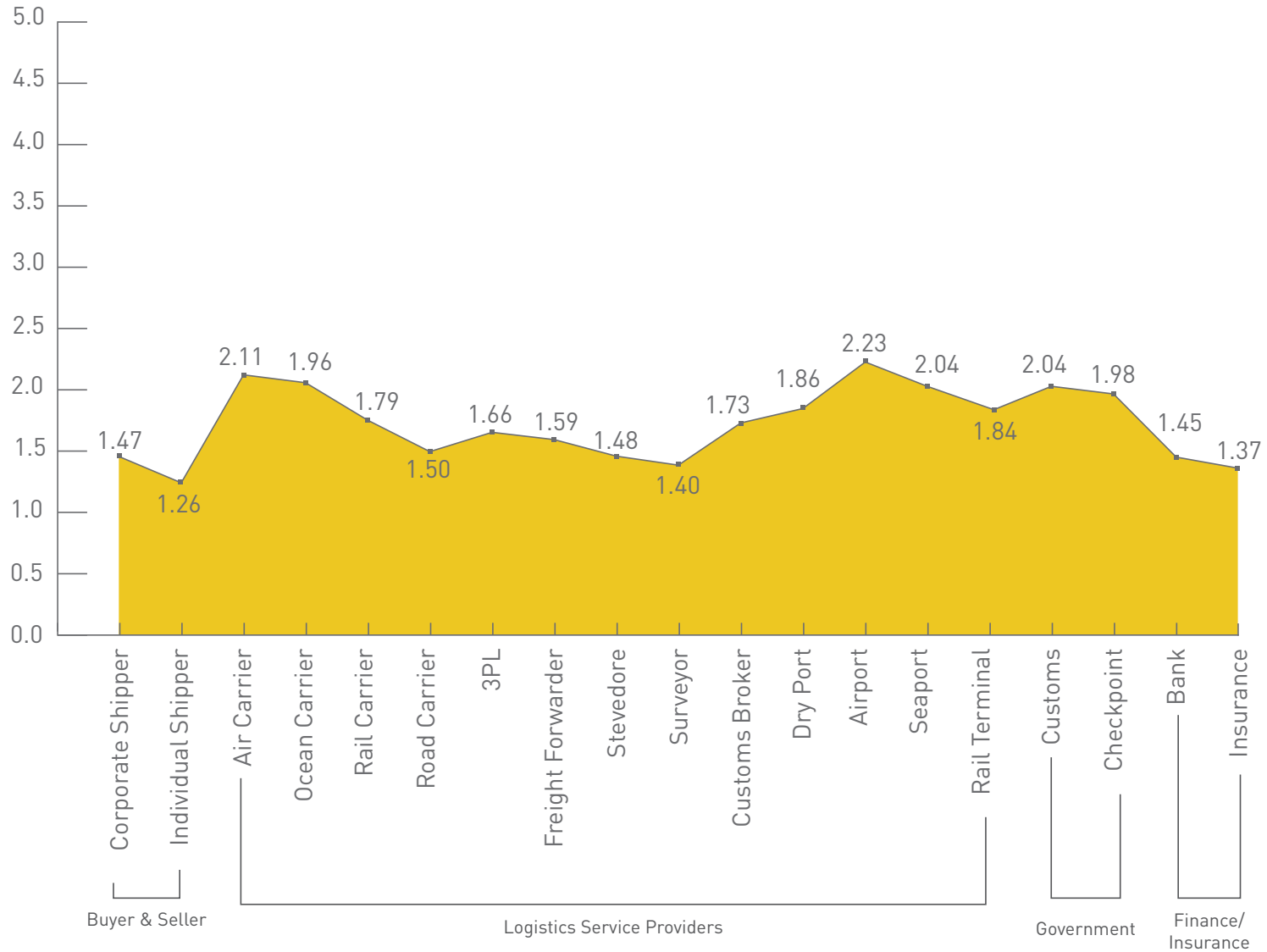
### E-Documentation by Economic Zone

The Economic Zones in Russia show significant diversity in their E-Documentation scores, with the difference between the highest and lowest scores being high at 10.2%. The industrially advanced Northwestern/Northern (1.81) zone scored the highest among the zones, attesting to the increase adoption of electronic systems by its trade participants. Overall, these modest scores across the zones indicate that there is a countrywide opportunity to achieve optimal level of efficiencies when an innovative E-Documentation capability is made available, thereby uniformly increasing the E-Documentation scores of all the zones.



## E-Documentation Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

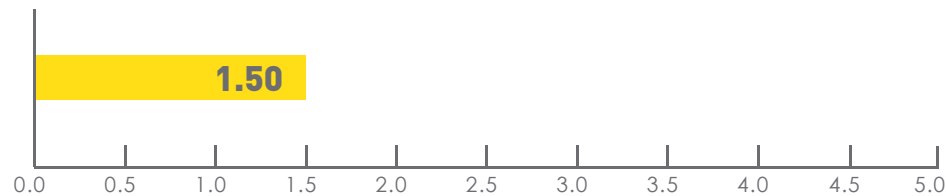
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility Efficiency capability.

### Russia's Overall Tracking & Visibility Score

The overall national Tracking & Visibility score in Russia is 1.50, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.

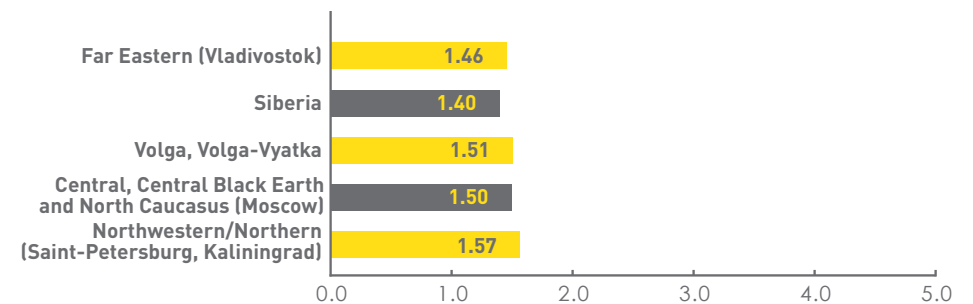


The Tracking & Visibility score for Russia is moderate at 1.50, even though that the efforts by the Russian government to leverage technologies such as RFID and GPS within its operated facilities are not adequate. Russia needs to promote policies that encourage its businesses to investment in technologies that increase this important capability of Tracking & Visibility in its global value chains to improve its Efficiency score.

### Tracking & Visibility by Economic Zone

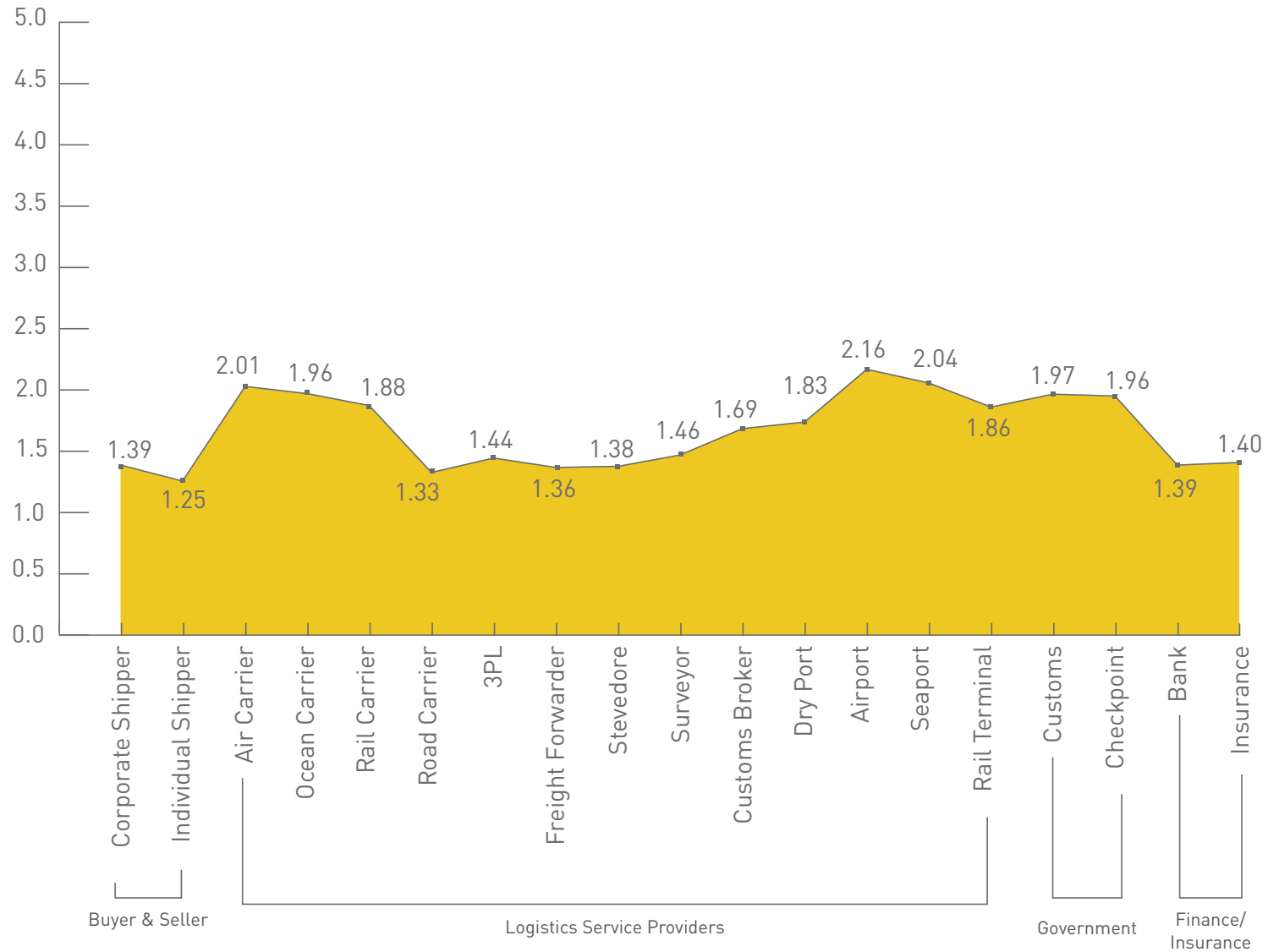
The Tracking & Visibility scores of Russia by the Economic Zones indicate that all the zones are comparable, with the difference between the highest and the lowest scores being very low at 3.4%. The industrialized zones in the Northwestern-Northern (1.57), Volga-Volga Vyatka (1.51), and Central-Central Black Earth-North Caucasus (1.50)–have scored relatively higher than the other zones.

When the right type of innovation that can improve Integration and E-Documentation is introduced, along with the other elements of trade efficiency, Russia can enhance its Tracking & Visibility to achieve superior operating efficiencies.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

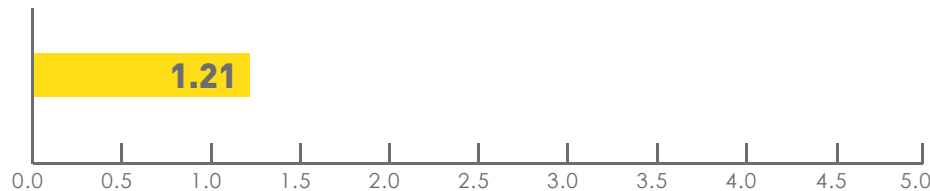
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade lane pipeline.

### Russia's Overall Competence Score

The overall national Competence score in Russia is 1.21. Given that a score of 5.0 indicates maximum efficiency, Russia's score indicates a moderately low level of Competence and an opportunity for Russia to leverage its skilled and talented workforce to achieve significant improvement in its domestic and international trade efficiency. Russia has an educational infrastructure that produces good quality workforce.



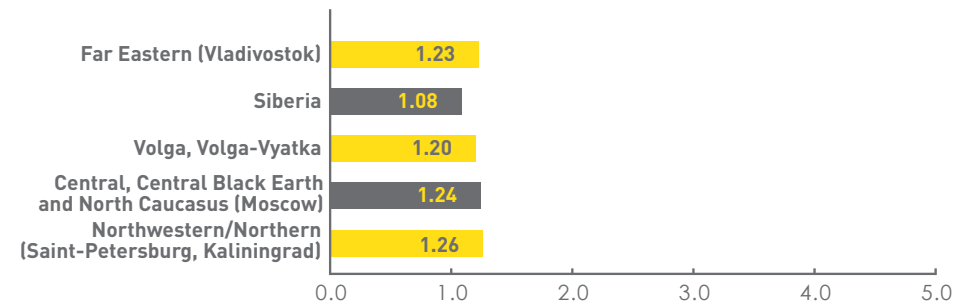
However, the lack of tools that transform contractual obligations into electronic metrics, and training its workforce using such innovative tools is hindering Russian businesses from realizing optimal productivity of its workforce. Hence, Russia needs to think outside the box and leverage the innovations that technology makes possible today to leap frog in boosting the Competence of its workforce to compete effectively.

### Competence by Economic Zone

When we analyze the Competence scores across the Economic Zones in Russia, the Northwestern / Northern (1.26) and Central-Central Black Earth – North Caucasus (1.24) zones with their established educational institutions and industrial activity have achieved higher scores on Competency.

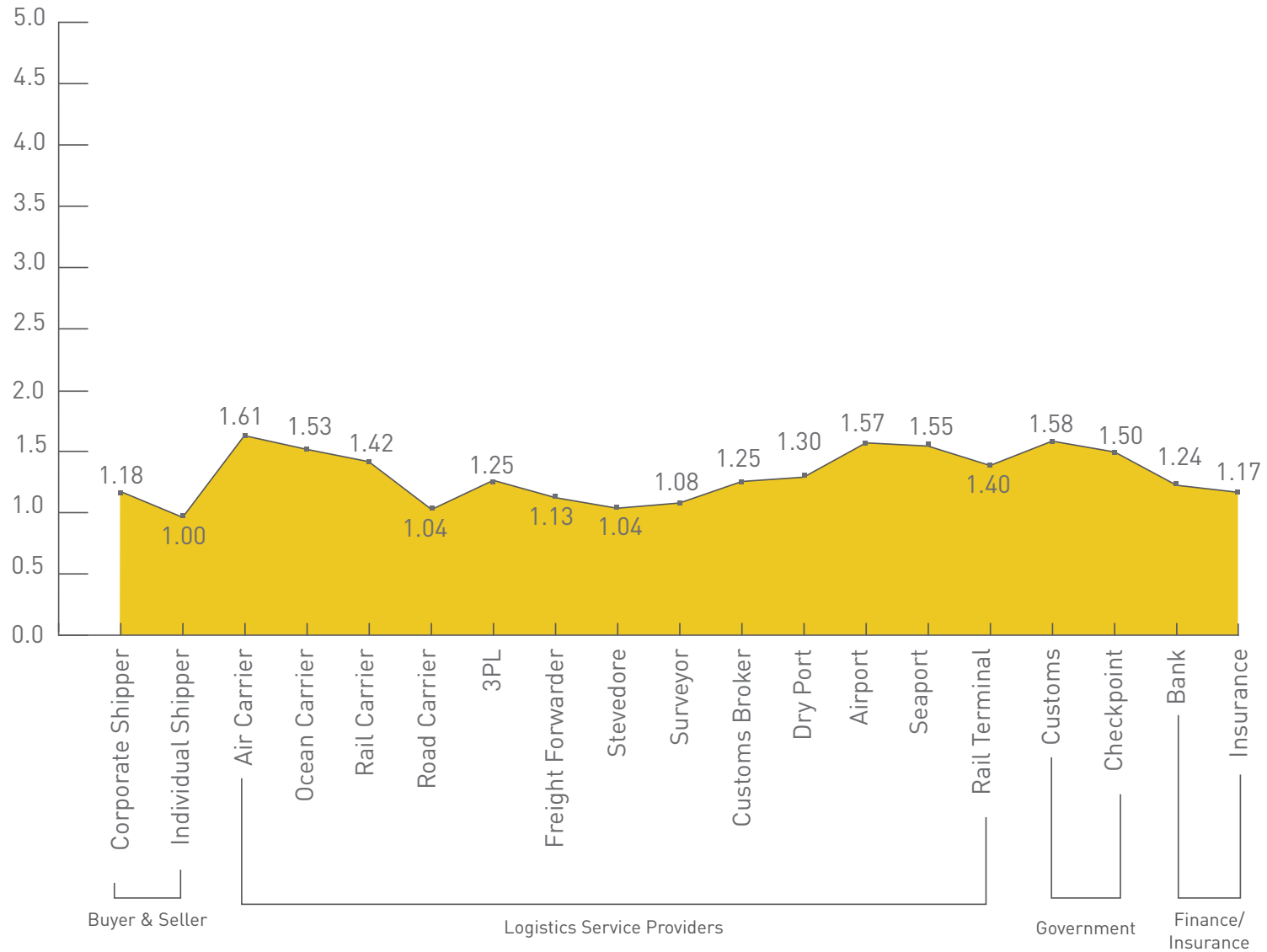
The difference between the highest and the lowest Competence scores among the zones is low at 3.6%, indicating a uniform opportunity to enhance Competence scores across the zones.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate when necessary, the competence level of employees can be improved to achieve a more superior level across all the economic zones while reducing the disparities among the economic zones, which in turn contributes to improve the efficiency of the trade pipelines across Russia.



## Competence Efficiency by Trade Cluster

- Some Participants train a few employees, some of the time
- Many businesses have not automated the management of Competence; those who automate, typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

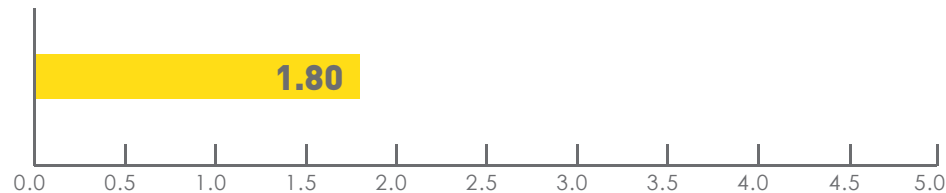
Cargo Security Efficiency scale:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests on its vertical systems to enhance its Cargo Security, without any horizontal integration, it can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security Efficiency procedures.

### Russia's Overall Cargo Security Score

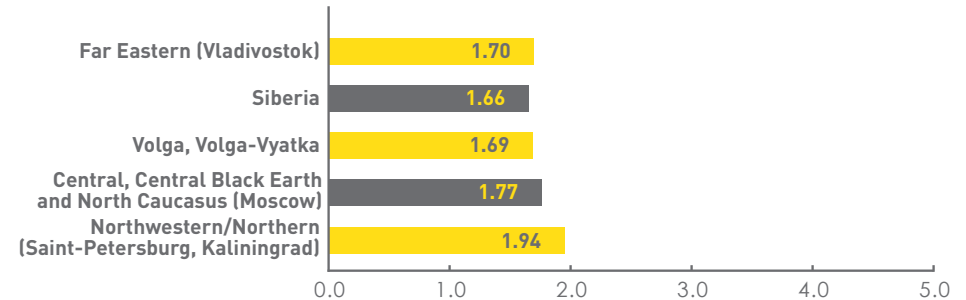
The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.80 indicates Russia's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, Russia's level of Cargo Security nationwide can be improved.



In Russia, the use of several trade facilitation systems that are easily accessible through the secure online portal of the Federal Customs Service is ascribed to Russia's investment in Cargo Security as it enables higher shipment visibility for the government authorities. These systems allow trade participants to submit electronic import and export information to the government only once for each shipment through the online portal. Such systems significantly simplify the compliance process for businesses and improve the quality of information provided to the government to conduct risk assessments that improve the security of its trade pipelines. In addition, Russia needs to embrace the use of technologies such as GPS, RFID, and Internet of Things (IoT) to enable access to real-time shipment information so that government agencies can identify Cargo Security threats and respond proactively to prevent security incidents.

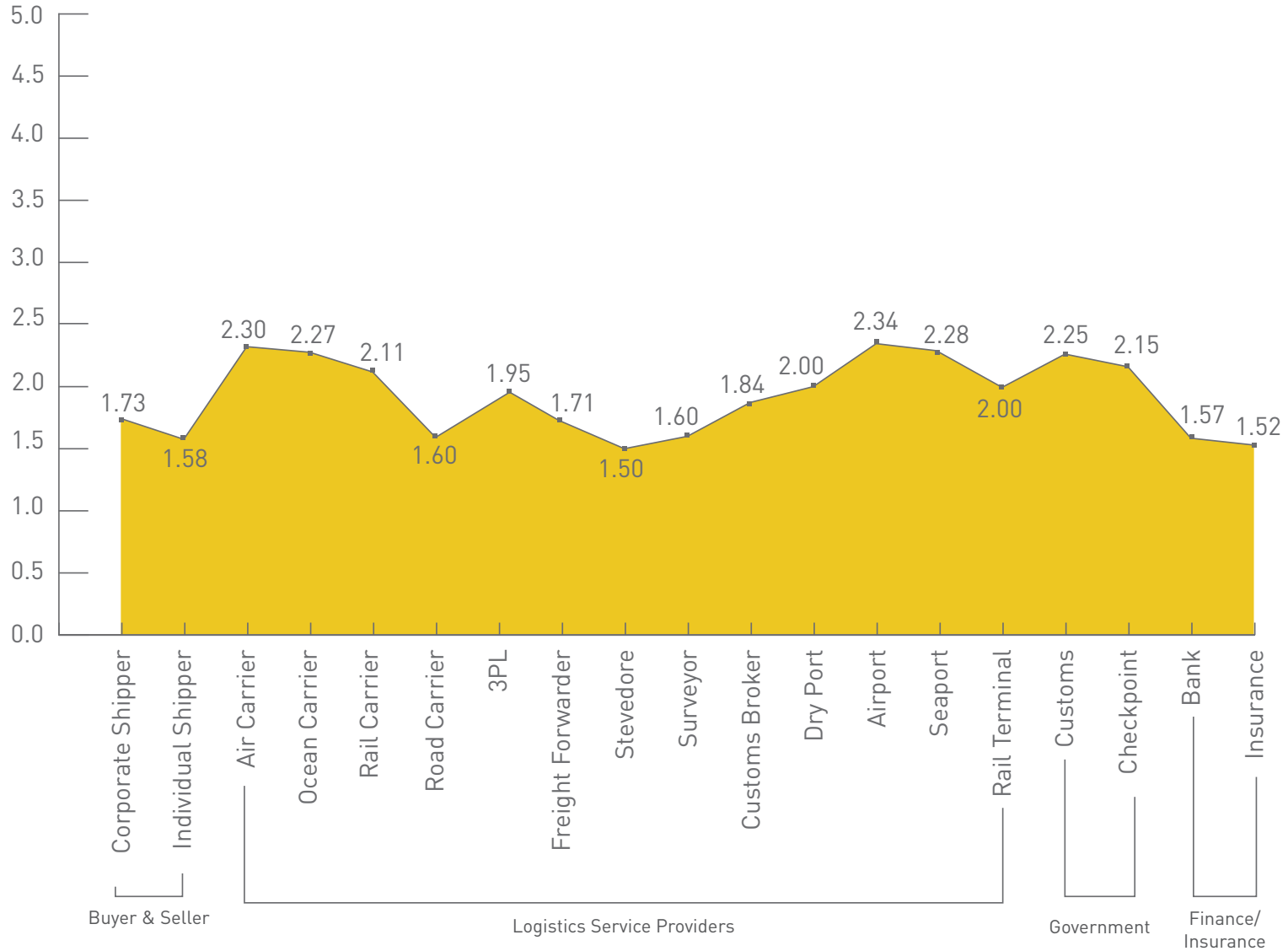
### Cargo Security by Economic Zone

The Northwestern/North (1.94) zone, which is the export hub of Russia through the Baltic Sea port of Saint-Petersburg, has scored significantly higher than the other zones in Cargo Security. The difference between highest and lowest Cargo Security scores is moderately low at 5.6%, indicating an opportunity for Russia to enhance its Cargo Security across all the regions uniformly by implementing new measures.



### Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



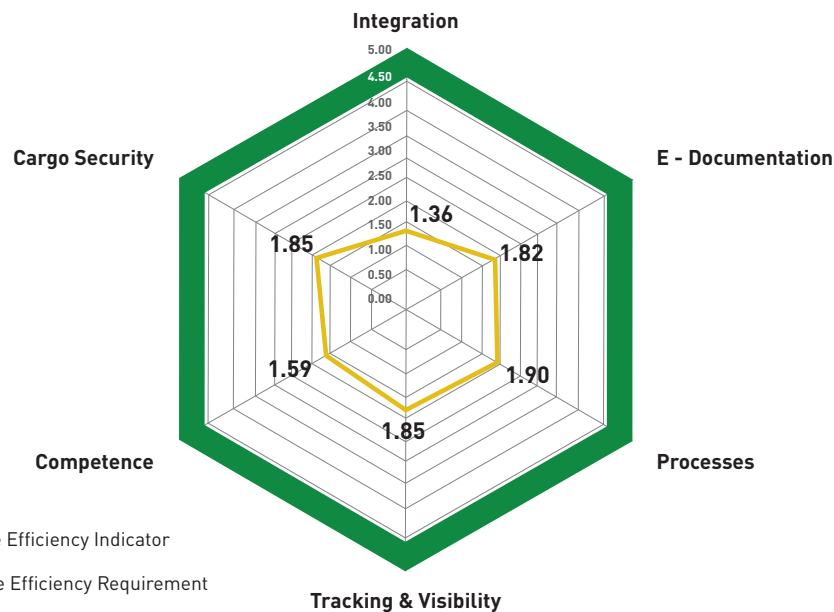


## South Africa's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated South Africa's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the South Africa Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the South Africa SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the South Africa SEA Report recommendations, South Africa can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 19.8 billion, placing South Africa at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 84 billion annually and create 4 million jobs by 2030, meeting the economic ambitions of South Africa.

### South Africa's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



South Africa Trade Efficiency Indicator

21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

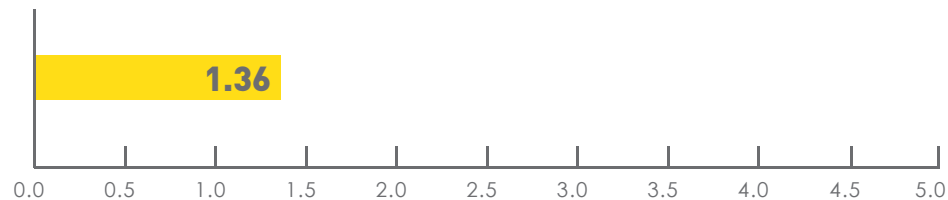
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/post mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade pipeline participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## South Africa's Overall Integration Score

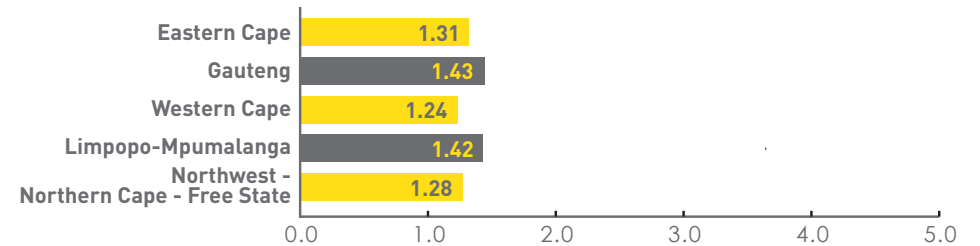
This represents the aggregate data on a national level from the nineteen clusters surveyed in South Africa. Collectively they have scored 1.36 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



This Integration score is relatively low despite the South African government's use of Direct Data Flow Channel of SARS and other systems to improve the facilitation of trade.

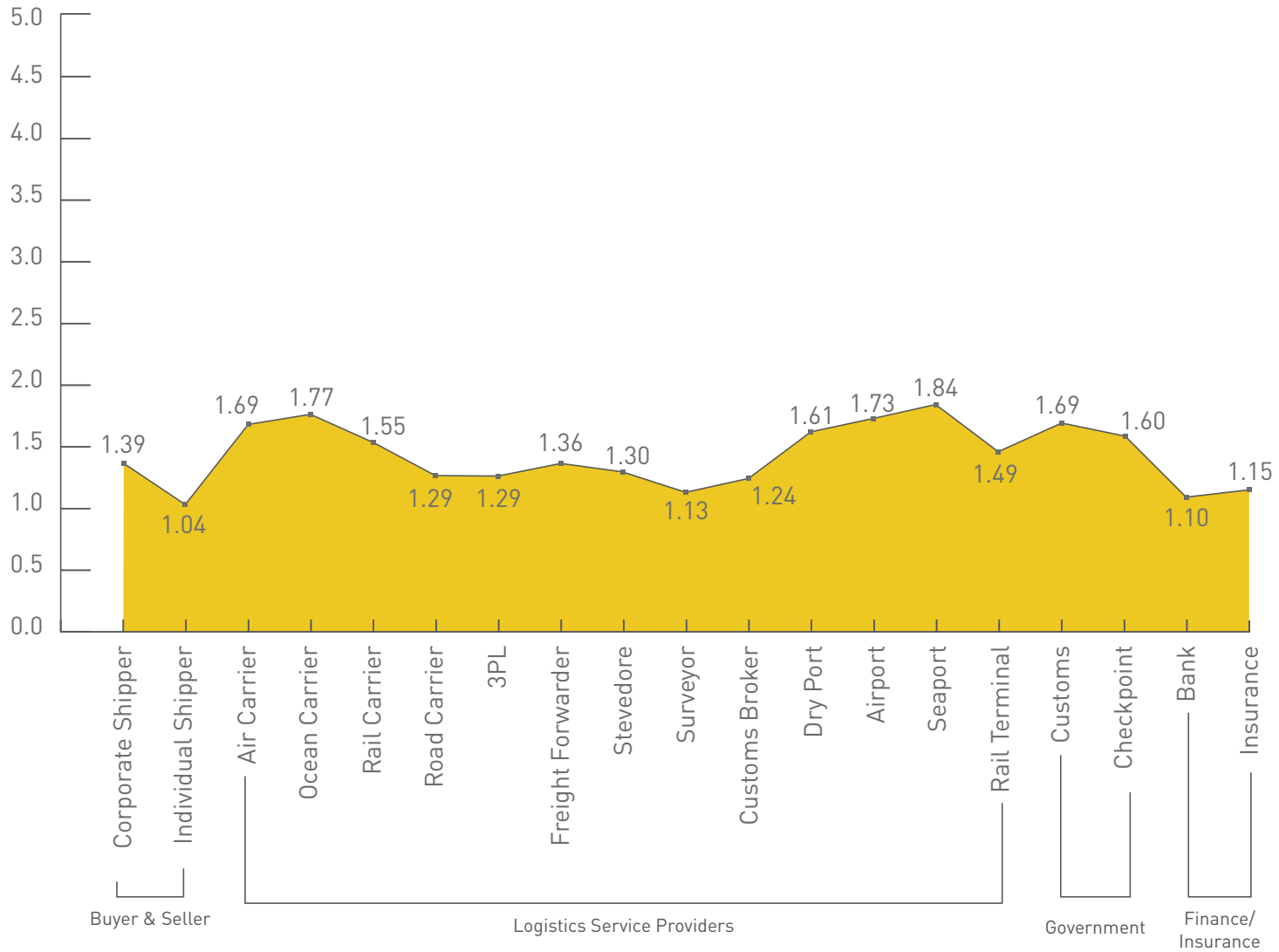
## Integration by Economic Zone

The highly populated and industrialized Gauteng (1.43) zone scored the highest on Integration. It is worth noting that the difference between the highest and the lowest scores is very minimal at around 3.8%. This means that when the right innovation is introduced to the country, it will be quickly and evenly adopted across all zones.



## Integration Efficiency by Trade Cluster

- 96.4% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 97.8% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

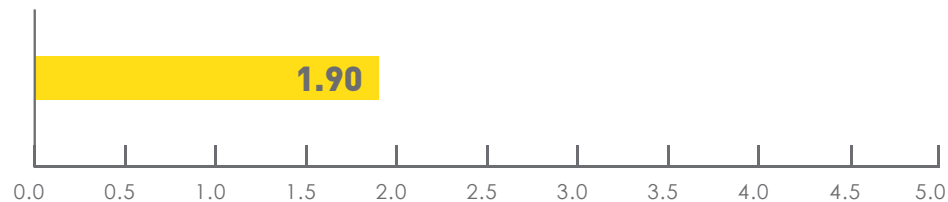
Processes Efficiency scale in brief:

**Level 1** = Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, the maximum an organization can score is 2.5.

**Level 5** = Optimum and complete Processes in a trade pipeline.

### South Africa's Overall Processes Score

The following result represents the overall national Processes score that assess the use of available tools and managing shipments within the trade pipeline. Collectively, the trade participants in South Africa have scored a 1.90 out of a possible 5.0 on the 21-6-ETEI scale.



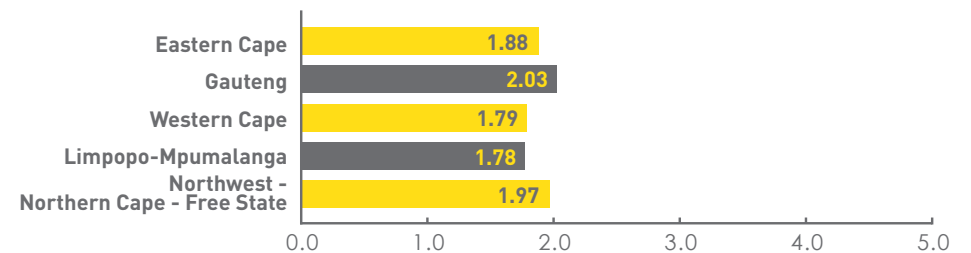
The Processes among trade participants that determine the handoffs of shipments among the trade industry clusters remain a challenge in South Africa. The time to export and import into South Africa is about twice as much as that of OECD countries. An innovative approach is needed for South Africa to achieve parity with the High Income Countries fostering horizontal processes that enhance shipment efficiency of its trade pipelines.

### Processes by Economic Zone

When we analyze the Processes scores by Economic Zone, all zones exhibit some established Processes. The difference between the highest and the lowest scores is small at 5%, indicating that all the zones are comparable and have moderate level of processes for handling shipments within the trade pipelines.

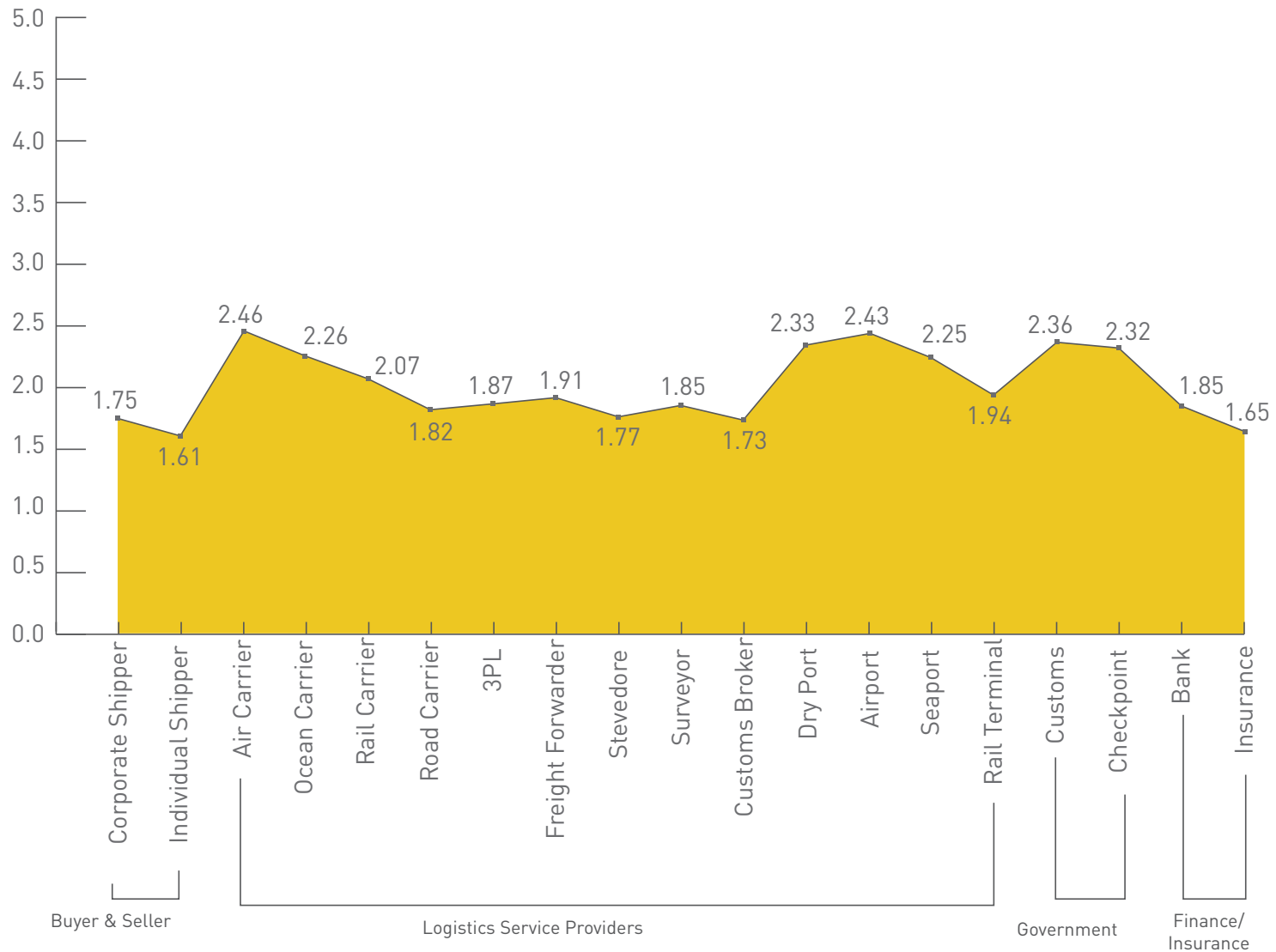
The highest score for Gauteng (2.03) zone is due to the presence of special economic zones, integrated industrial complexes, mineral resources, and manufacturing industries that require infrastructure organizations with defined internal processes to handle shipments. The next best score is for the NorthWest-Northern Cape-Free State (1.97) zone that has established mining industries that export natural resources including iron-ore, diamond, copper, asbestos, fluorspar, semi-precious stones, and marble.

For the Processes in South Africa to be more effective and efficient, there must be an increased level of integration in order to support the horizontal processes across trade pipelines. With the right innovation, there is a countrywide opportunity to enhance Processes scores in all the regions of the country.



## Processes Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 10.4% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

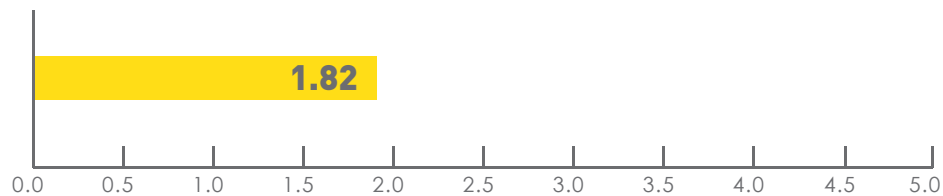
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests on its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### South Africa's Overall E-Documentation Score

Given that a score of 5.0 indicates optimal efficiency, 1.82 indicates that South Africa uses primarily paper-based systems. The South African government has enacted policies to promote the use information technology systems in the businesses including the Direct Data Flow Channel of SARS for trade facilitation, and they have become more comfortable with the online environment, which is increasing the use of E-documents.

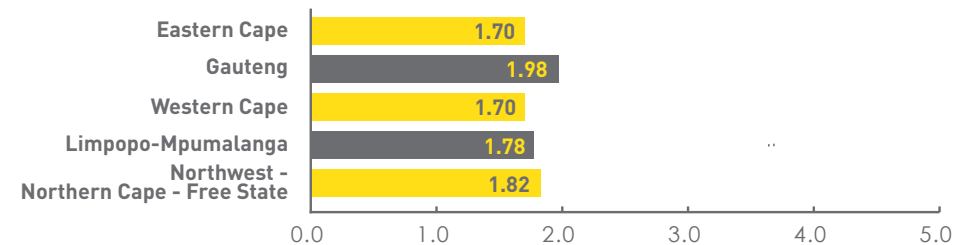


However, leveraging innovation and launching strategic initiatives such as the Intelligent Integrated Transport System will be essential for South Africa to usher in an era of electronic documentation for all of its trade participants.

### E-Documentation by Economic Zone

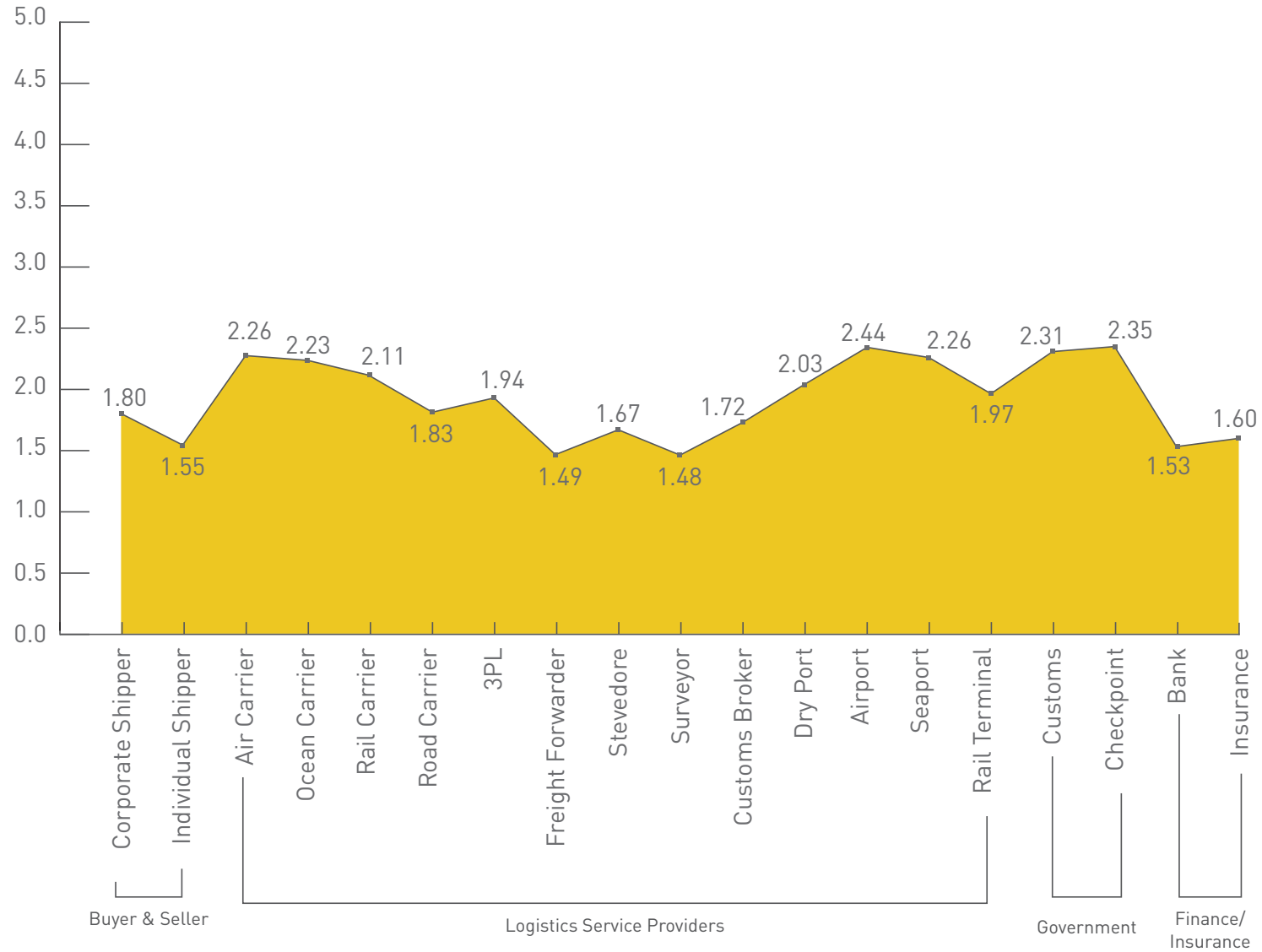
The most industrially advanced Gauteng (1.98) zone with the large metropolitan areas of Johannesburg and Pretoria as well as the presence of the mining, manufacturing, and technology industries has scored the highest on E-Documentation.

In addition, all scores are fairly consistent across economic zones with a difference between the highest and the lowest score being low at 5.6%. This indicates that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed.



## E-Documentation Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional validation
- ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

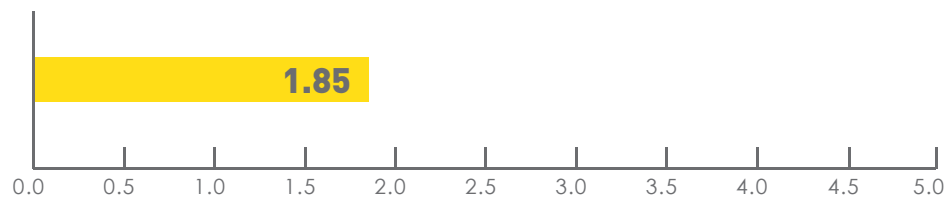
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests on technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility Efficiency capability.

### South Africa's Overall Tracking & Visibility Score

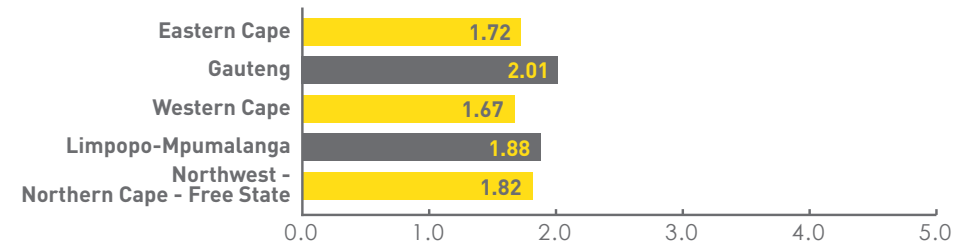
The overall national Tracking & Visibility level in South Africa is 1.85, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility Efficiency performance.



### Tracking & Visibility by Economic Zone

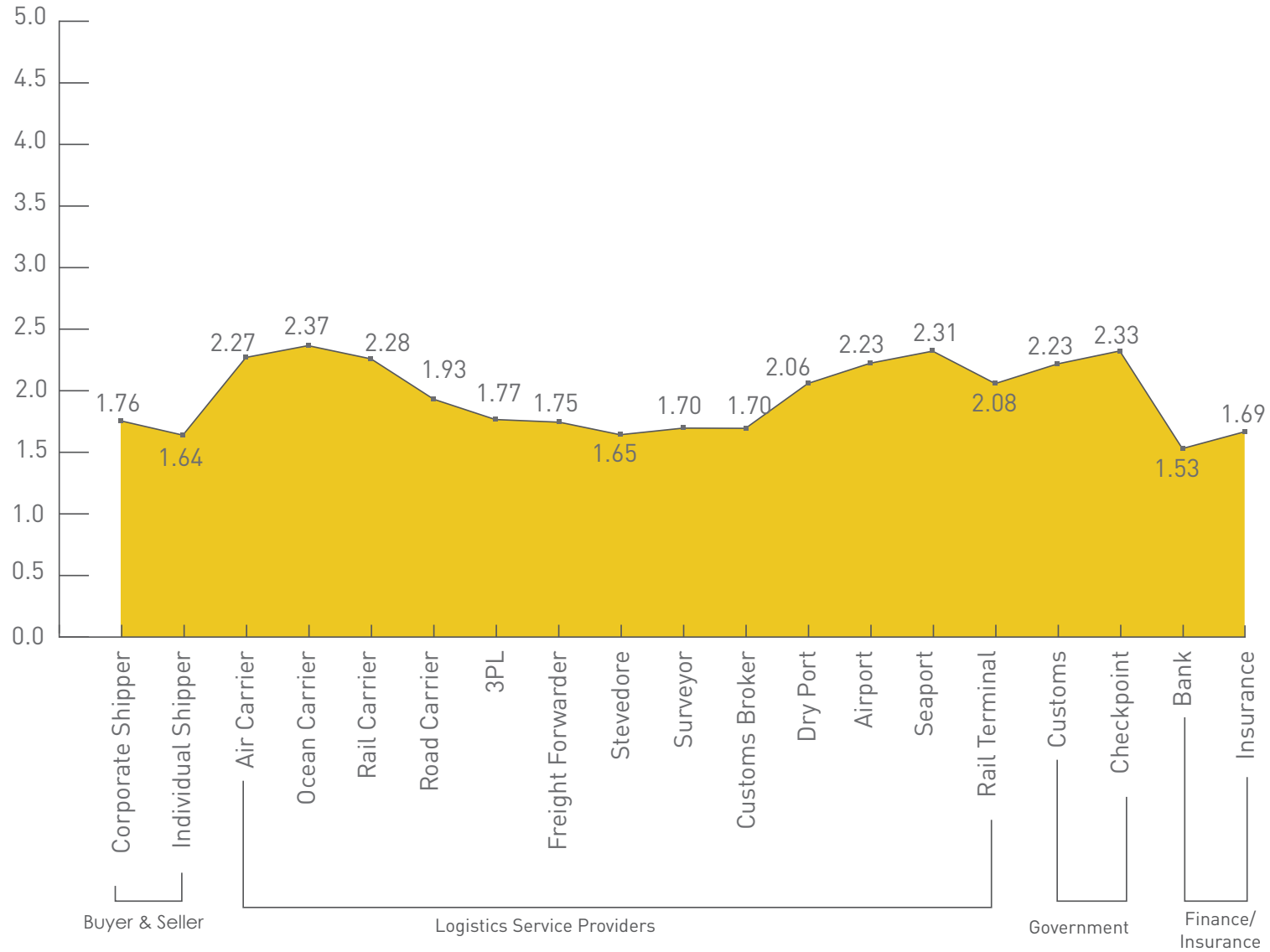
When we analyze Tracking & Visibility by Economic Zone, the heavily industrialized and urbanized Gauteng (2.01) zone with export-oriented industries has scored the highest. The difference between the highest and lowest scores is moderate at 6.8%, indicating disparities among the zones, which calls for the South African government to promote policies that bridge the gap among the economic zones to enhance Tracking & Visibility scores.

When the right type of innovation that can improve Integration and E-Documentation is introduced, along with the other elements of trade efficiency, South Africa can enhance its Tracking & Visibility to improve its security and achieve superior operating efficiencies, as well.



## Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



# COMPETENCE

## Findings – Data

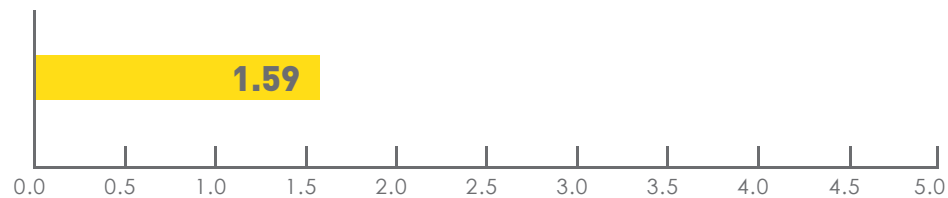
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform its contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in their trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade lane pipeline.

## South Africa's Overall Competence Score

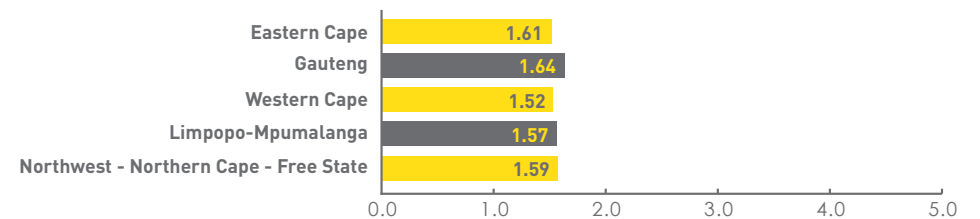
The overall national Competence score in South Africa is 1.59. Given that a score of 5.0 reflects maximum efficiency, South Africa's score indicates a low level of Competence and an opportunity for South Africa to leverage its skilled and talented workforce to achieve significant improvement.



## Competence by Economic Zone

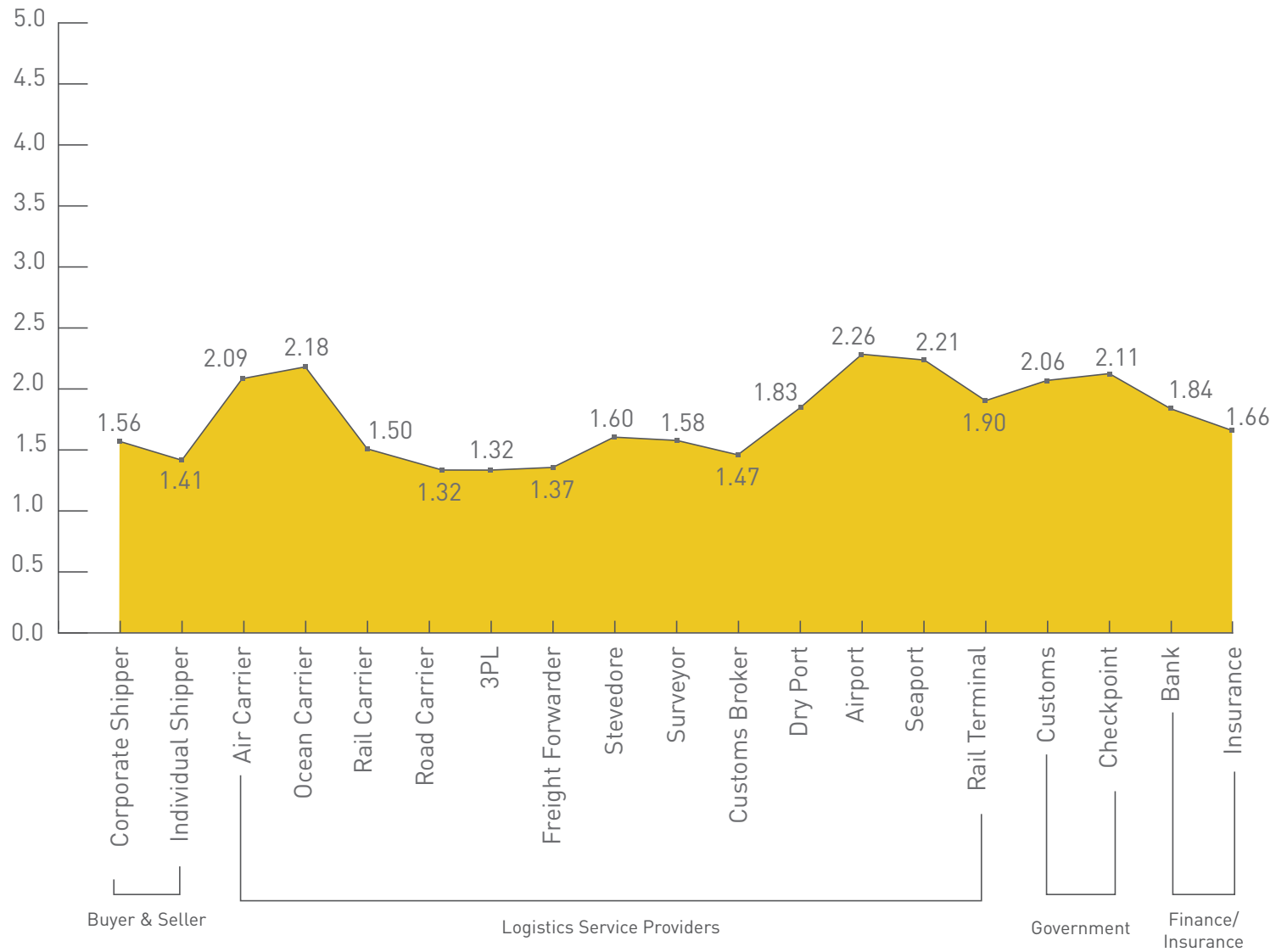
When we analyze the Competence results across the Economic Zones in South Africa, the heavily urbanized and industrialized Gauteng (1.64) zone with its concentration of academic institutions has scored the highest. The difference between the highest and lowest scores is low at 2.4%, indicating all the zones scored comparably at the lower end of the G20 Nations. Hence, there is a need for the South African government to work together with its academic institutions and businesses to enhance the Competence of its workforce by embracing innovations that enable the training of the workforce using digital tools that focus on their efficient execution in the trade pipelines to enhance the business competitiveness.

Specifically, with the use of more advanced digital tools that transfer contractual obligations into electronic metrics, monitor job completion, and escalate issues when necessary, the Competence level of the workforce can be improved across all the economic zones, which in turn contributes to improve the efficiency of the trade pipelines across all South Africa.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

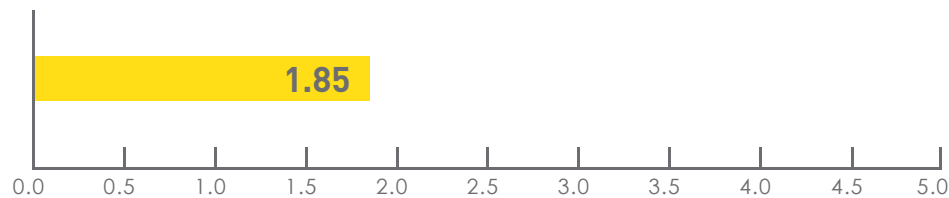
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, it can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security Efficiency procedures

### South Africa's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.85 indicates South Africa's emphasis on the importance of and investments for improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, South Africa's level of Cargo Security nationwide can be improved.



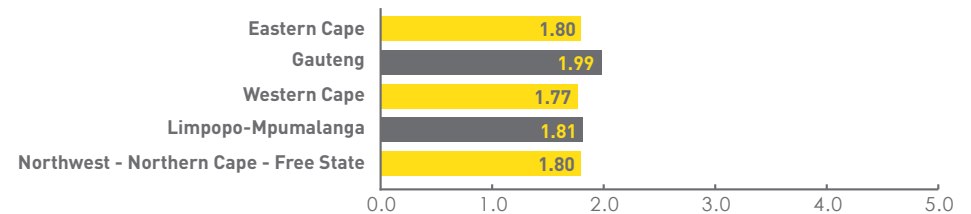
This moderately low score for South Africa suggests that comprehensive efforts are needed to enhance Cargo Security. This is because real-time information on the shipments that is validated by the participants across all the clusters in the trade pipelines is essential to proactively anticipate and intercept dangerous cargo before it reaches the country's jurisdiction. To succeed in this effort, South Africa needs to embrace an innovation that can concurrently increase its scores in Integration, E-Documentation, Tracking & Visibility, and Competence in order to improve Cargo Security.

### Cargo Security by Economic Zone

Analyzing Cargo Security scores by Economic Zone, all zones are comparable with the difference between the highest and lowest scores being low at 4.4%.

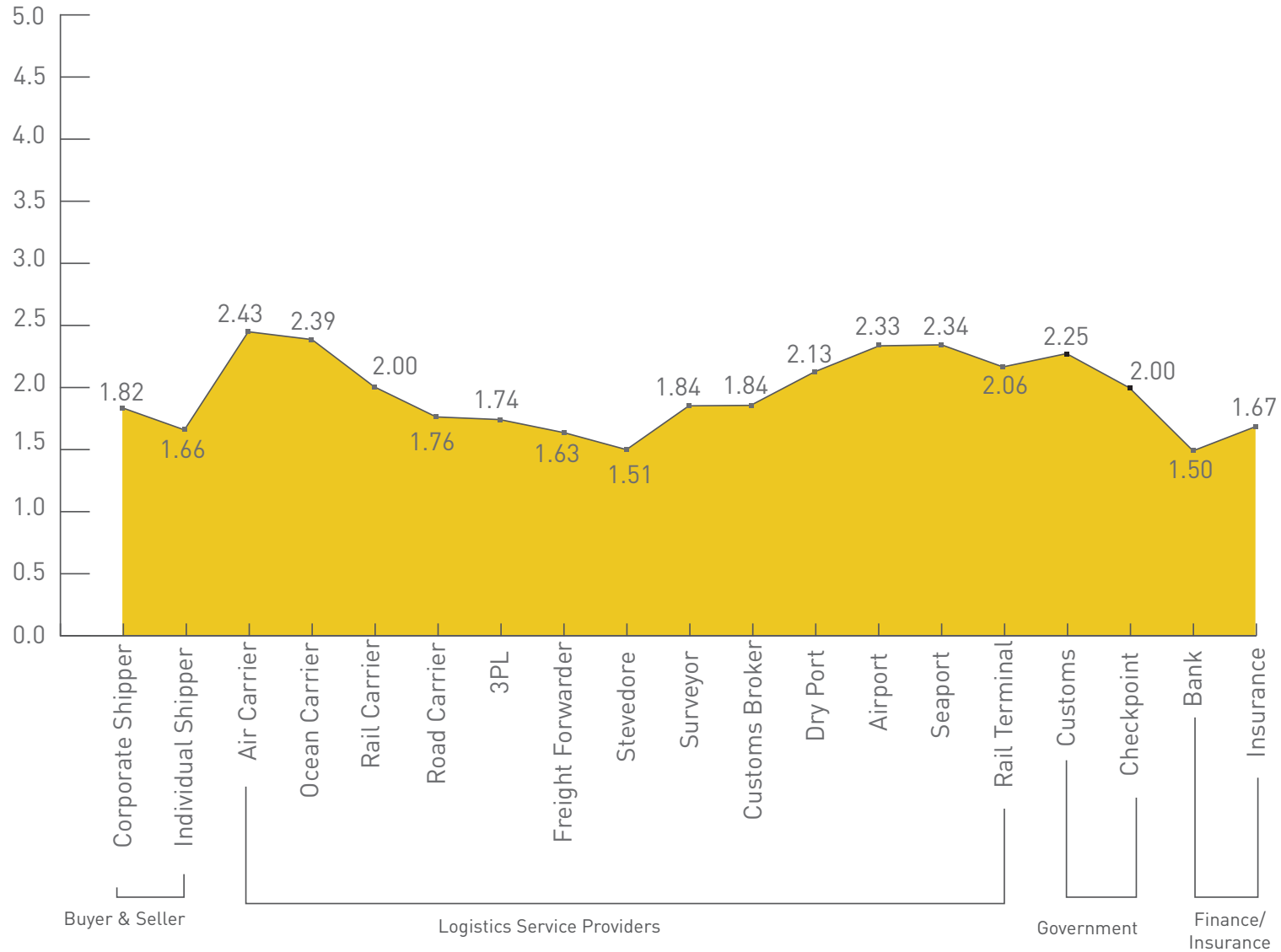
The most industrialized Gauteng (1.99) zone, which scored the highest on Integration, E-Documentation, and Tracking & Visibility scores, has scored the highest on Cargo Security as well. This zone is the hub of advanced manufacturing and export-oriented industries that have the need to develop tools and processes to enhance Cargo Security. In addition, this region is renowned for trading in valuable cargo including precious metals, gold, diamond, copper, and emeralds that require enhanced Cargo Security.

Overall, South Africa needs to adopt innovations that can enhance Cargo Security that can benefit all the zones uniformly to support its aspirations to grow global trade securely.



### Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



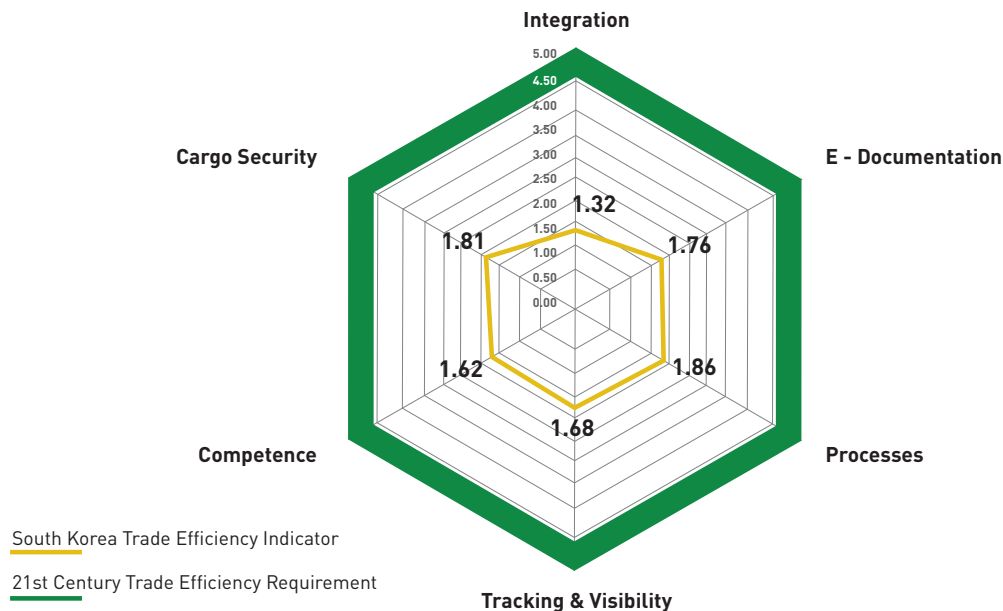


## South Korea's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated South Korea's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the South Korea Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the South Korea SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the South Korea SEA Report recommendations, South Korea can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 12.7 billion, placing South Korea at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 134 billion and creating nearly 1 million jobs by 2030, meeting the economic ambitions of South Korea.

### South Korea's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



## INTEGRATION

### Findings – Data

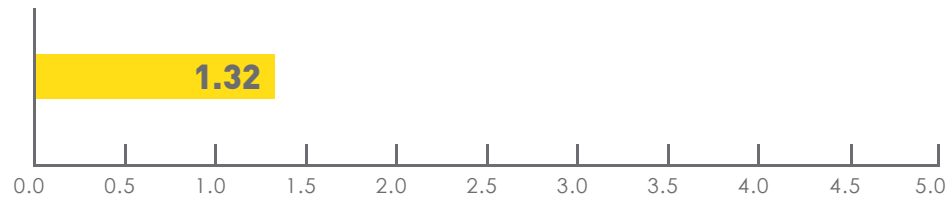
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its lowest performing participant. Hence, by using in-house vertical systems, without horizontal integration with all trade pipeline participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy

### South Korea's Overall Integration Score

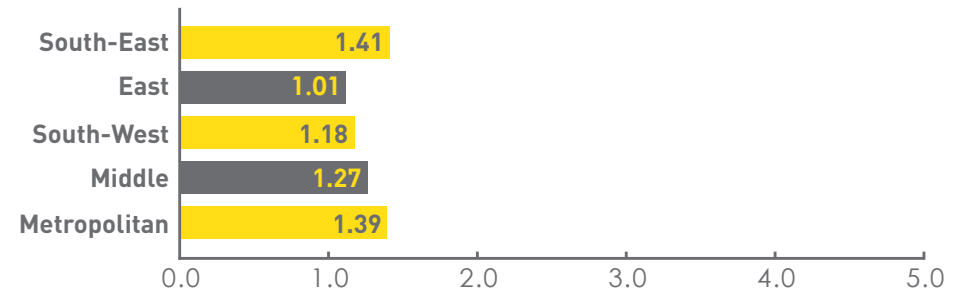
This represents the aggregate data on a national level from the nineteen clusters surveyed in South Korea. Collectively they have scored 1.32 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



The South Korean government's investments in its UNI-PASS National Single Window for trade facilitation and e-governance systems for connecting with its businesses has assisted in realizing this modest score. However, South Korea needs to continue this focus on empowering its businesses to integrate their systems with those of the other participants in their trade pipelines to increase efficiency and reduce trade cost.

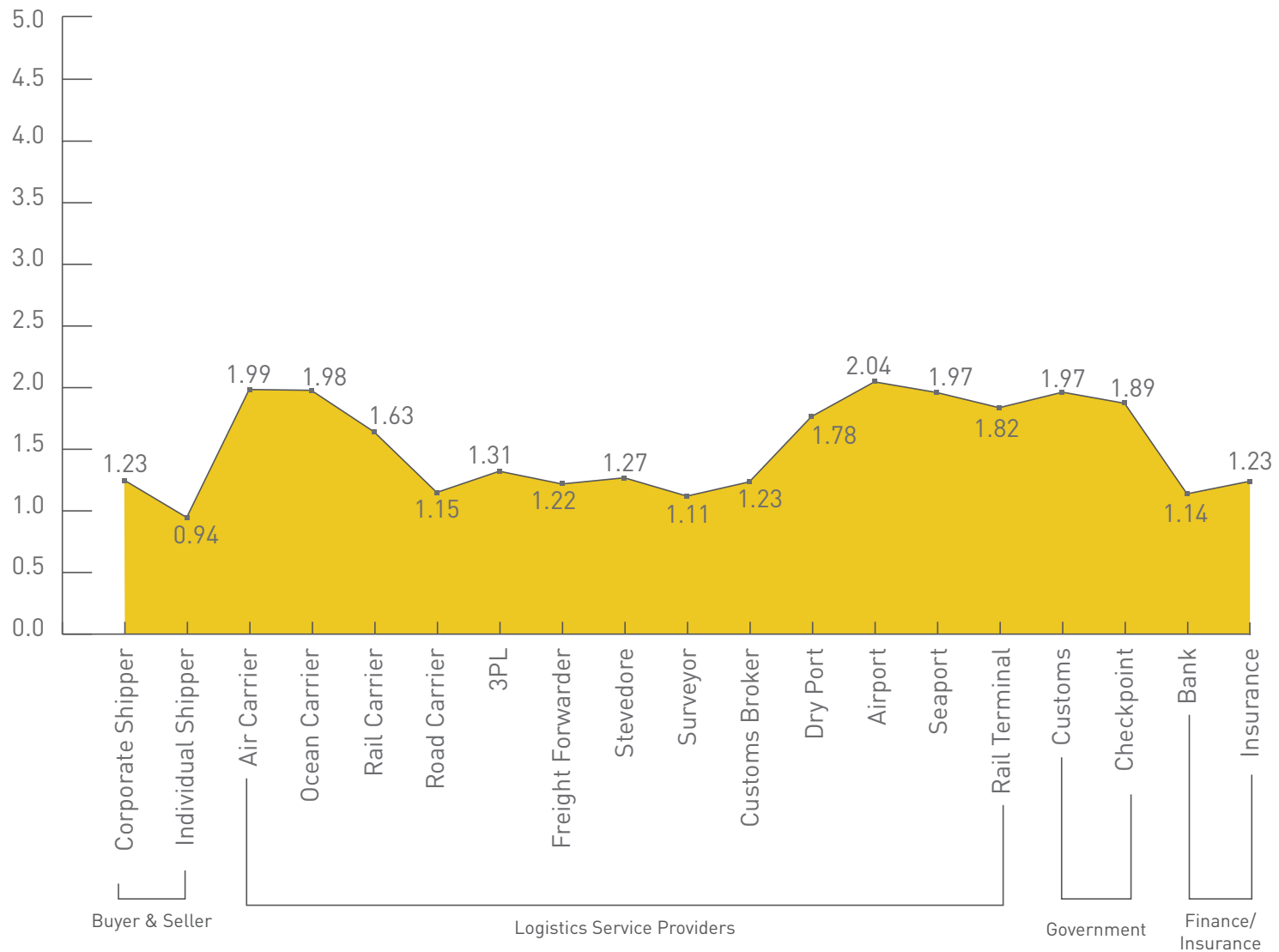
### Integration by Economic Zone

Upon analyzing the Integration scores by Economic Zone, the advanced manufacturing hub of the South-East (1.41) zone with its advanced automobile, aerospace, ship building, and precision manufacturing industries that require extensive integration across their sophisticated supply chains has scored the highest. The Metropolitan (1.39) zone with its specialized industries of semiconductor, green technologies, mechatronics, automobile components, and electronics that depend on reliable supply chain operations has scored the next best. The difference between the highest and the lowest scores are moderate at 8%, suggesting that all the zones can benefit uniformly when South Korea invests in promoting innovations that enhance integration across all the businesses including its SMEs in the global value chains.



## Integration Efficiency by Trade Cluster

- 89.6% of trade participants do not have Integrated Systems
- 31–50% of shipment data re-entered in multiple forms
- 92.2% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

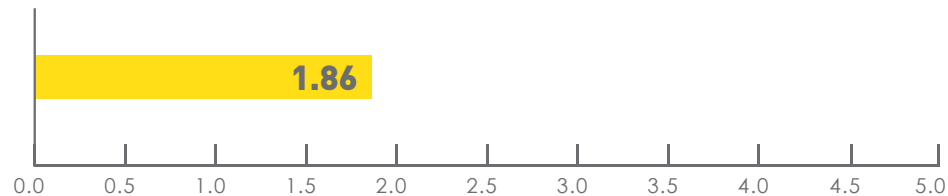
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline

### South Korea's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in South Korea have scored a 1.86 out of a possible 5.0 on the 21-6-EIET scale.

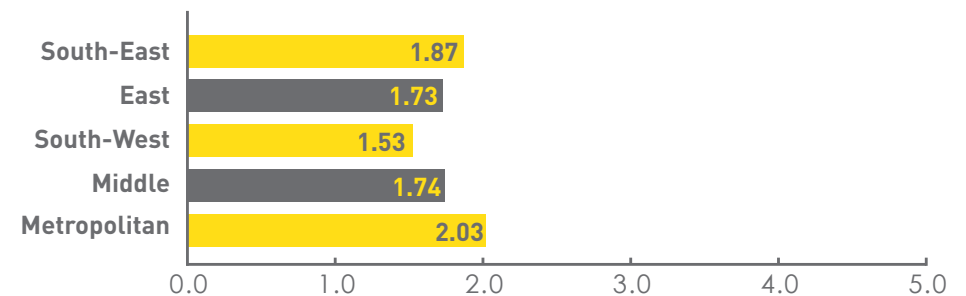


### Processes by Economic Zone

When we analyze Processes scores by Economic Zone, the Metropolitan (2.03) zone with its established processes for coordination of activities across the supply chains of its world leading industries including computers manufacturing, LCD display units, and smart phones has scored the highest. The South-East (1.87) zone with its similarly mature processes in the supply chains of its automobile, aerospace, and advanced manufacturing industries has scored the second highest.

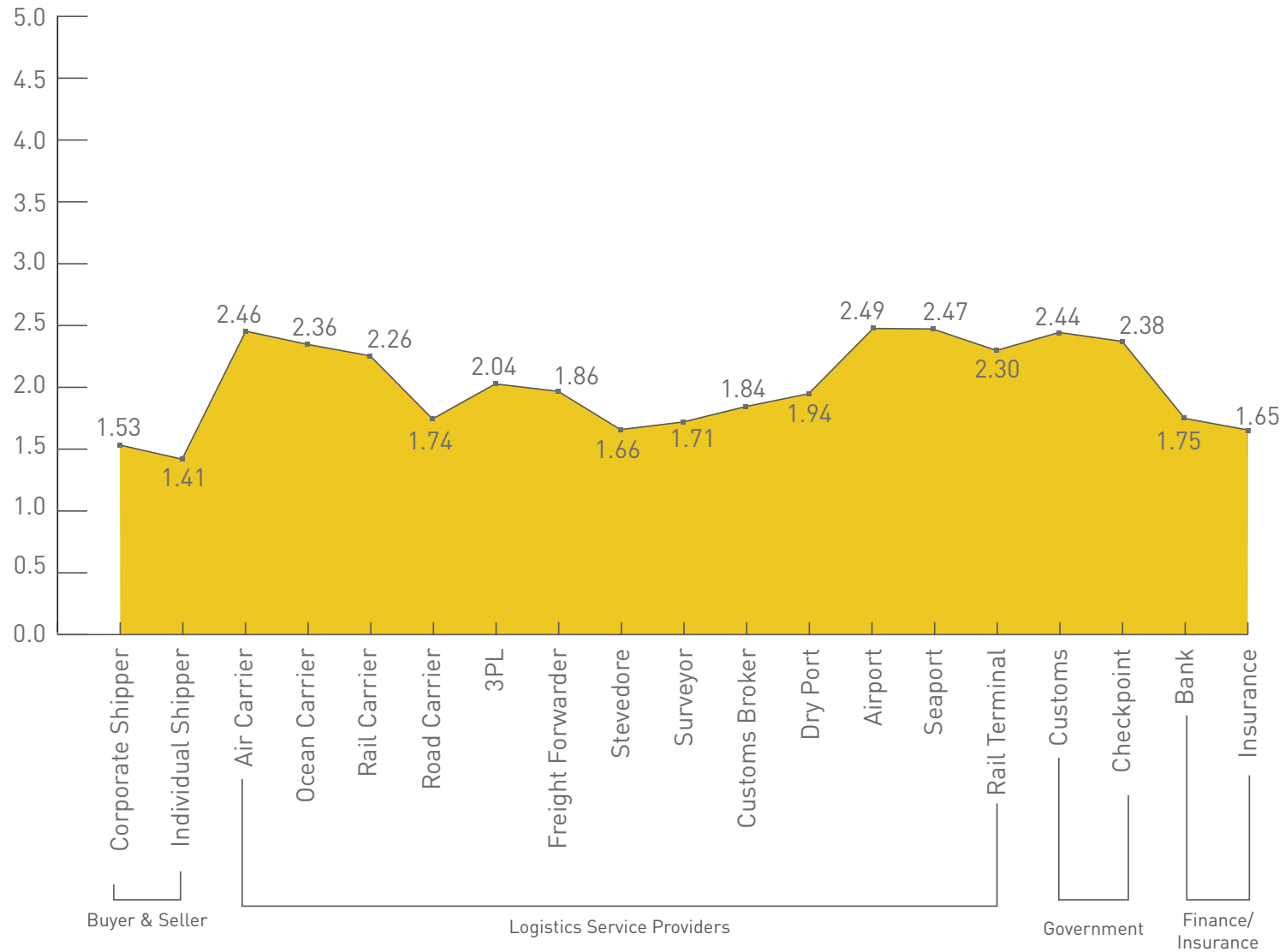
However, there are significant differences between the highest and lowest scores at 10%, indicating disparities across the Economic Zones in Processes efficiency.

For the Processes in South Korea to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across South Korea, further efficiency gains will be achieved in the horizontal Processes within all economic zones and contribute to a further increase in overall trade efficiency.



## Processes Efficiency by Trade Cluster

- >80% of shipment data is re-entered due to Processes incompatibility
- 26.4% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

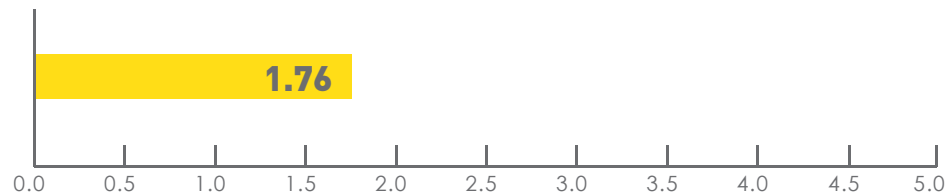
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in proprietary vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

### South Korea's Overall E-Documentation Score

South Korea has scored 1.76 overall for E-Documentation on the 21-6-ETEI standard. Despite the sustained efforts and innovation of the Korea Customs Service by requiring all the trade participants to submit electronic data to its UNI-PASS National Single Window system for the last twelve years, South Korea needs to embrace additional innovations to significantly increase the levels of E-Documentation in order to improve this score.

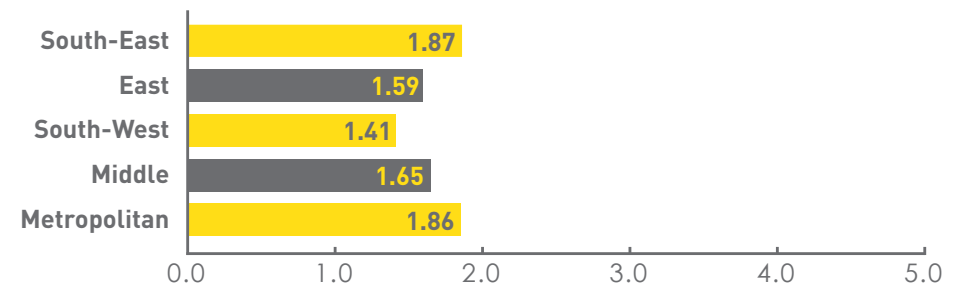


### E-Documentation by Economic Zone

When the E-Documentation scores by Economic Zone are analyzed, the South-East (1.87) and Metropolitan (1.86) zones with their concentration of advanced manufacturing industries such as the semiconductor, electronic display, automobile, smart phone, and aerospace industries, the heavy users of Electronic Data Interchange (EDI) for sharing information among its supply chain partners, have scored significantly above the other Economic Zones.

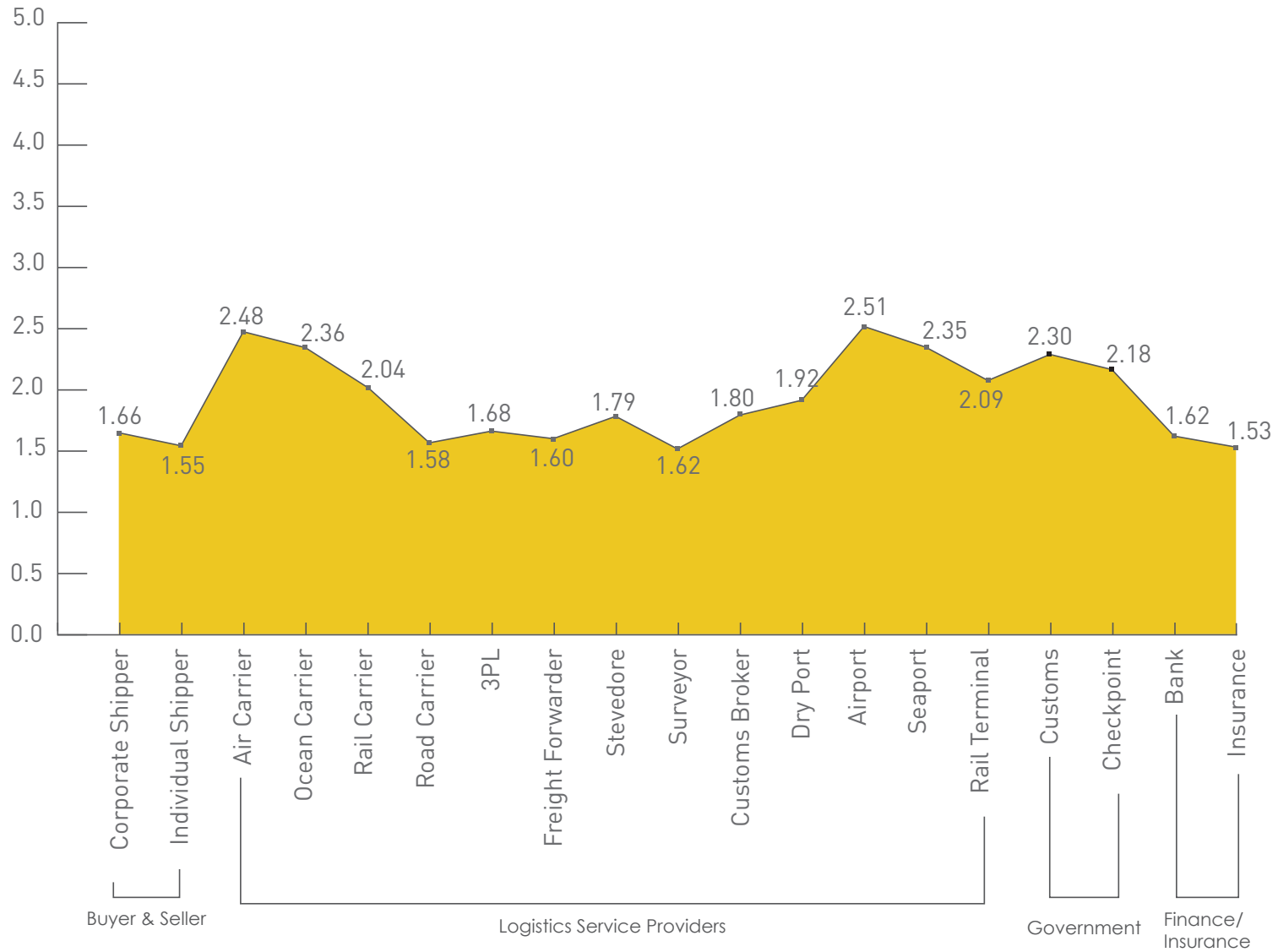
There are moderate differences in the scores among the zones with the difference between the highest and lowest scores being 9.2%.

Hence, when an E-Documentation capability is made available at no cost to all the businesses in South Korea, there are opportunities to increase the scores across all the zones.



### E-Documentation Efficiency by Trade Cluster

- ▶ 61–80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- ▶ ≤20% of trade participants offer E-Documentation submission to their trade partners



## TRACKING AND VISIBILITY

### Findings – Data

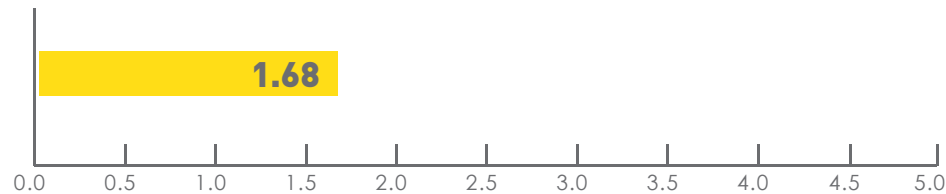
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability

### South Korea's Overall Tracking & Visibility Score

The overall national Tracking & Visibility level in South Korea is 1.68, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility performance.



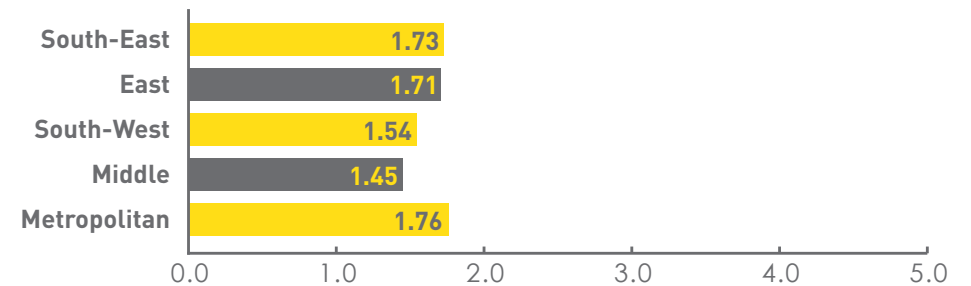
Despite the efforts of South Korea to introduce the UNI-PASS National Single Window as early as 2005 and connecting with the systems of trade participants, especially those that participate in the supply chains of the automobile, aerospace, and semiconductor industries, the overall national score for Tracking & Visibility is still moderate at 1.68. This indicates the need for South Korea to think outside the box to increase this score in order to increase the efficiencies of its trade pipelines further.

### Tracking & Visibility by Economic Zone

Upon analyzing the Tracking & Visibility scores across the Economic Zones, the industrially advanced Metropolitan (1.76) and South-East (1.73) zones due to their established supply chains making investments in tracking their shipments using their vertical systems have scored higher than the other zones.

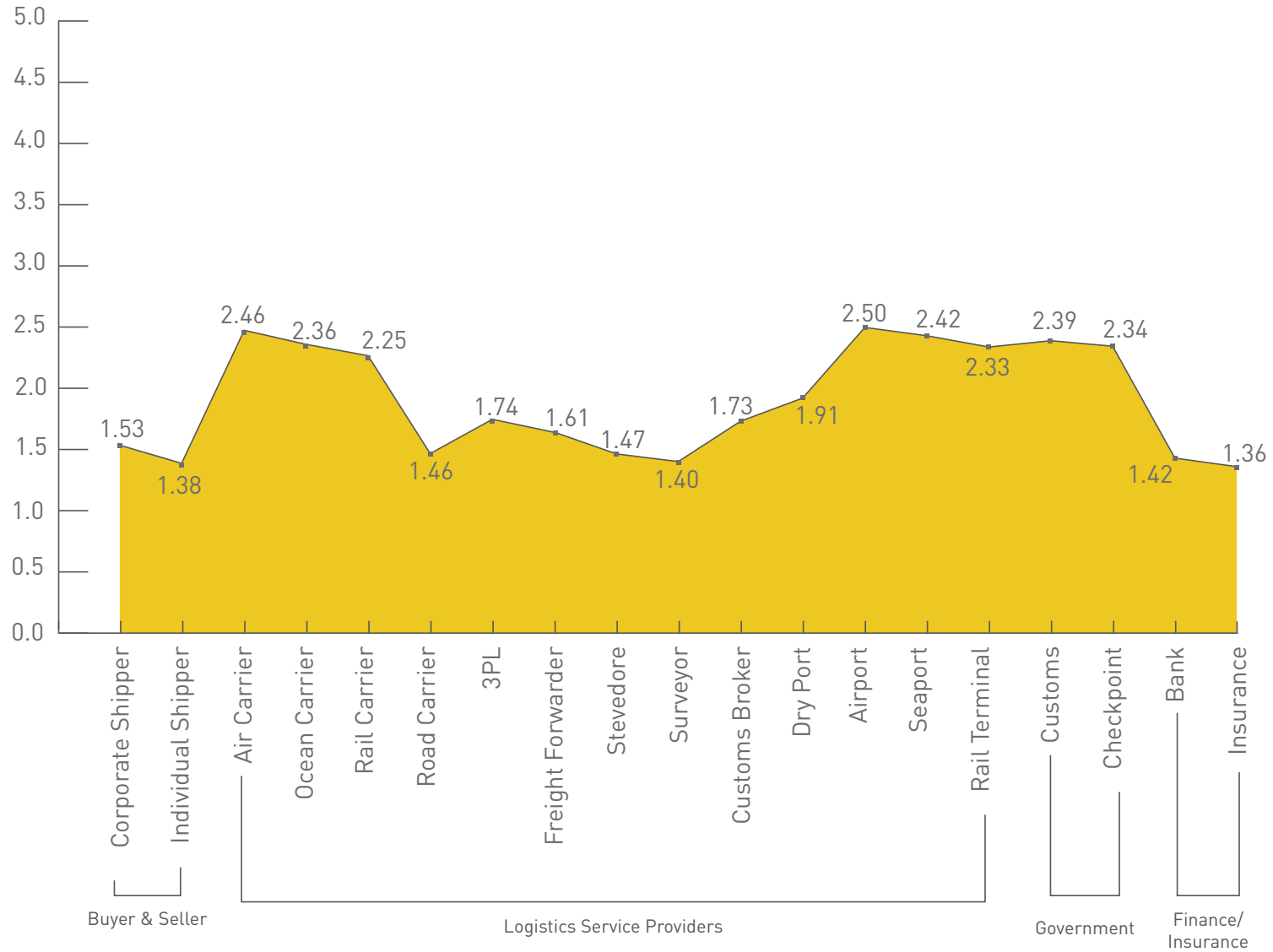
The difference between the highest and the lowest scores is low at 6.2%, indicating that the zones have scored consistently.

When the right type of innovation, is introduced, that can improve Integration and E-Documentation along with the other elements of trade efficiency, South Korea can enhance its Tracking & Visibility across all the regions to improve planning capabilities and achieve superior operating efficiencies.



### Tracking & Visibility Efficiency by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within hours for some of their shipments



# COMPETENCE

## Findings – Data

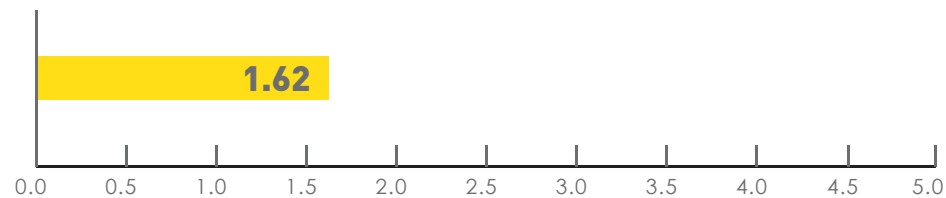
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in its trade pipelines to have similar capabilities to score higher.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade lane pipeline

## South Korea's Overall Competence Score

The overall national Competence level in South Korea is 1.62. Given that a score of 5.0 indicates maximum efficiency, South Korea's score indicates a moderately low level of Competence and an opportunity for South Korea to leverage its skilled and talented workforce to achieve significant improvement.

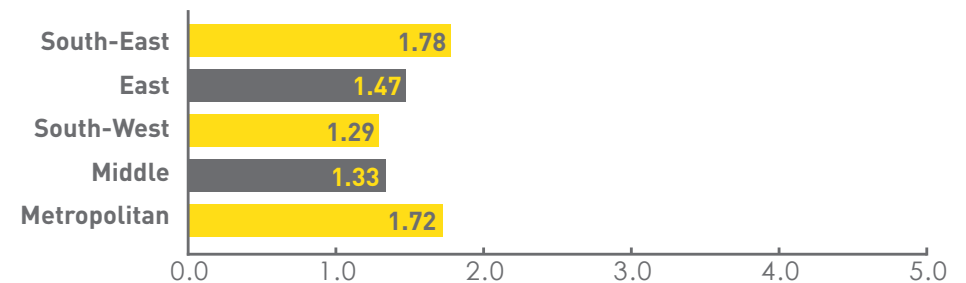


With its investments to create an educated workforce, South Korea has been at the forefront of technical education. However, there is a need to complement education with innovative tools that enhance their performance in global supply chains to enable South Korea to realize a higher score and increase the competitive edge of South Korean businesses.

## Competence by Economic Zone

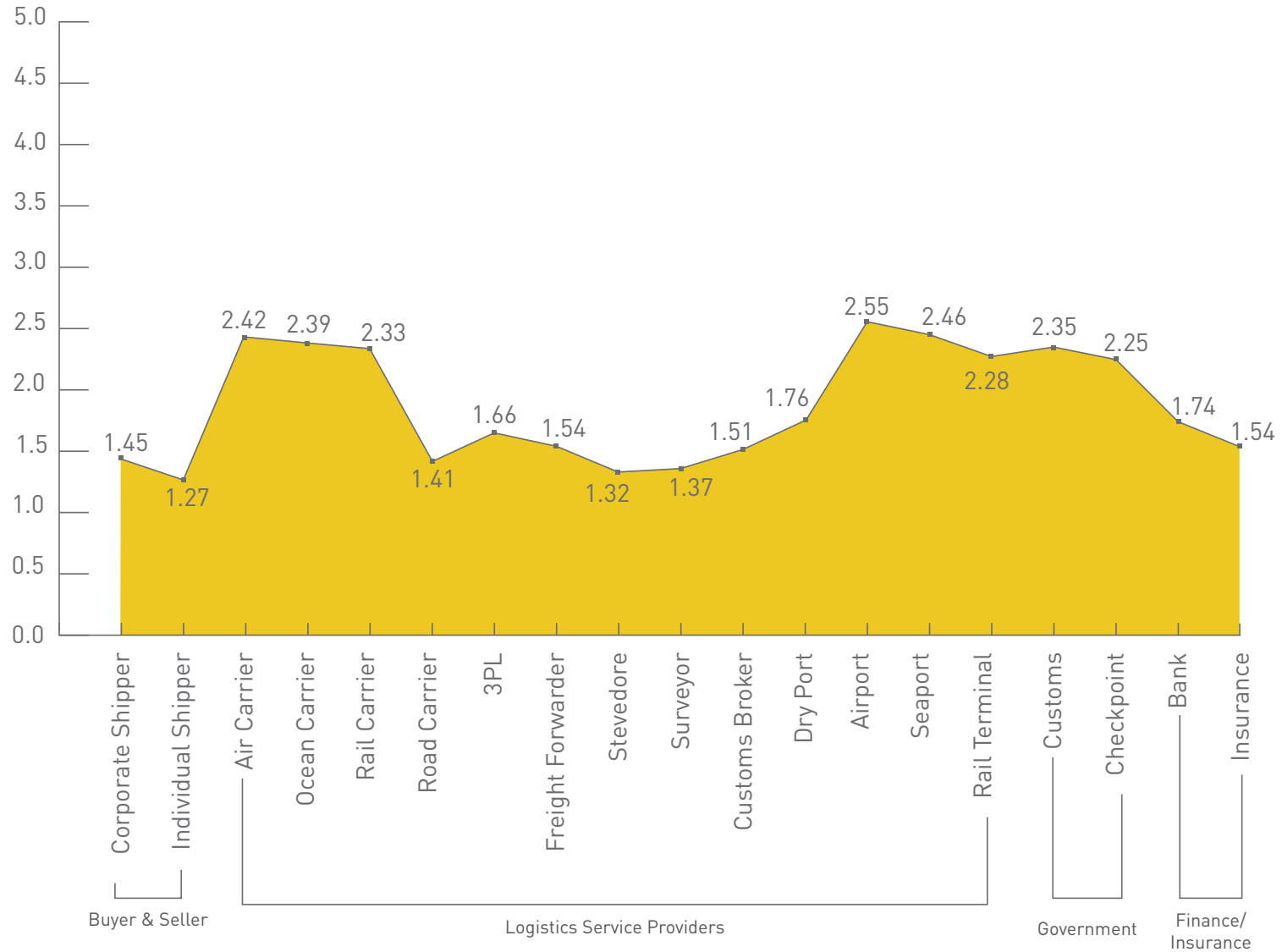
When we analyze the Competence results across the Economic Zones in South Korea, the South-East (1.78) and Metropolitan (1.72) zones, with their concentration of educational institutions, have scored higher than the other zones. The difference between the highest and the lowest scores are moderately high at 9.8%, indicating disparities among the zones in Competence.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion, and escalate issues when necessary, the competence level of employees can be improved across all the economic zones to bridge the gap in Competence, which in turn contributes to improve the efficiency of the trade pipelines across South Korea.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

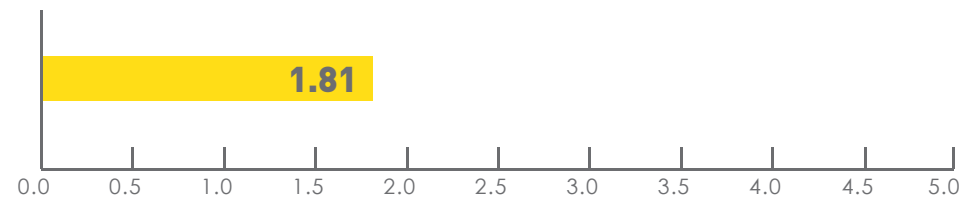
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures

### South Korea's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.81 indicates South Korea's emphasis on the importance of and investments in improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, South Korea's level of Cargo Security nationwide can be improved.

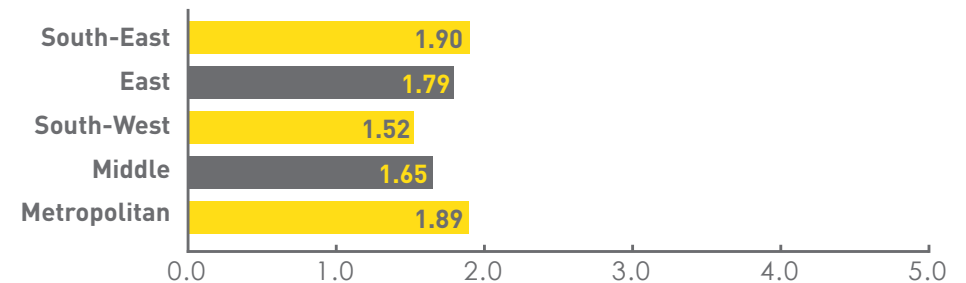


In South Korea, the use of the UNI-PASS National Single Window that brings together several trade facilitation systems that are easily accessible through the secure online portal of the Korea Customs Service is ascribed to South Korea's investment in security as it enables higher shipment visibility for the government authorities. These systems allow trade participants to submit electronic import and export information to the government only once for each shipment through the online portal. Such systems significantly simplify the compliance process for businesses and improve the quality of information provided to government, while enhancing the ability of South Korean agencies to conduct risk assessments with intelligent proficiency to improve Cargo Security.

### Cargo Security by Economic Zone

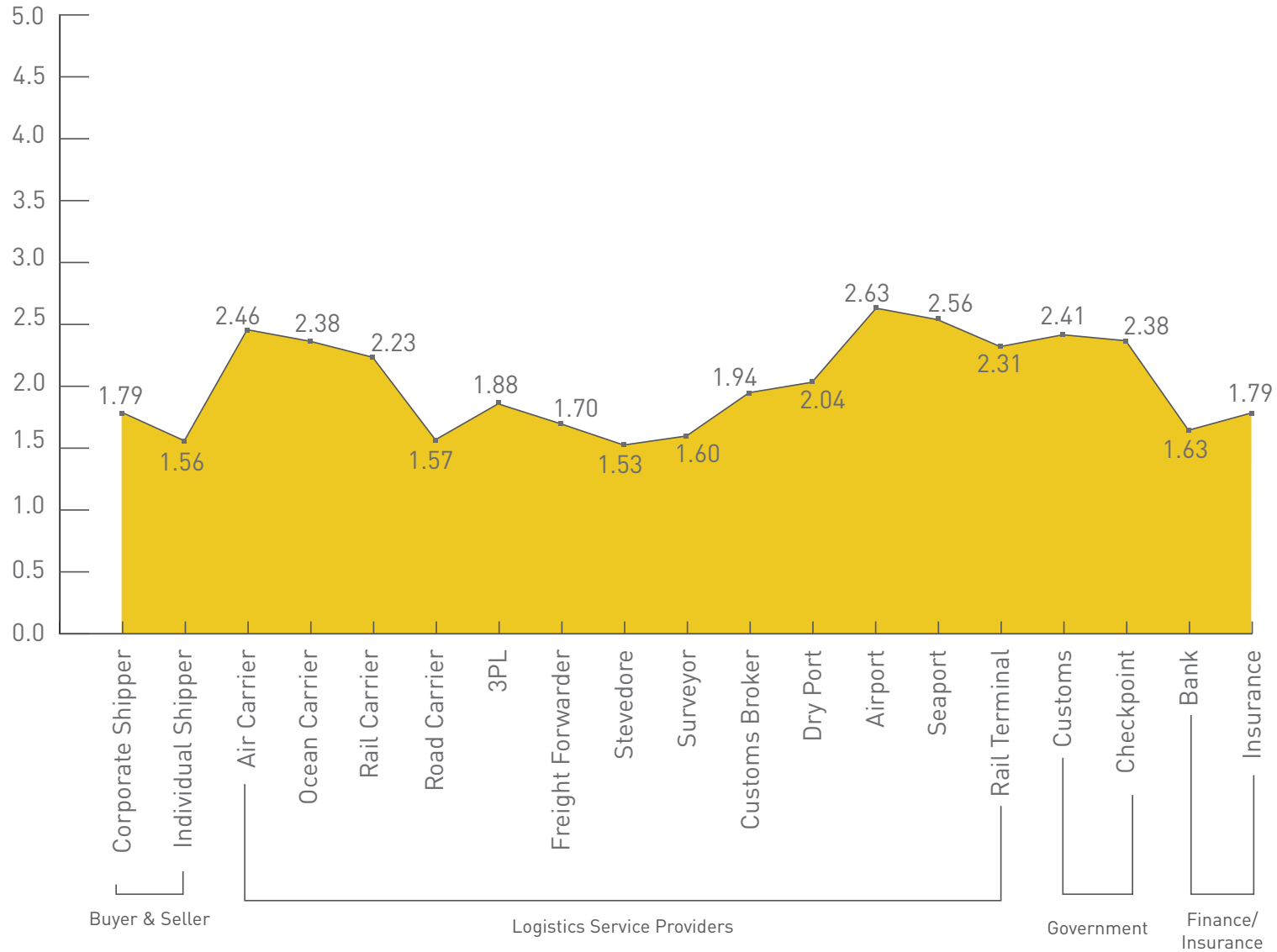
Analyzing Cargo Security scores by Economic Zone, the South-East (1.90) and Metropolitan (1.89) zones have scored significantly higher than the other zones, with the difference between the highest and lowest scores being moderate at 7.6%, indicating a uniform opportunity to enhance Cargo Security in all the zones.

Accordingly, an implementation of new measures can enhance the Cargo Security across all the zones, especially in the less densely populated zones.



### Cargo Security Efficiency by Trade Cluster

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is ≤50% complete



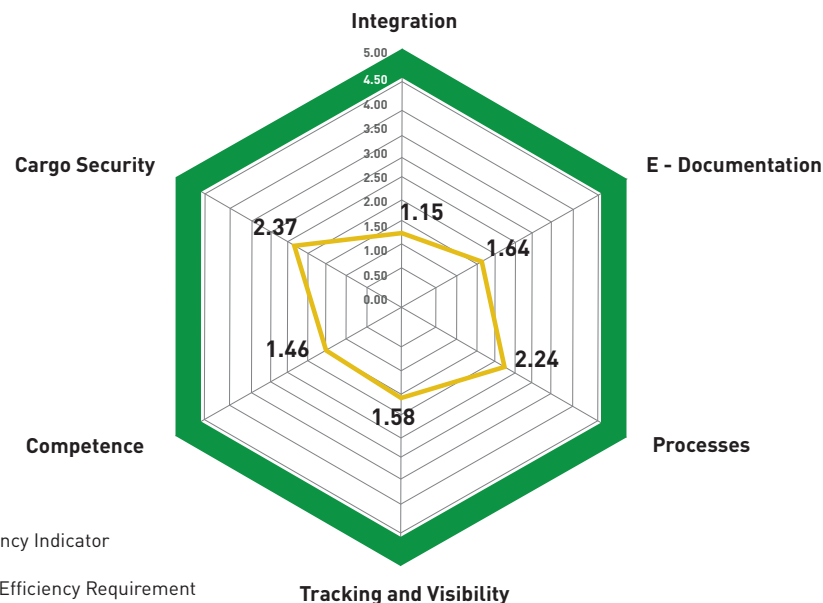


## Turkey's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated Turkey's current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the Turkey Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the Turkey SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the Turkey SEA Report recommendations, Turkey can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 57.3 billion, placing Turkey at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 175 billion annually and job create 11.7 million jobs by 2030, meeting the economic ambitions of Turkey.

### Turkey's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



# INTEGRATION

## Findings – Data

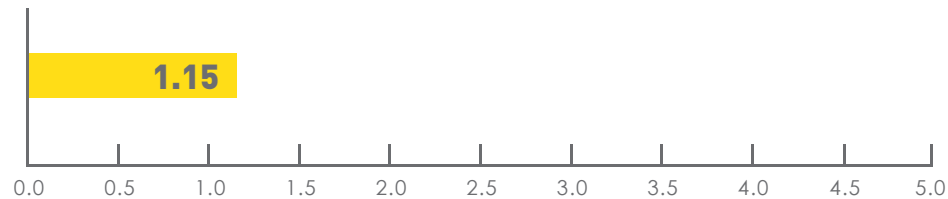
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/mail/email for communication, and a high degree of data redundancy.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## Turkey's Overall Integration Score

This represents the aggregate data on a national level from all nineteen clusters surveyed in Turkey. Collectively they have scored a 1.15 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.



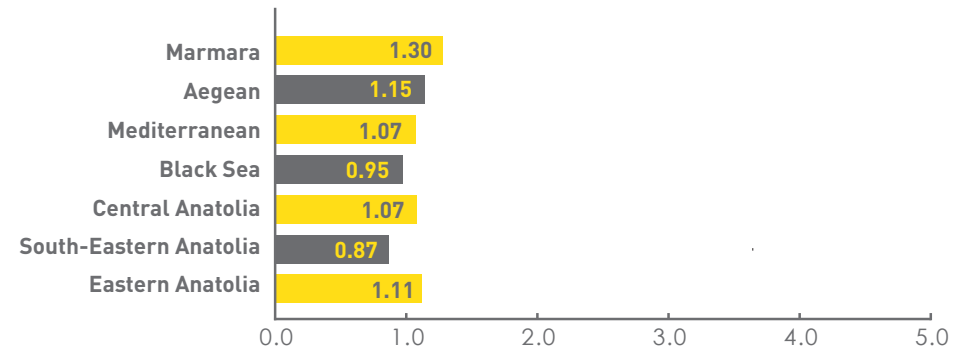
## Integration by Economic Zone

Turkey has a pivotal role in connecting Pan-European transport corridors to Central Asia. Additionally, the Mediterranean basin, to which Turkey is a natural conduit, has gained greater prominence in both East-West and North-South connections.

Turkey has developed a logistics infrastructure, including:

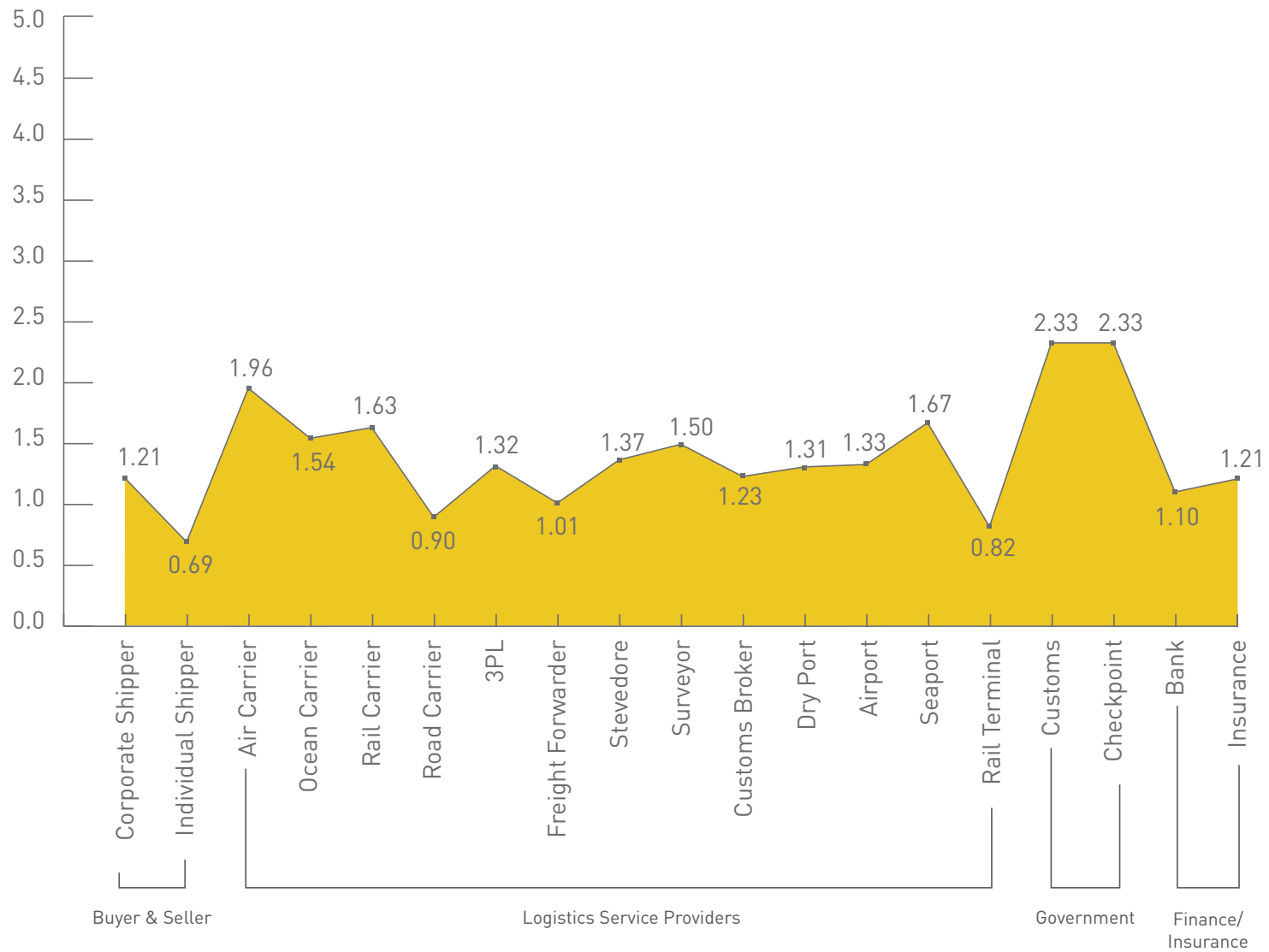
- ▶ Technology Development Zones (Technoparks), designed to support R&D activities and attract investments in high technology fields
- ▶ Organized Industrial Zones (OIZs), designed to allow companies to operate within an investor-friendly environment with ready-to-use infrastructure and social facilities
- ▶ Free Zones, designed to increase the number of export-focused investments.

However, technology adoption in the Turkish logistics industry remains low. In fact, 72.88% of businesses and 73.15% of the SMEs in Turkey are manually operated, and have no vertical systems, which contribute to the lack of Integration, both within Turkey, and with international trading partners. This holds Turkey back from achieving the trade efficiency required to maximize its potential, and realizing the economic ambitions of Turkish citizens. The difference between the highest and lowest scores is 8.6%, which means that when the innovation is introduced into the country, it can be quickly and evenly adopted across all zones.



## Turkey Integration by Trade Participant

- 95.2% of trade participants do not have Integrated Systems
- 71–90% of shipment data is re-entered in multiple forms
- 98.15% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

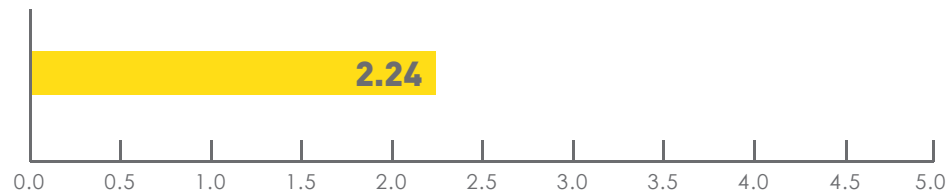
Process Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline.

**Level 5=** Optimum and complete Processes in a trade pipeline.

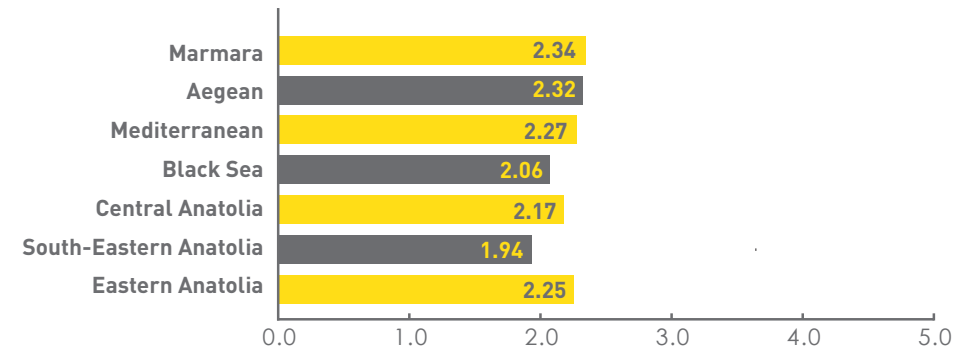
### Turkey's Overall Processes Score

This represents an overall national Processes score assessing the handling of shipments in the trade pipeline. Collectively, the trade participants in Turkey have scored a 2.24 on the 21-6-ETEI scale of 5.0. The top score of 5.0 represents optimal performance and complete processes throughout the trade pipeline.



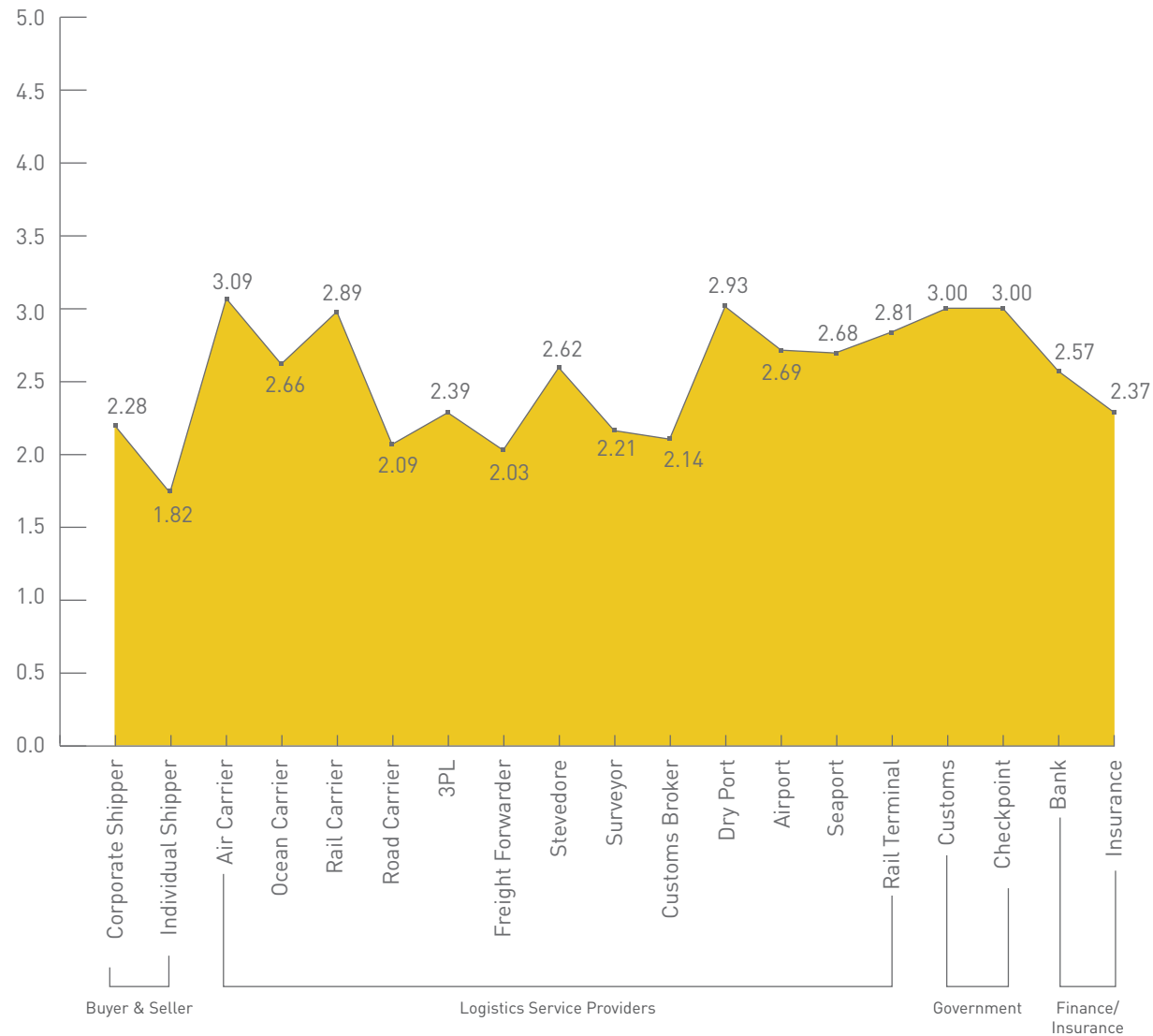
### Processes by Economic Zone

When we analyze the results of Processes by Economic Zone in Turkey, there is an 8% difference between the highest and lowest result. These relatively equal results demonstrate an even distribution of the Processes level, which represents an ideal starting point to establish optimal horizontal processes. The higher scores of the Marmara (2.34), and Aegean (2.32) zones, which are the most prominent regions in Turkey, are due to the presence of major ports, large asset based carriers, and global logistics companies that have established internal vertical processes, and handle high cargo and import/export volumes for the country.



## Turkey Processes by Trade Participant

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 16.4% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- >30 days Buyers/Sellers to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

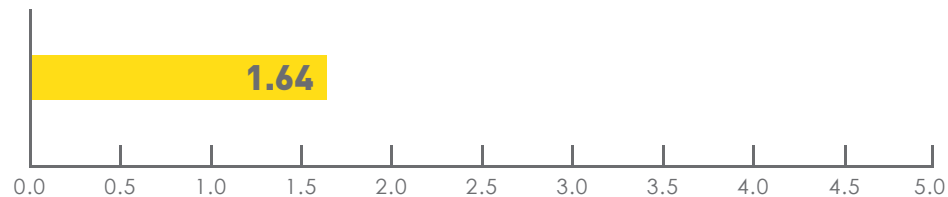
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation efficiency.

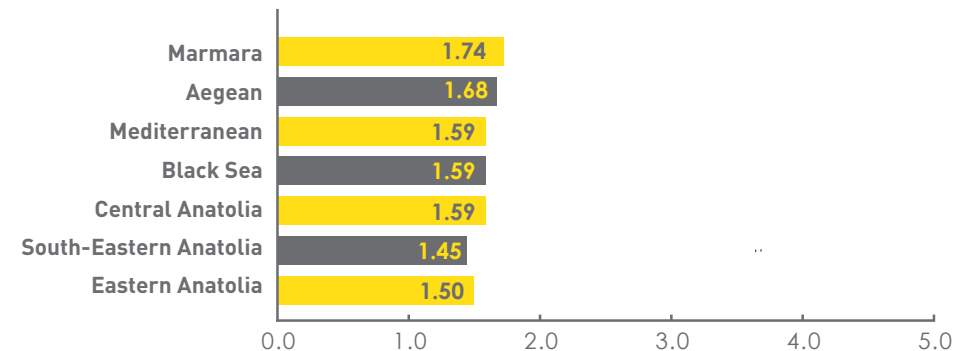
### Turkey's Overall E-Documentation Score

The overall national E-Documentation score in Turkey is 1.64, which indicates that some of the 19 clusters are moving from paper to E-Documentation, which has been primarily influenced by the Customs clearance process provided through the BILGE portal and the National Single Window system.



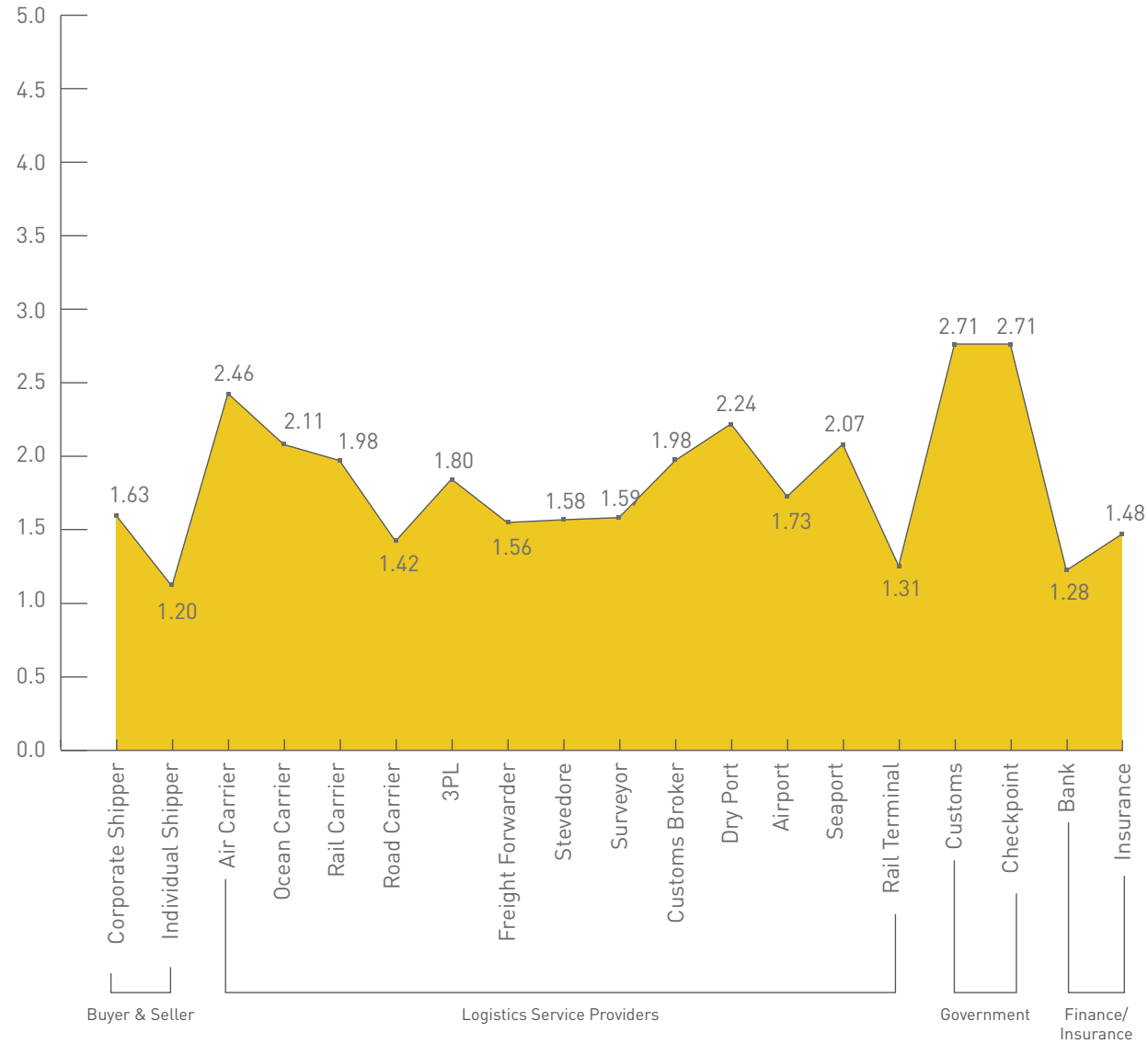
### E-Documentation by Economic Zone

E-Documentation scores are fairly consistent across Economic Zones. This means that when E-Documentation capability is presented to the country, it can be quickly and evenly distributed. Stricter industry requirements in key industries such as the chemical and petroleum, automotive, textile, and energy industries within the Marmara (1.74) zone and Aegean (1.68) zone is reflected in the higher E-Documentation score.



## Turkey E-Documentation by Trade Participant

- >81% of shipment data is re-entered by Buyers/Sellers due to systems incompatibility, with occasional data validation
- <10% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

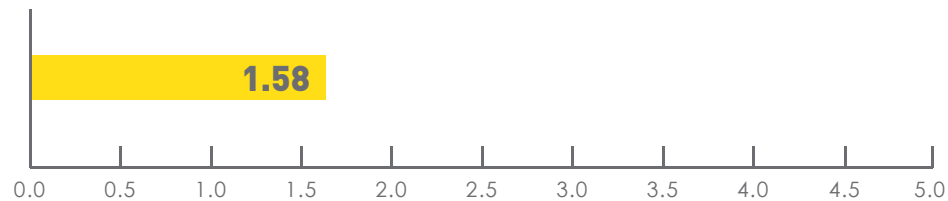
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability.

**Level 5** = Optimum level of global Tracking & Visibility capability.

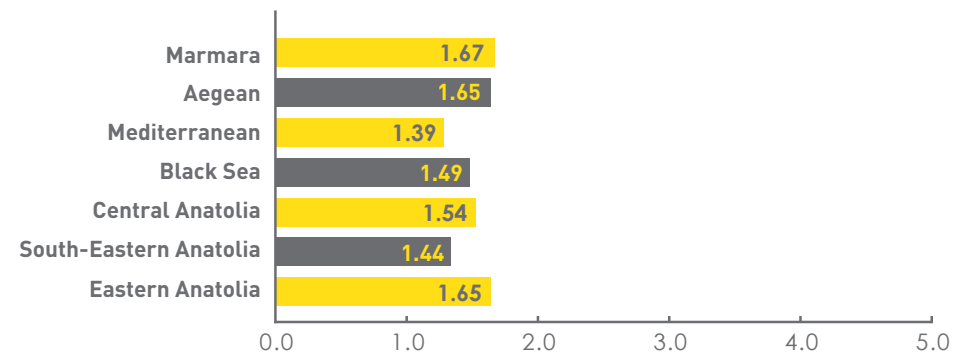
### Turkey's Overall Tracking & Visibility Score

The overall national Tracking and Visibility score in Turkey is 1.58, which indicates that significant steps are necessary in order to attain an optimum level of Tracking and Visibility performance.



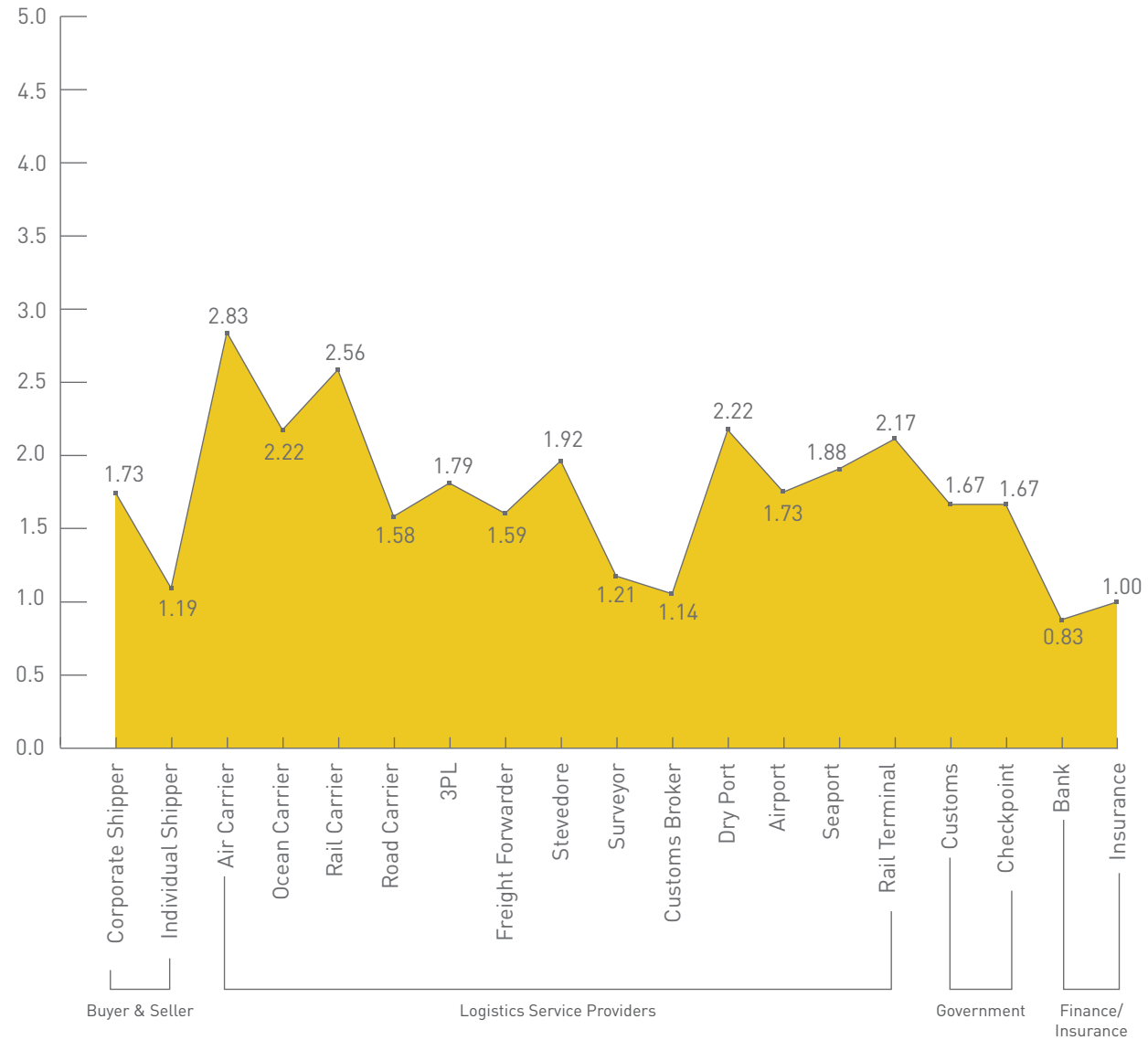
### Tracking & Visibility by Economic Zone

When the Tracking and Visibility is analyzed for results achieved across Economic Zones in Turkey, it is found that all six zones are consistent. This relatively even distribution indicates that there is a country-level opportunity to improve Tracking and Visibility. The highest score is for the Marmara (1.67) and Aegean (1.65) zones, and is due to the presence of major ports and asset-based carriers that handle nearly 60% of the country's total trade volume. Furthermore, the presence of key industries and high value items produced in these zones requires a higher level of visibility.



## Turkey Tracking & Visibility by Trade Participant

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



## COMPETENCE

### Findings – Data

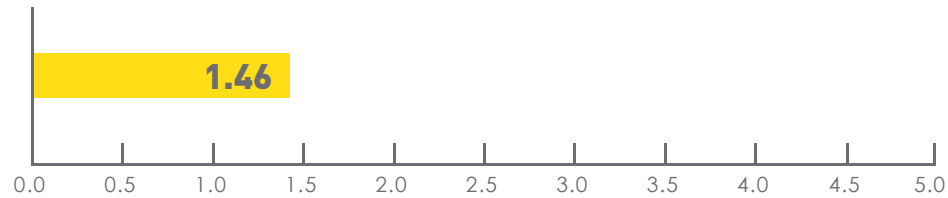
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence processes and measurement methods within a trade pipeline.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline.

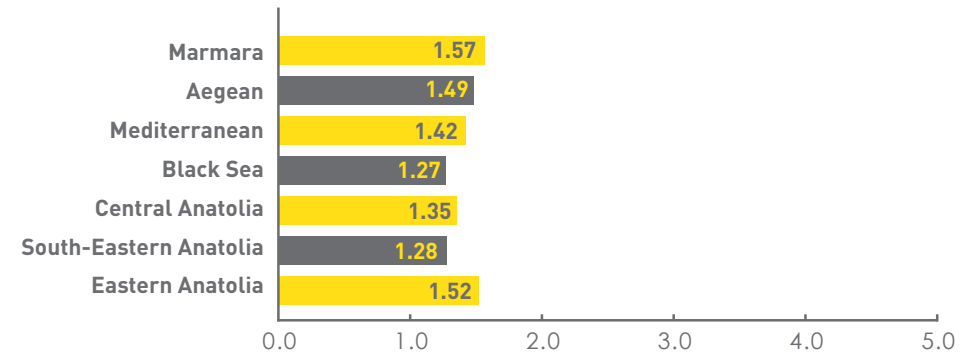
### Turkey's Overall Competence Score

The overall national Competence level in Turkey is 1.46, indicating an opportunity to improve Competence.



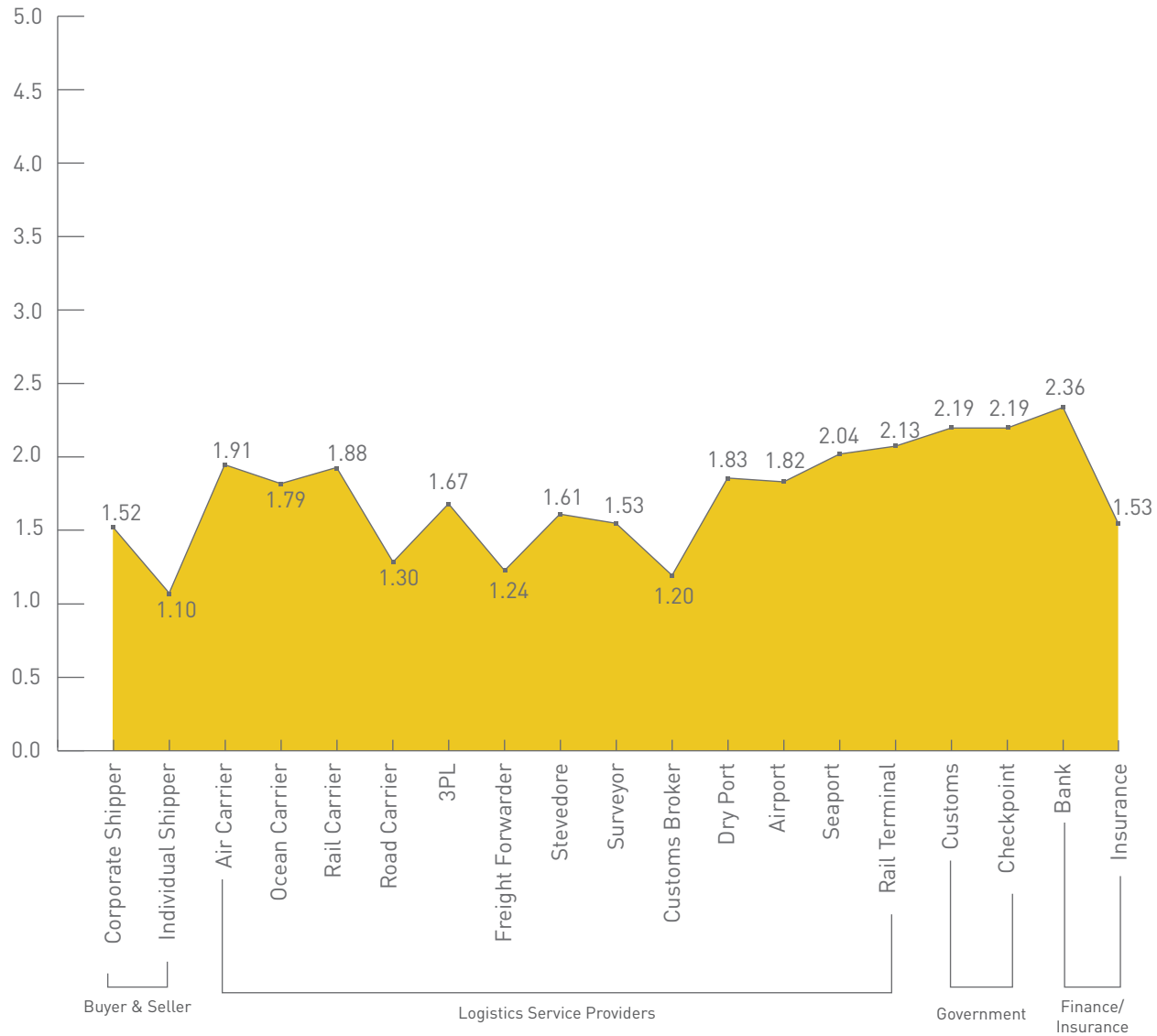
### Competence by Economic Zone

When we analyze the Competence results achieved across Economic Zones in Turkey, there is a difference of 6% between the highest and lowest results. This indicates a comparatively even Competence level across Turkey regions.



## Turkey Competence by Trade Participant

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

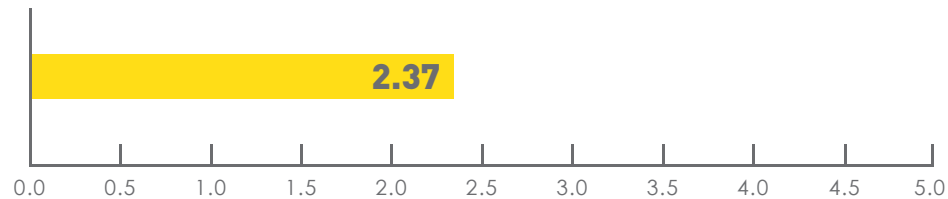
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures.

**Level 5** = Presence of effective Cargo Security procedures.

### Turkey's Overall Cargo Security Score

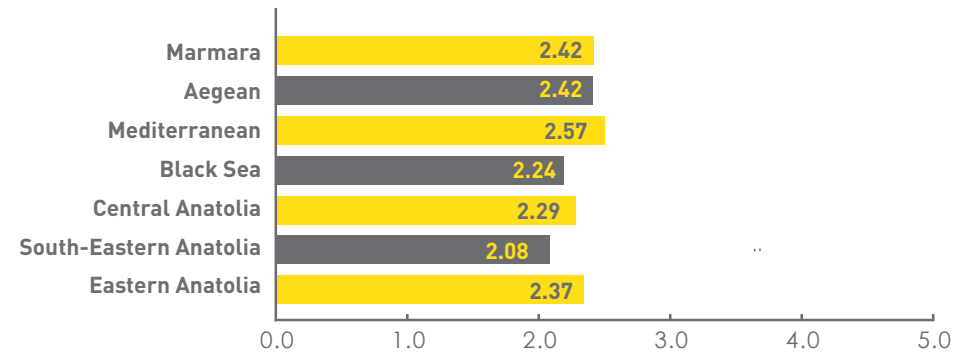
The overall national Cargo Security level represents aggregated data compiled from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, 2.37 indicates moderate security and Turkey's emphasis on the importance of maintaining and improving Cargo Security.



### Cargo Security by Economic Zone

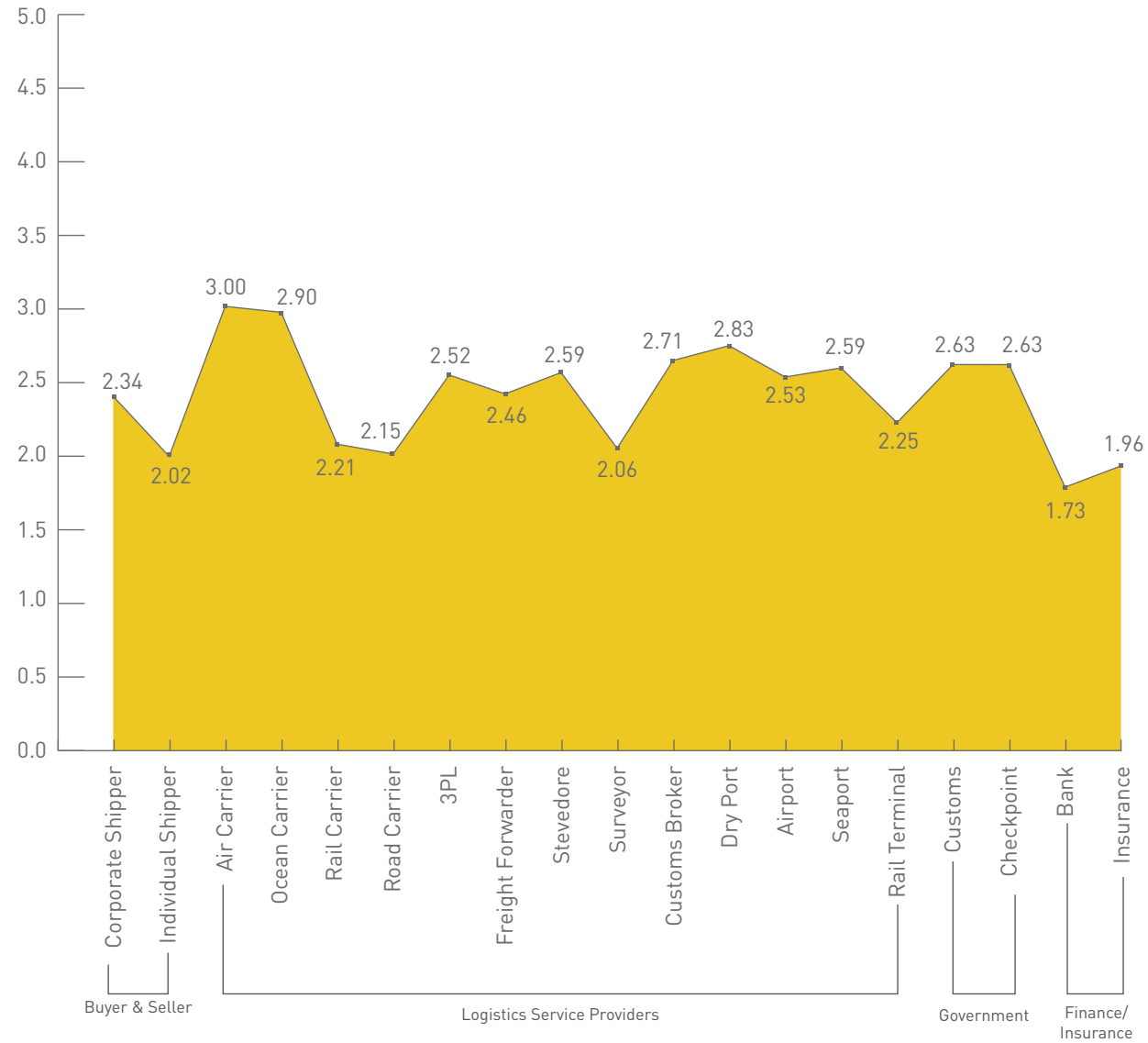
When we analyze the Cargo Security results achieved across the Economic Zones in Turkey, the difference is 9.8% between the highest and lowest results. This comparatively even Cargo Security level across Turkey regions indicates that efficient implementation of new security initiatives across all regions is possible.

The higher score in the Mediterranean (2.57) zone is due to the importance of the zone in both East-West and North-South connections of the Mediterranean basin, and the higher value of goods shipped from this region, such as oil, gas, and pharmaceuticals, which require additional security measures and higher levels of security data completeness.



## Turkey Cargo Security by Trade Participant

- ▶ ≤20% of trade partners ask for Cargo Security information—domestically or globally
- ▶ The shipment security information sent and received is about 75-89% complete



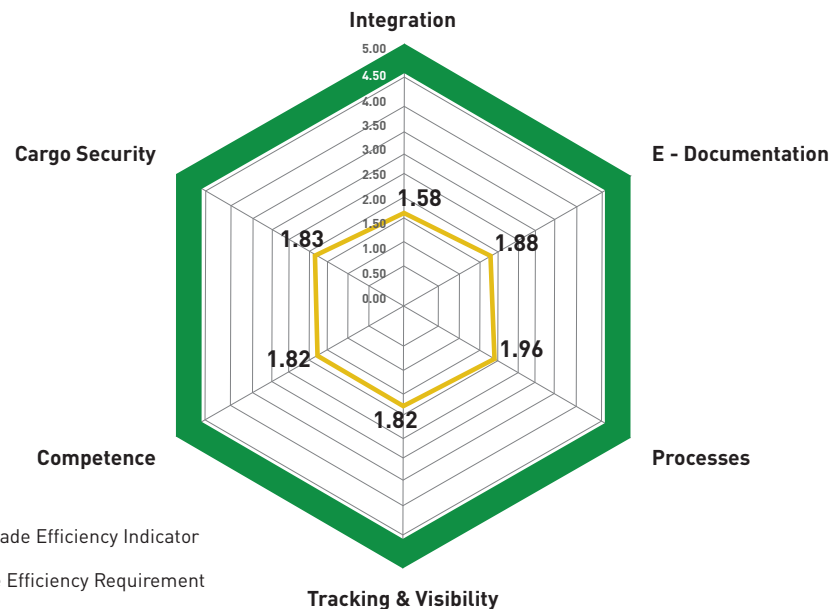


## The United Kingdom's Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated the United Kingdom's current trade efficiency in relation to the 21-6-EI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the United Kingdom Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the United Kingdom SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-EI standard. Upon Implementation of the United Kingdom SEA Report recommendations, the United Kingdom can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 128 billion, placing United Kingdom at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 165 billion annually and create 1.1 million jobs by 2030, meeting the economic ambitions of the United Kingdom.

### The United Kingdom's Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-EI)



United Kingdom Trade Efficiency Indicator  
 21st Century Trade Efficiency Requirement

# INTEGRATION

## Findings – Data

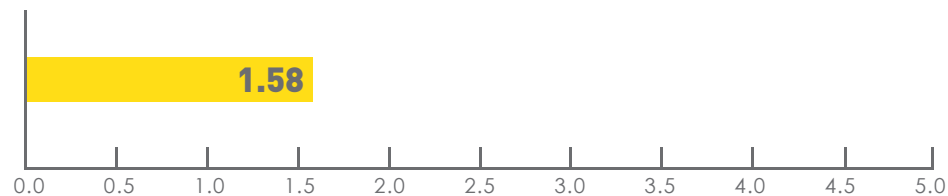
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/post mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal Integration with all trade lane participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy.

## The United Kingdom's Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in the United Kingdom. Collectively they have scored 1.58 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

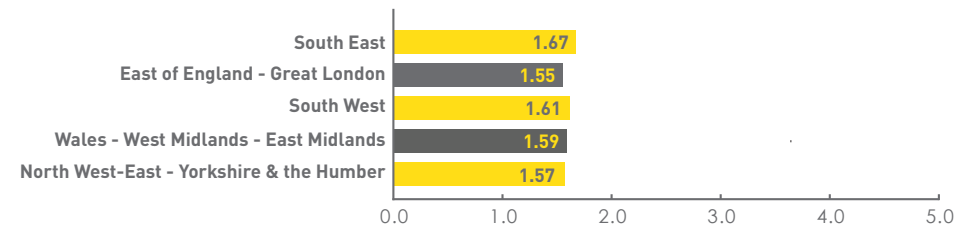


This Integration score is moderate despite the United Kingdom government's investment in the CHIEF and other trade facilitation systems including ICS, CSPs, and NES. These are illustrations of the HM Revenue & Customs and industry working together to provide an efficient and consistent approach to improve the facilitation of trade. Similar focus on Integration across all the trade industry clusters is necessary to significantly improve the United Kingdom's overall Integration score.

## Integration by Economic Zone

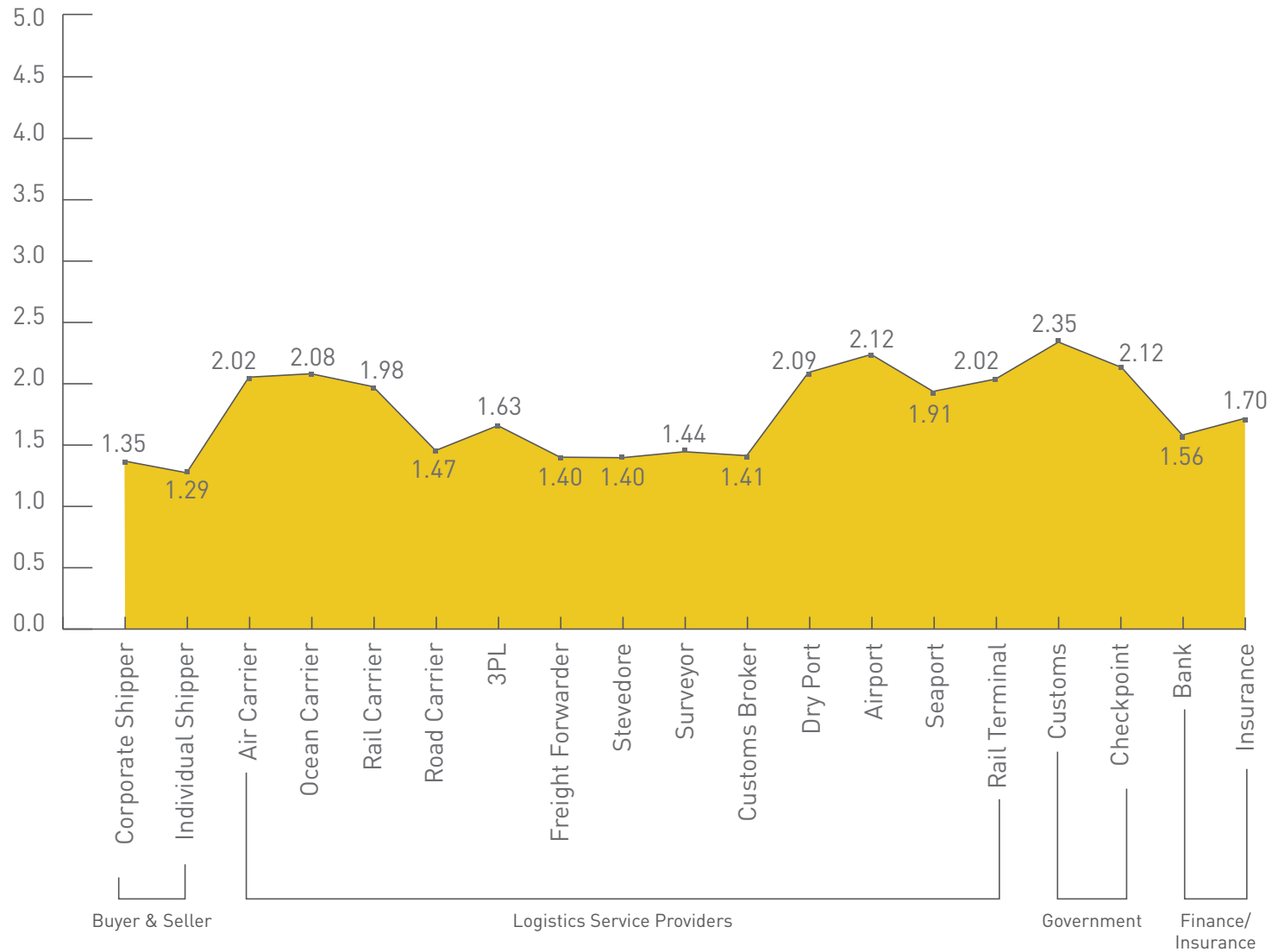
The industrialized South East (1.67) zone, which is the economic and trade gateway of the UK, scored the highest on Integration. All the Economic Zones have scored comparably on Integration, with the difference between highest and lowest scores being very small at 2.4%. Hence, any innovation that can increase Integration will benefit all the zones uniformly in improving trade efficiency.

However, the moderate use of technology across all zones in the United Kingdom confirms the need for the United Kingdom government to devise economic development strategies and policies to promote economic Integration of all the zones.



## Integration Efficiency by Trade Cluster

- 86.8% of trade participants do not have Integrated Systems
- 51-70% of shipment data is re-entered in multiple forms
- 95% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

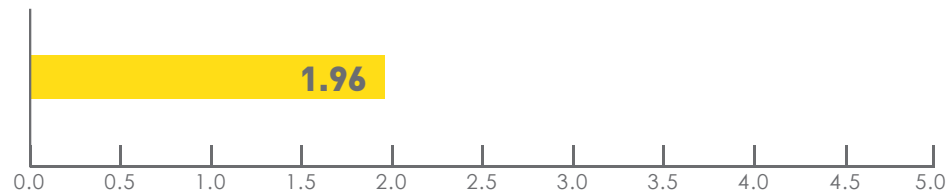
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade pipeline

### The United Kingdom's Overall Processes Score

The following result represents the overall national Processes score that assesses the use of available tools and manpower for managing shipment within the trade pipeline. Collectively, the trade participants in the United Kingdom have scored 1.96 out of 5.0 on the 21-6-EIET scale.



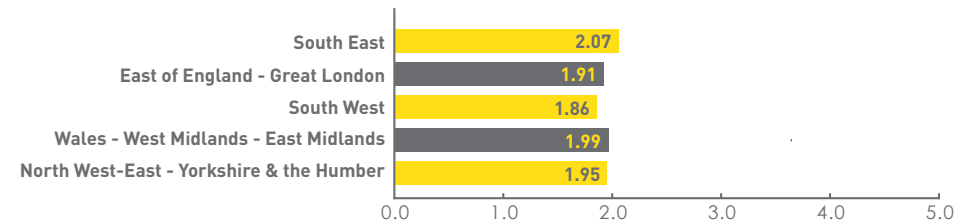
The investments by the government and businesses of the United Kingdom in building systems within their clusters have contributed to this moderate score that primarily resulted in enhanced efficiency levels for the vertical processes in each trade cluster. However, since trade is horizontal in process where handoffs have to be orchestrated effectively across all the clusters participating in the trade pipelines to realize optimal trade efficiency, it is important for the trade participants in the United Kingdom to embrace innovations that facilitate the streamlining of the horizontal trade processes.

### Processes by Economic Zone

Analyzing Processes scores by Economic Zone, all the zones uniformly showed some established processes due to investment in vertical in-house systems. However, efficiency gained through further investments in vertical systems is very limited as trade is a horizontal process.

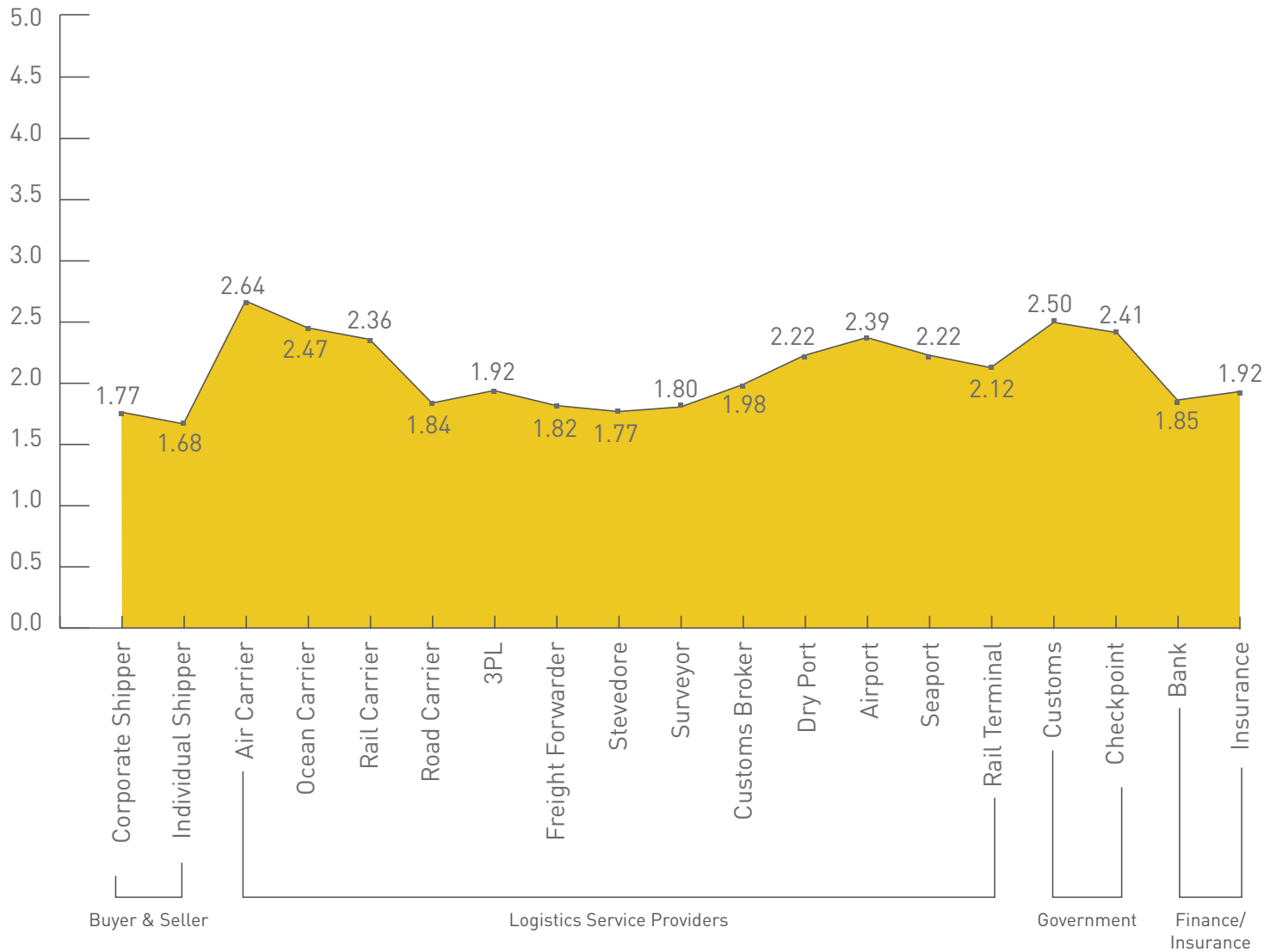
Industrially advanced South East (2.07) zone with its established processes that support international trade has scored the highest on Integration. The difference between the highest and the lowest scores is low at 4.2%, indicating a uniform opportunity to enhance Processes in all the zones.

For the Processes in the United Kingdom to be more effective and efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across the United Kingdom, further efficiency gains will be achieved in the horizontal Processes in all economic zones and will contribute to a further increase in the United Kingdom's overall trade efficiency.



## Processes Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 13.6% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

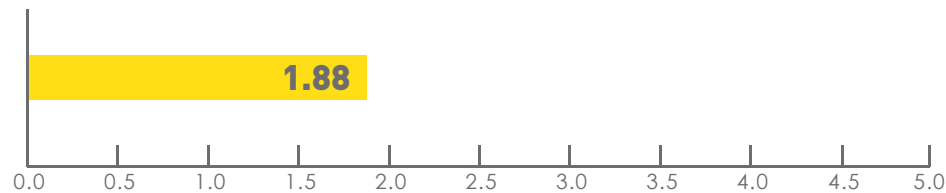
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal efficiency.

### The United Kingdom's Overall E-Documentation Score

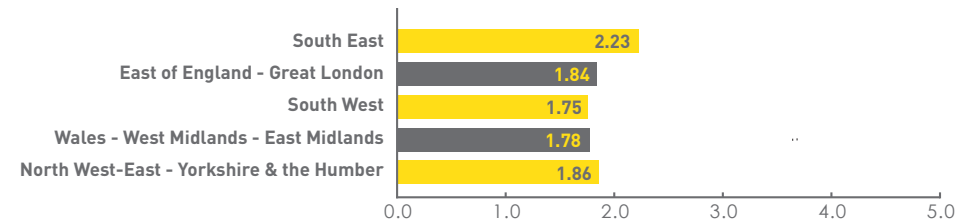
The overall national E-Documentation score of the United Kingdom is 1.88 on the 21-6-ETEI standard. This indicates that the existing investments in systems to facilitate trade have yielded moderate E-Documentation capability and that some significant steps can be implemented by the United Kingdom to attain optimal of E-Documentation capability.



### E-Documentation by Economic Zone

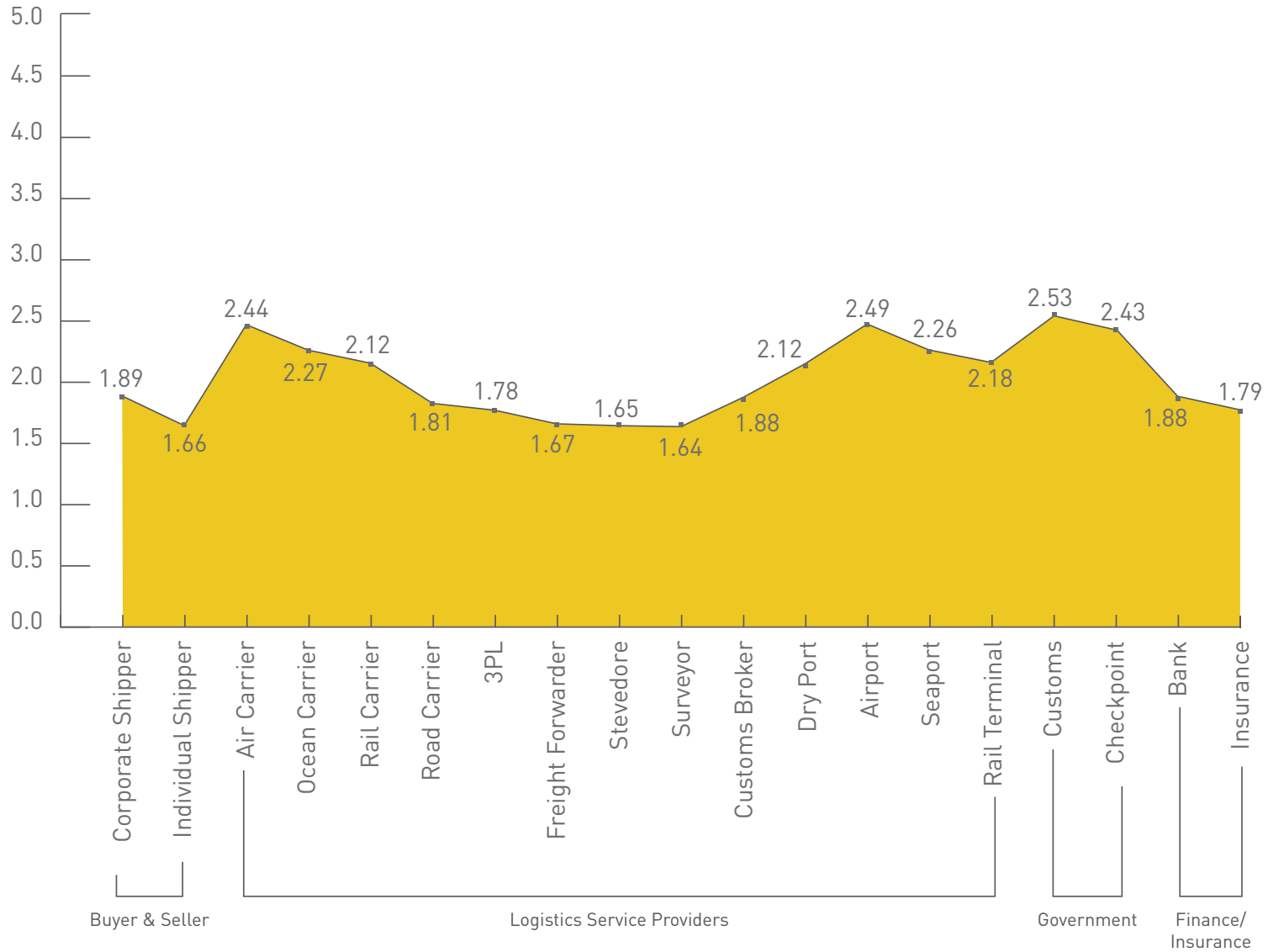
The South East (2.23) zone, which is the industrial gateway of the United Kingdom with a concentration of export-oriented advanced manufacturing industries, has scored the highest on E-Documentation. The other zones are relatively comparable with the difference between the highest and the lowest scores being moderate at 9.6%.

Hence, there is a countrywide opportunity to achieve optimal level of efficiency when an innovative E-Documentation capability is made available that is affordable and usable by all trade participants.



### E-Documentation Efficiency by Trade Cluster

- 61–80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- 21–40% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

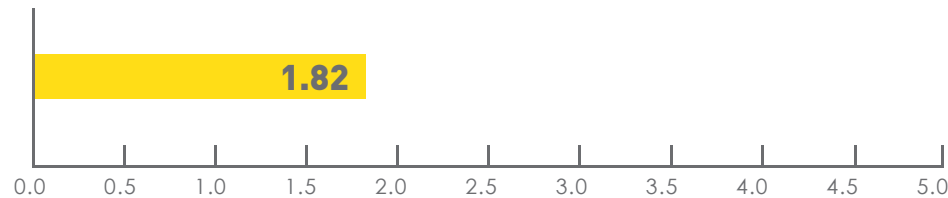
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability

### The United Kingdom's Overall Tracking & Visibility Score

The overall national Tracking & Visibility level in the United Kingdom is 1.82, which indicates that some significant steps can be implemented in order to attain optimal Tracking & Visibility performance.

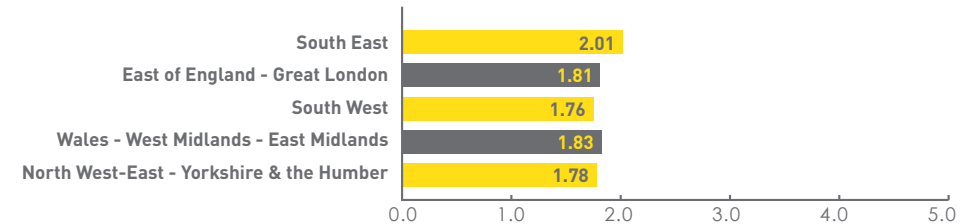


Several trade industry clusters have deployed technologies such as RFID, GPS, and IOT to realize this moderate score of 1.82. However, a concerted effort is needed by the government and industry to first increase the use of such innovative technologies that enhance Tracking & Visibility then integrate the systems across the clusters to share the Tracking & Visibility information in real-time to improve the score.

### Tracking & Visibility by Economic Zone

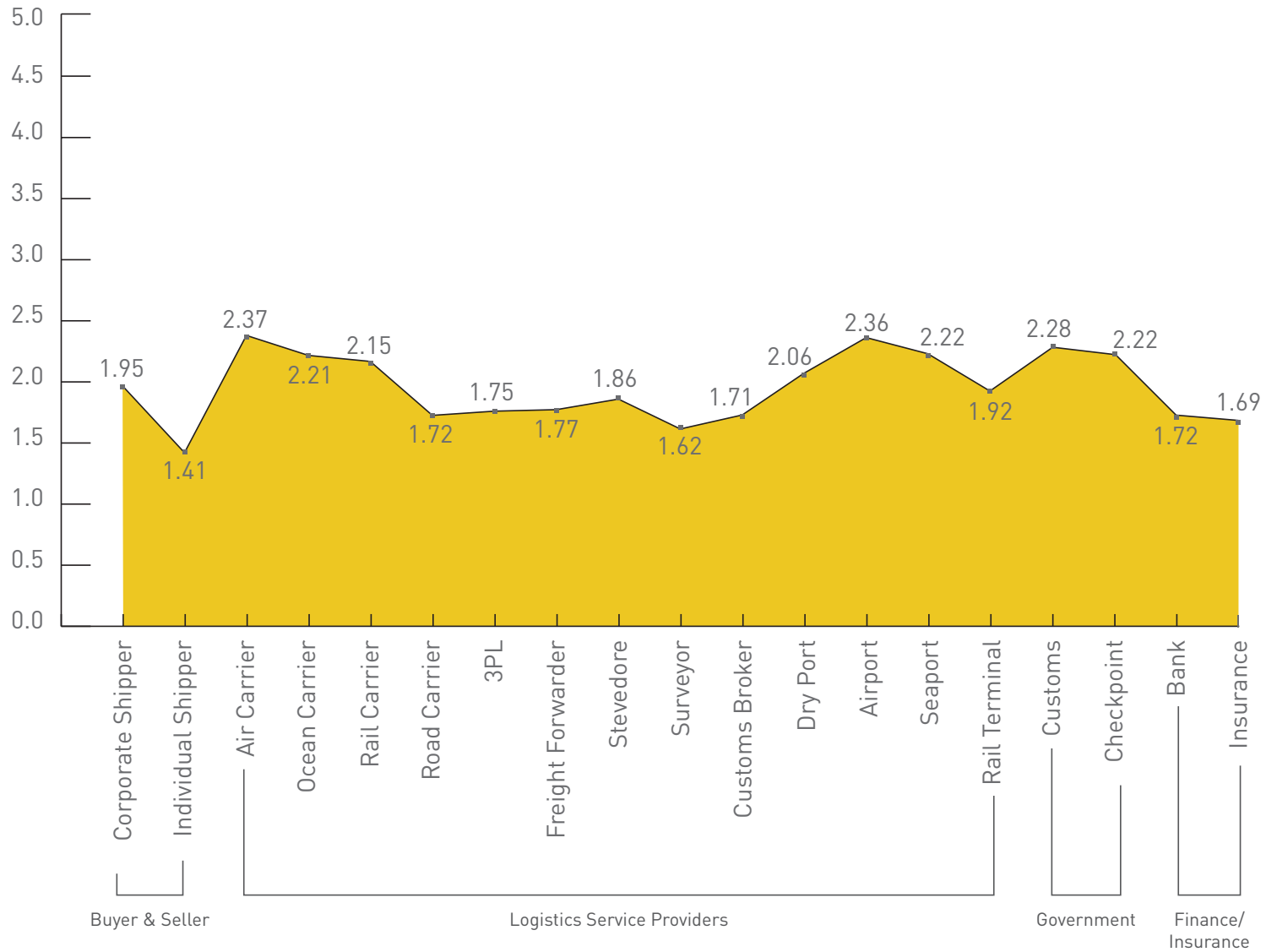
Analyzing the Tracking & Visibility by Economic Zone, a small difference of 5% between the highest and the lowest score indicates a uniform opportunity across the zones to enhance these moderate scores. The South East (2.01) zone, with its export-oriented and advanced-manufacturing industries has achieved the highest score.

When a right type of innovation is introduced that can improve Integration and E-Documentation, along with the other elements of trade efficiency, the United Kingdom can enhance its Tracking & Visibility to improve the operating efficiency of its businesses.



### Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

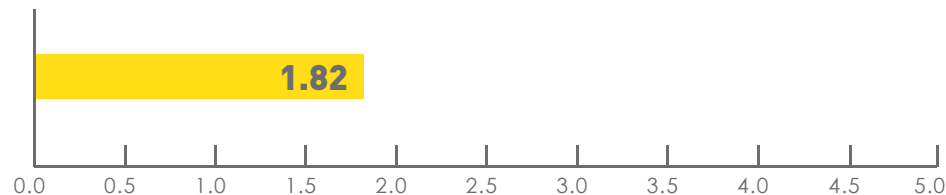
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in their trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence management processes and measurement methods within a trade pipeline

## The United Kingdom's Overall Competence Score

The overall national Competence level in the United Kingdom is 1.82. Given that a score of 5.0 reflects maximum efficiency, the United Kingdom's score indicates a low level of Competence and an opportunity for the United Kingdom to leverage its skilled and talented workforce to achieve significant improvement.

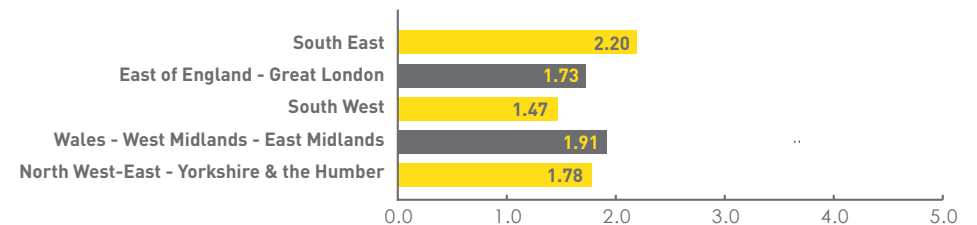


With its world renowned educational system that produces a large pool of educated workforce and the investments in training by the government and businesses, the United Kingdom has achieved a moderate Competence score of 1.82. However, the United Kingdom has an opportunity to make targeted improvements in Competence of its workforce by adopting innovations that empower participants to achieve competencies that are focused on enhancing trade efficiency.

## Competence by Economic Zone

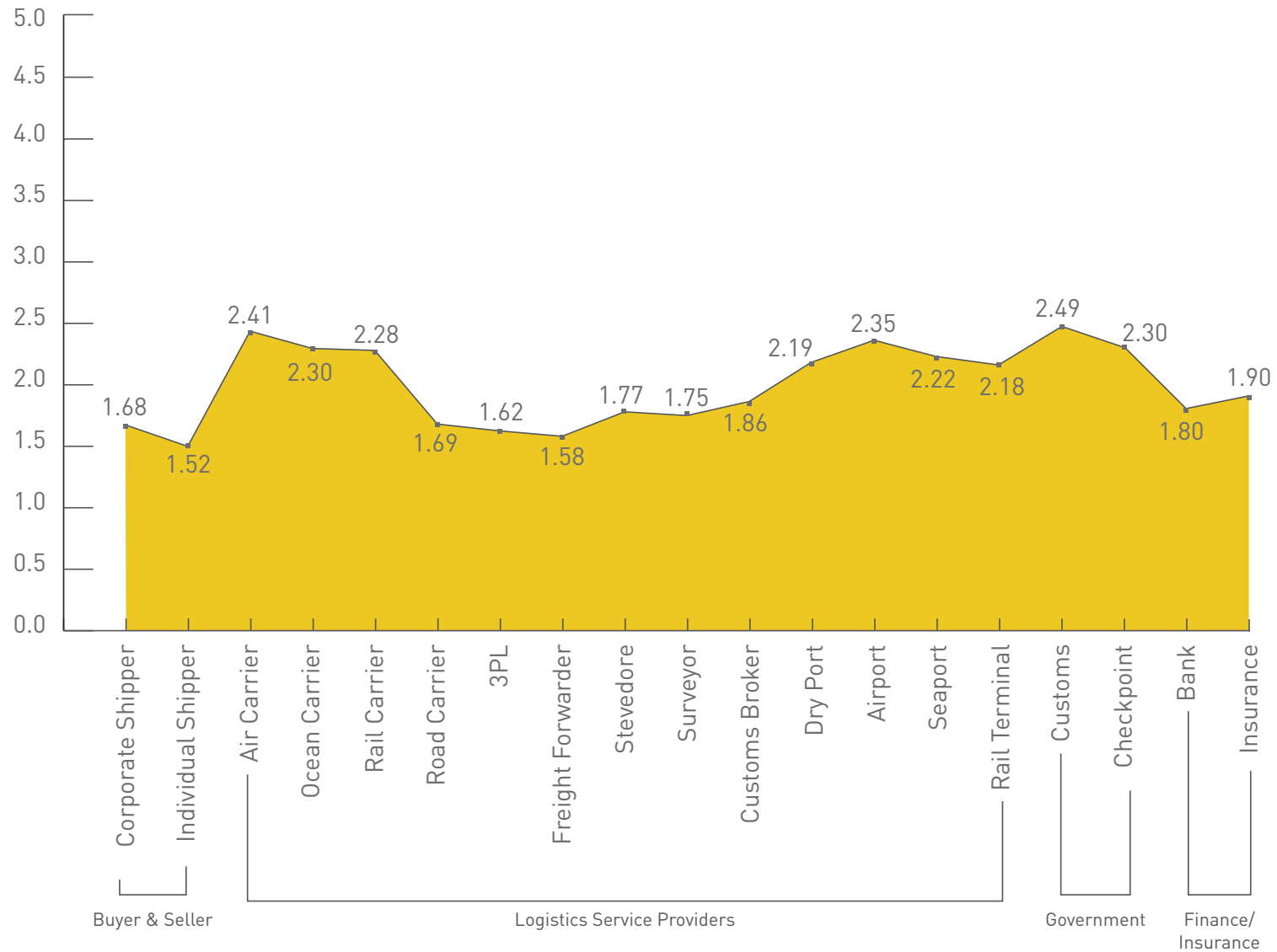
The South East (2.20) and Wales-West Midlands-East Midlands (1.91) zones, with their established educational institutions in training competent workforces, have scored higher than the other regions. The difference between the highest and lowest scores is significant at 14.6%, indicating disparities in Competence among the zones.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion and escalate issues when necessary, the Competence level of employees can be improved to achieve a superior level across all the economic zones, which in turn contributes to improving the efficiency of the trade pipelines of the United Kingdom.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

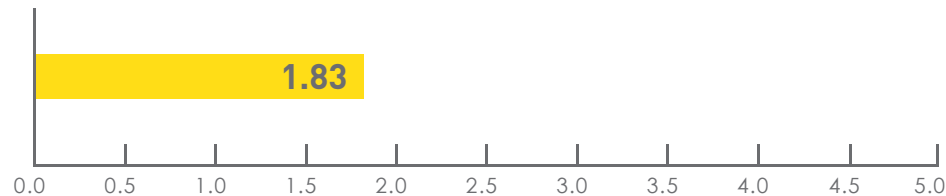
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures

### The United Kingdom's Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 indicates maximum implementation of Cargo Security measures, a moderate score of 1.83 indicates the United Kingdom's emphasis on the importance of and investments for improving Cargo Security. Nonetheless, with implementation of more comprehensive tools, the United Kingdom's level of Cargo Security nationwide can be improved.

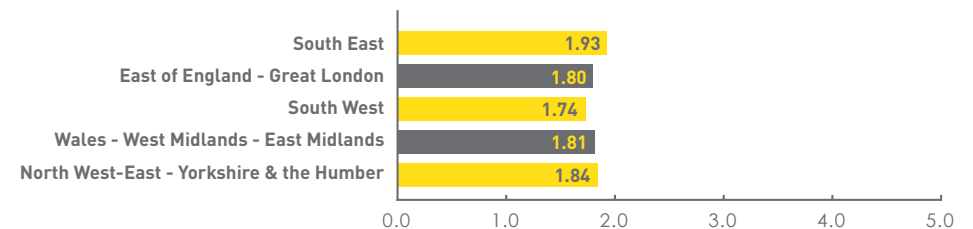


In the United Kingdom, the use of several trade facilitation systems that are easily accessible through the secure online portal of HM Revenue & Customs is ascribed to the United Kingdom's investment in security as it enables higher shipment visibility for government authorities. These systems allow trade participants to submit electronic import and export information to the government only once for each shipment through online portals. Such systems significantly simplify the compliance process for businesses and improve the quality of information provided to the government agencies, while enhancing their ability to conduct risk assessments that improve the security of global value chains.

### Cargo Security by Economic Zone

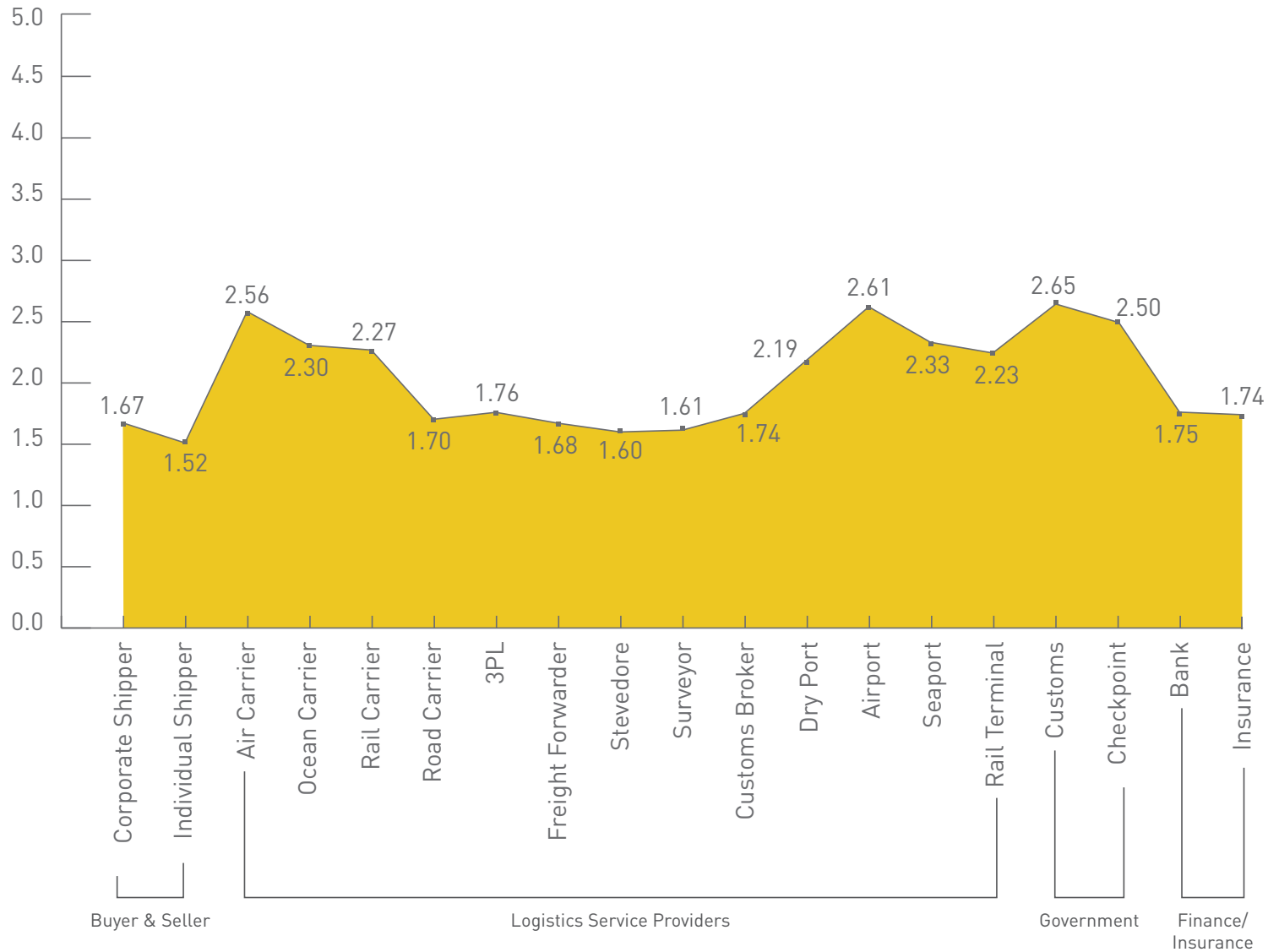
The South East (1.93) zone, with its established presence of export oriented industries has scored the highest in Cargo Security. This is made possible by the higher scores achieved by this zone on Integration, E-Documentation, and Tracking & Visibility, which jointly provide the real-time information needed by the government agencies to proactively analyze shipment data proactively and enhance Cargo Security.

The difference between the highest and the lowest scores is very small at 3.8%. This indicates that all the zones scored comparably and that by embracing digital innovations that can concurrently enhance the scores on all the six elements of the 21-6-ETEI standard can provide a uniform opportunity to enhance Cargo Security of all the zones.



### Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



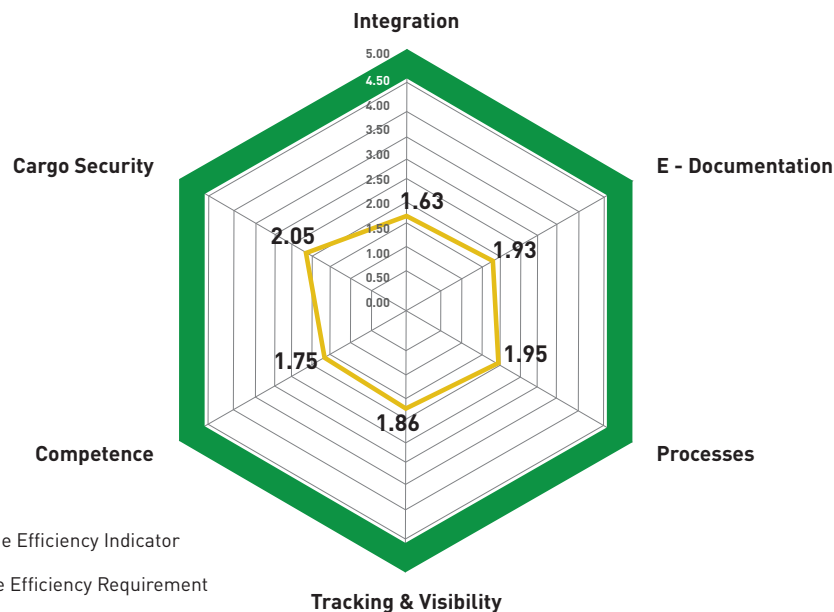


## The United States' Trade Efficiency Relative to the New Millennium Standard for Growth

We have evaluated United States' current trade efficiency in relation to the 21-6-ETEI standard of an optimally performing trade environment based on what technology makes possible today. In the following pages we will summarize the findings from the United States Trade Shipment Efficiency Assessment (SEA) Report in terms of the performance of the country, individual economic zones, and trade clusters across the 6 elements of efficiency—Integration, Processes, E-Documentation, Tracking & Visibility, Competence, and Cargo Security. Please refer to the United States SEA Report for a more detailed analysis and specific recommendations to improve efficiency.

The chart below illustrates the performance of each element in relation to the 21-6-ETEI standard. Upon Implementation of the United States SEA Report recommendations, the United States can achieve peak performance in each of the six elements, resulting in a yearly international and domestic trade cost savings of USD 735.8 billion, placing United State at the forefront of a new era of trade efficiency. This new level of efficiency will serve as a solid foundation for increasing trade by USD 480 billion annually and create 3.2 million jobs by 2030, meeting the economic ambitions of the United States.

### The United States' Trade Efficiency Based on 21<sup>st</sup> Century 6 Elements Trade Efficiency Indicators (21-6-ETEI)



# INTEGRATION

## Findings – Data

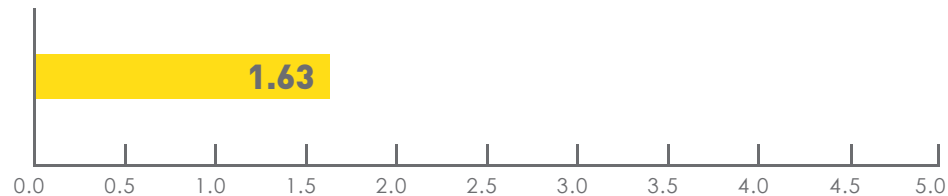
Integration Efficiency scale in brief:

**Level 1** = Absence of effective Integration systems, extensive use of phone/fax/post mail/email for communication, and a high degree of data redundancy. The efficiency of a trade pipeline cannot be more than that of its weakest participant. Hence, by using in-house vertical systems, without horizontal integration with all trade pipeline participants, a participant can score 2.5 at the most.

**Level 5** = Presence of effective Integration and communication systems, low degree of data redundancy

## The United States' Overall Integration Score

This represents the aggregate data on a national level from the nineteen clusters surveyed in the United States. Collectively, they have scored 1.63 out of a possible 5.0. The top score of 5.0 represents the optimal use of technology in the field of Integration.

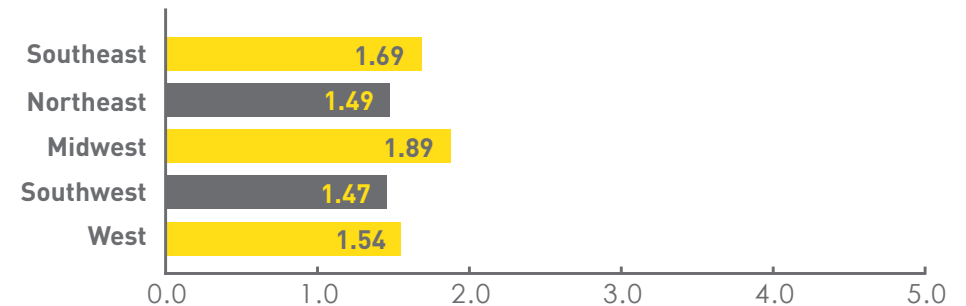


The United States has invested in the ACE National Single Window that provides access to the systems of over 45 participating government agencies in a single portal to facilitate trade. Several initiatives are promoted by the United States to enhance collaboration between government and the private sector. A similar effort is needed by the government to create a favorable regulatory environment that provides incentives for the trade participants in the private sector to integrate their systems electronically in order to exchange trade information and significantly improve the United States' overall Integration score.

## Integration by Economic Zone

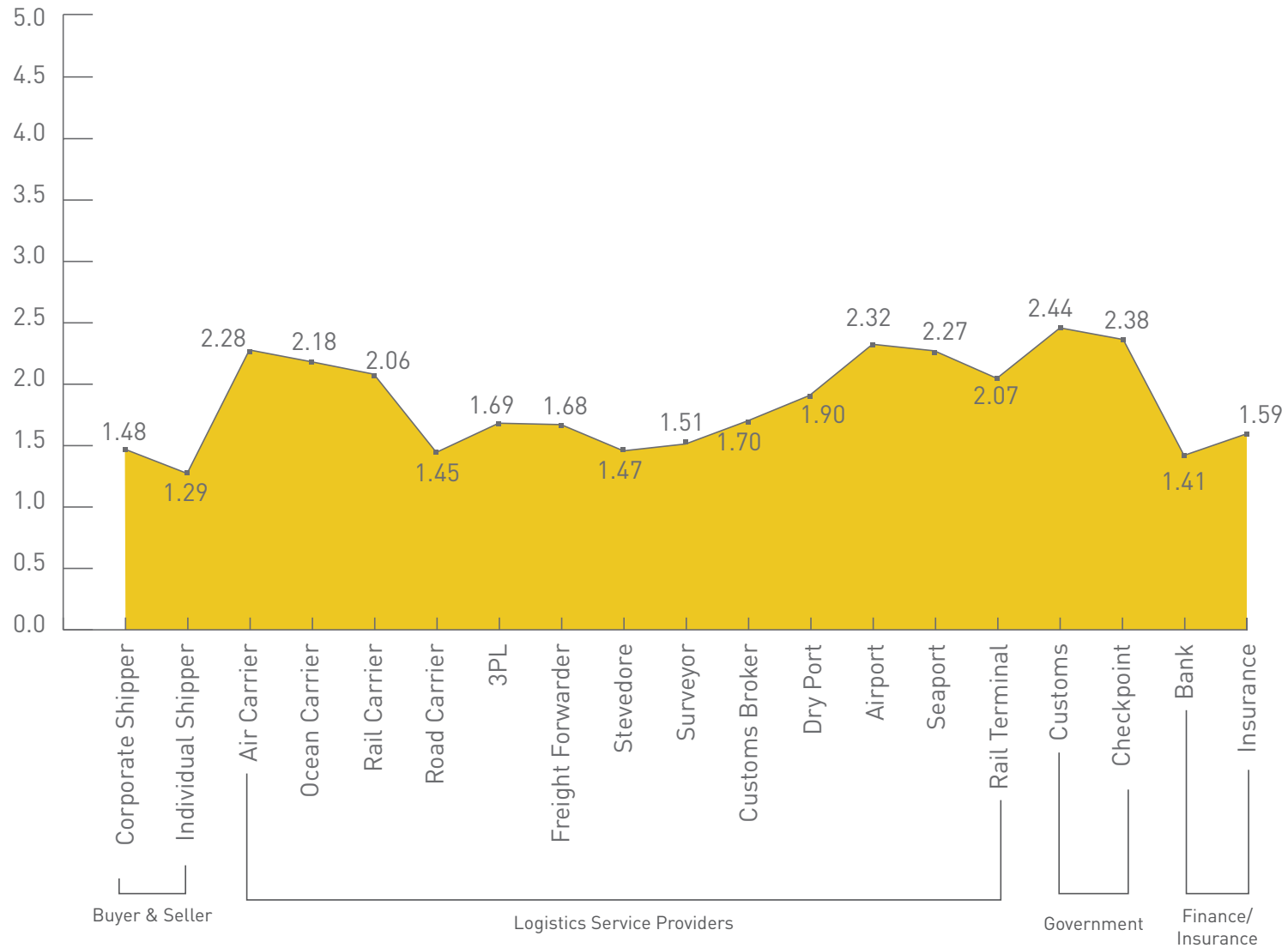
It is worth noting that the Midwest (1.89) zone, home to the automobile and heavy machinery industries, has the highest score on Integration, primarily due to the investments these industries have made over the last fifty years in the Electronic Data Interchange (EDI) technologies to integrate the operations of their value chain partners.

The difference in Integration scores of the highest scoring Midwest (1.89) zone and the lowest scoring Southwest (1.47) zone is moderate at 8.4%. This indicates that the levels of Integration across the zones are comparable and can be enhanced with a focus on appropriate innovation.



### Integration Efficiency by Trade Cluster

- 77.6% of trade participants do not have Integrated Systems
- 31–50% of shipment data is re-entered in multiple forms
- 88.9% of shipment communications are manual (Postal Mail / Fax / Phone / Email)



## PROCESSES

### Findings – Data

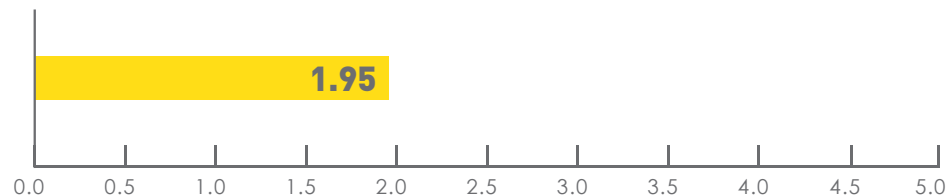
Processes Efficiency scale in brief:

**Level 1=** Absent or incomplete Processes in a trade lane pipeline. The use of Electronic Resource Planning (ERP) systems can help automate processes among supply chain partners of an enterprise. However, by just investing in such vertical systems without establishing automated horizontal connectivity with the participants in the other clusters of the trade pipeline, an organization can score 2.5 at the most.

**Level 5=** Optimum and complete Processes in a trade lane pipeline.

### The United States' Overall Processes Score

The following result represents the overall national Processes score, that assesses the use of available tools and manpower for managing shipments within the trade pipeline. Collectively, the trade participants in the United States have scored a 1.95 out of a possible 5.0 on the 21-6-ETEI scale.



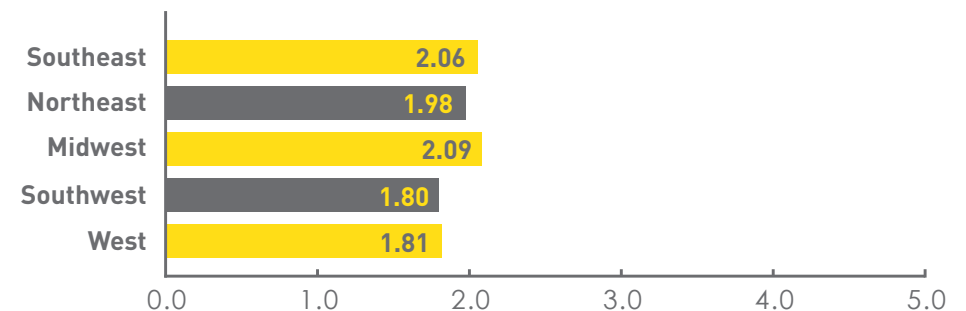
The Processes score of the United States (1.95) is in the midrange of the Processes scores of the other G20 Nations. This indicates that significant efforts are needed by its businesses and the government to invest in increasing the maturity of its horizontal processes, in addition to its current focus on automating the vertical processes in its trade pipelines.

### Processes by Economic Zone

Analyzing Processes scores by Economic Zone, all five zones show some established processes due to their investments in vertical in-house systems. Midwest (2.09) and Southeast (2.06) zones, with their significant investments into the vertical systems that power their advanced manufacturing industries, have scored relatively higher than the other zones.

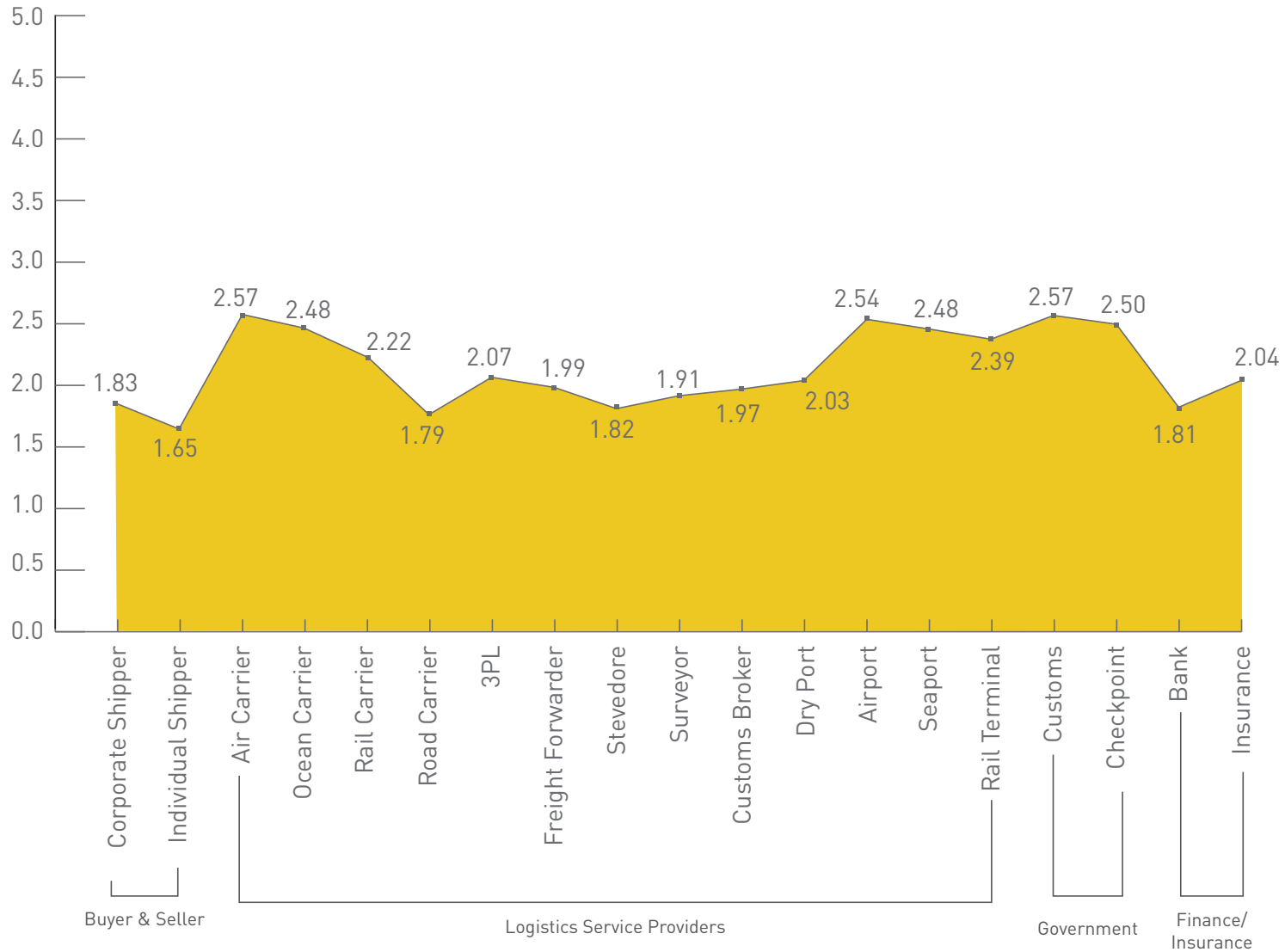
The difference between the highest and lowest scores is small at 5.8%, indicating that the zones are comparable in their Processes.

For the Processes in the United States to be more efficient, there must be an increased level of Integration in order to support the horizontal processes across trade pipelines. Hence, with improved Integration across the United States, further efficiency gains will be achieved in the horizontal Processes in all economic zones and will contribute to a further increase in the United States' overall trade efficiency.



## Processes Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to Processes incompatibility
- 15.6% of participants use ERP systems; those firms that automate processes typically use off-the-shelf not customized systems
- 8-30 days to become aware of changes to BSCIFI documentation requirements



## E-DOCUMENTATION

### Findings – Data

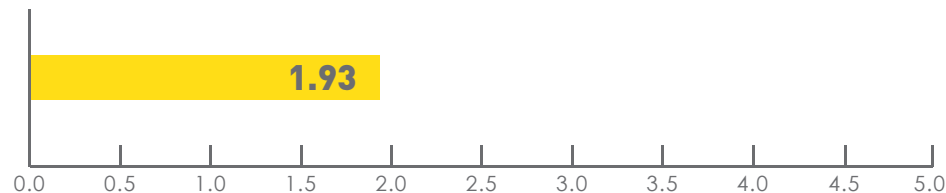
E-Documentation Efficiency scale in brief:

**Level 1** = Paper-based documentation, high level of data rekeying and potential errors, minimal validation resulting in low efficiency. The E-Documentation score measures the extent of the use of automated information exchange among the participants across all the industry clusters involved in a trade pipeline. Hence, a participant that invests in its own vertical systems but does not establish horizontal integration to hand off documents electronically can obtain a score of 2.5 at the most.

**Level 5** = Electronically-based documentation, minimal keystrokes and errors, maximum validation resulting in optimal E-Documentation Efficiency.

### The United States' Overall E-Documentation Score

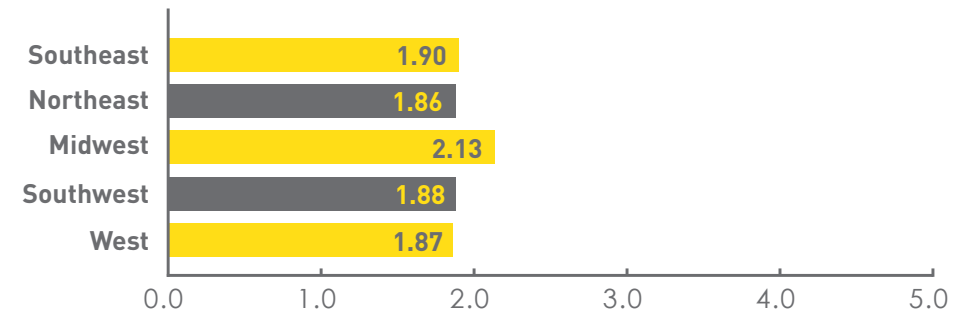
The overall national E-Documentation score of the United States is 1.93, which is one of the highest scores among the G20 Nations. This score indicates that some significant initiatives need to be implemented by the United States to attain an optimal level of E-Documentation capability. Similar to the way it rolled out the ACE National Single Window that brought together the systems of 47 participating government agencies to accept E-Documentation to facilitate trade, the United States needs to expand its National Single Window initiative into Regional and Global Single Windows to promote optimal E-Documentation across its global value chains.



### E-Documentation by Economic Zone

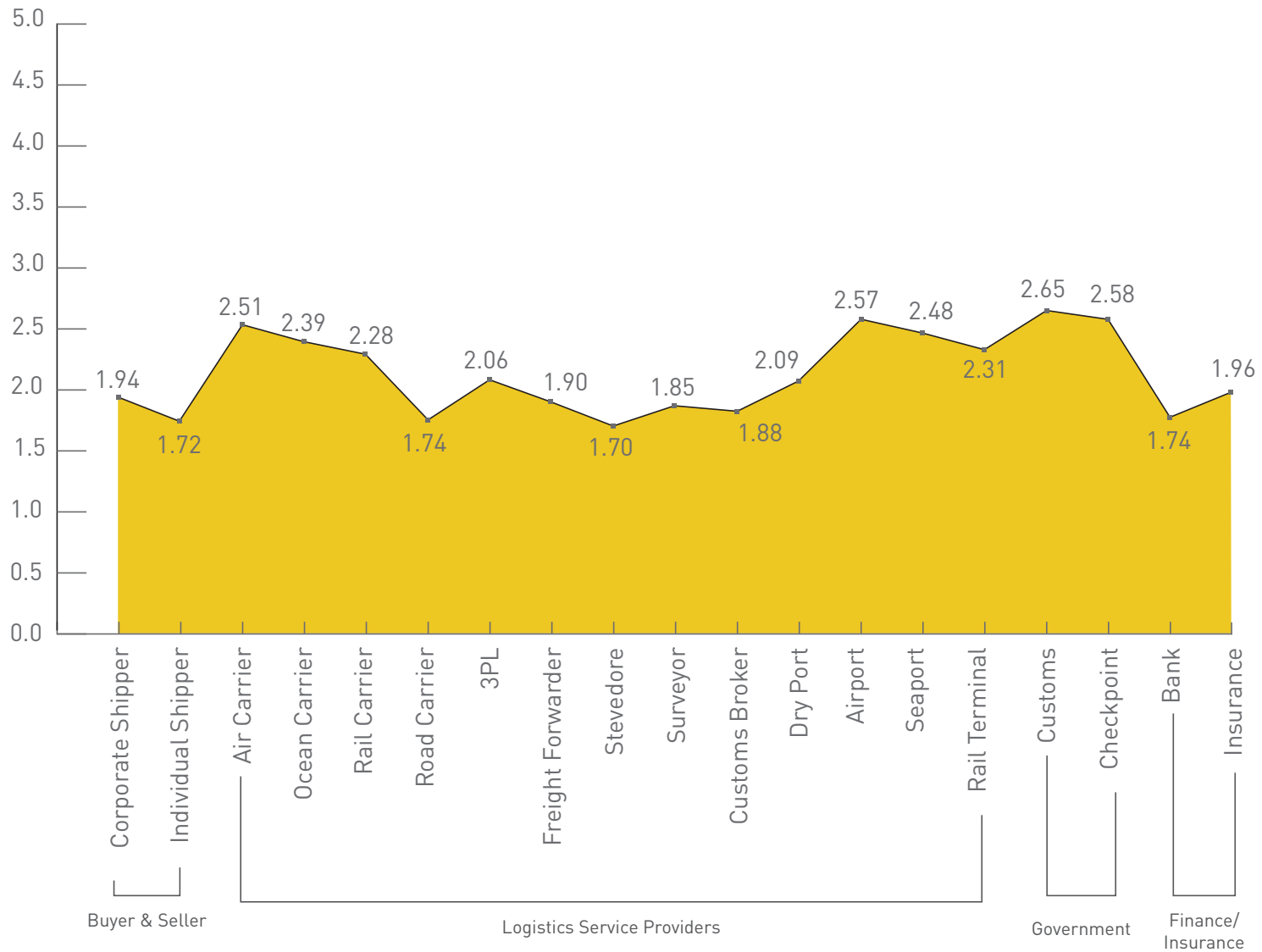
Examining the E-Documentation scores by Economic Zone, all zones scored comparably with the difference between the highest and lowest scores being low at 5.4%. The Midwest (2.13) zone with its leadership in driving the adoption of Electronic Data Interchange (EDI) to automate the handoff of information between the supply chain partners has scored the highest. All the other zones scored around 1.9, indicating a uniform use of E-Documentation.

Hence, there is a countrywide opportunity to achieve optimal level of efficiency when an E-Documentation capability is made available.



### E-Documentation Efficiency by Trade Cluster

- 61-80% of shipment data is re-entered due to systems incompatibility, with occasional data validation
- 21-40% of trade participants offer E-Documentation submission to their trade partners



## TRACKING & VISIBILITY

### Findings – Data

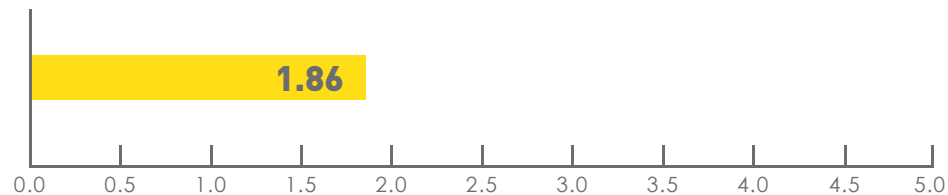
Tracking & Visibility Efficiency scale in brief:

**Level 1** = Little or no Tracking & Visibility capability. A participant that invests in technologies such as RFID and GPS to enhance Tracking & Visibility of shipments within its operational scope alone can score 2.5 at the most. It would require all its trade lane pipeline partners to have such capabilities, and be integrated, in order to increase its score above 2.5.

**Level 5** = Optimum level of global Tracking & Visibility capability

### The United States' Overall Tracking & Visibility Score

The overall national Tracking & Visibility level in the United States is 1.86, which indicates that some significant steps can be implemented in order to attain an optimum level of Tracking & Visibility performance.



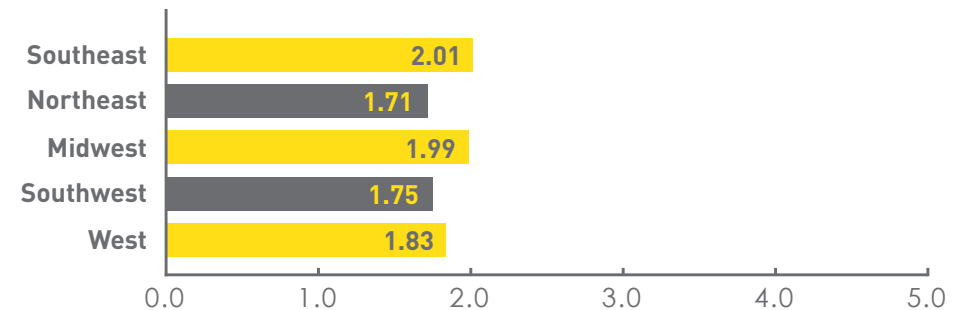
Due to its leadership in technology innovations such as GPS, RFID, IOT, and other tracking technologies, the United States scores high among G20 Nations in Tracking & Visibility. However the geographical diversity, large number of locations to be tracked, and the high volume of goods movement, the United States faces significant challenges in enhancing its Tracking & Visibility Efficiency further.

Hence, the United States needs to leverage all available approaches and innovative technologies to enhance its Tracking & Visibility score within its jurisdictions as well as in its global value chains.

### Tracking & Visibility by Economic Zone

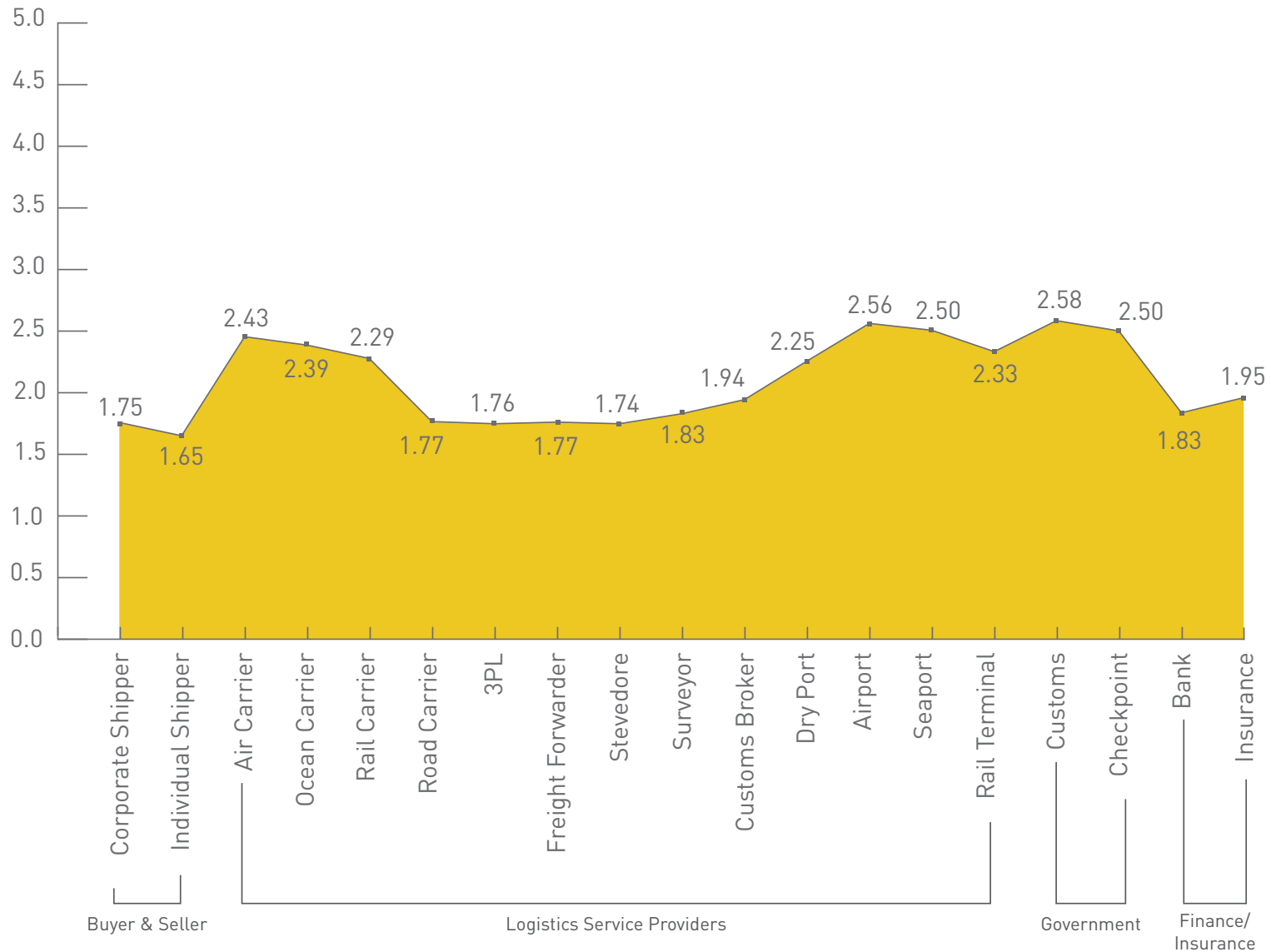
Analyzing the Tracking & Visibility by Economic Zone, all the zones scored comparably with the difference between the highest and lowest scores being low at 6%. Southeast (2.01) and Midwest (1.99) zones, with their established supply chains that feed the advanced manufacturing industries, have scored relatively higher than the other zones.

These scores indicate that there is a countrywide opportunity to improve Tracking & Visibility when a right type of innovation is introduced.



## Tracking & Visibility by Trade Cluster

- Some participants use GPS/RFID to track shipments, but not all the time
- Participants receive alerts within days for some of their shipments



# COMPETENCE

## Findings – Data

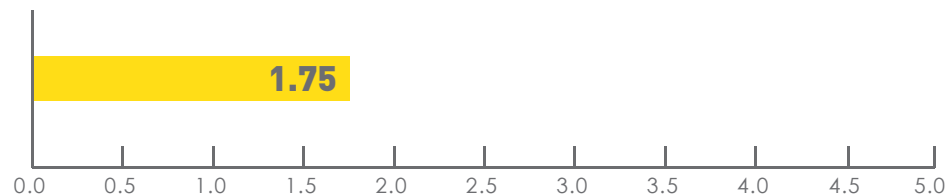
Competence Efficiency scale in brief:

**Level 1** = Absence of effective Competence management processes and measurement methods within a trade pipeline. A participant that uses in-house Enterprise Resource Planning (ERP) systems to transform contractual obligations into electronic metrics will contribute to increasing its human resource competence. Investments in vertical systems alone can enable such organizations to score up to 2.5. However, they need all other participants in their trade pipelines to have similar capabilities to score higher than that.

**Level 5** = Optimal and complete Competence processes and measurement methods within a trade pipeline

## The United States' Overall Competence Score

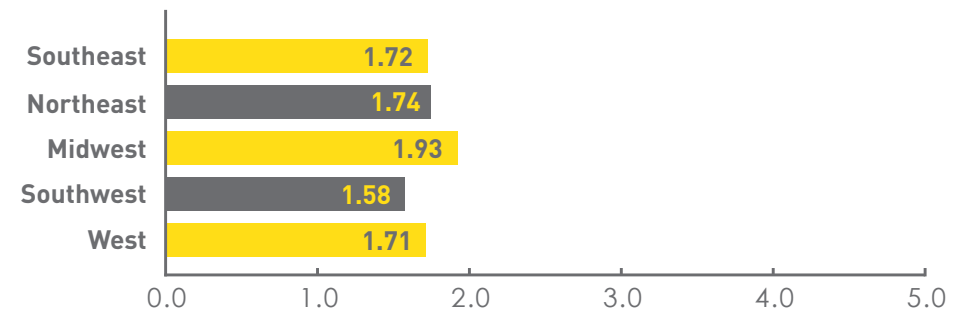
The overall national Competence level in the United States is 1.75. Given that a score of 5.0 reflects maximum efficiency, the United States' score reflects a low level of Competence and an opportunity for the United States to leverage its skilled and talented workforce to achieve significant improvement. With its established academic institutions that are renowned worldwide for investing in human resources training, the United States has scored at the high end among the G20 Nations on Competence. However, innovative digital tools that transform contractual obligations into electronic metrics and training its workforce on using such tools for enhancing trade specific Competencies is required for the United States to optimize its Competency score.



## Competence by Economic Zone

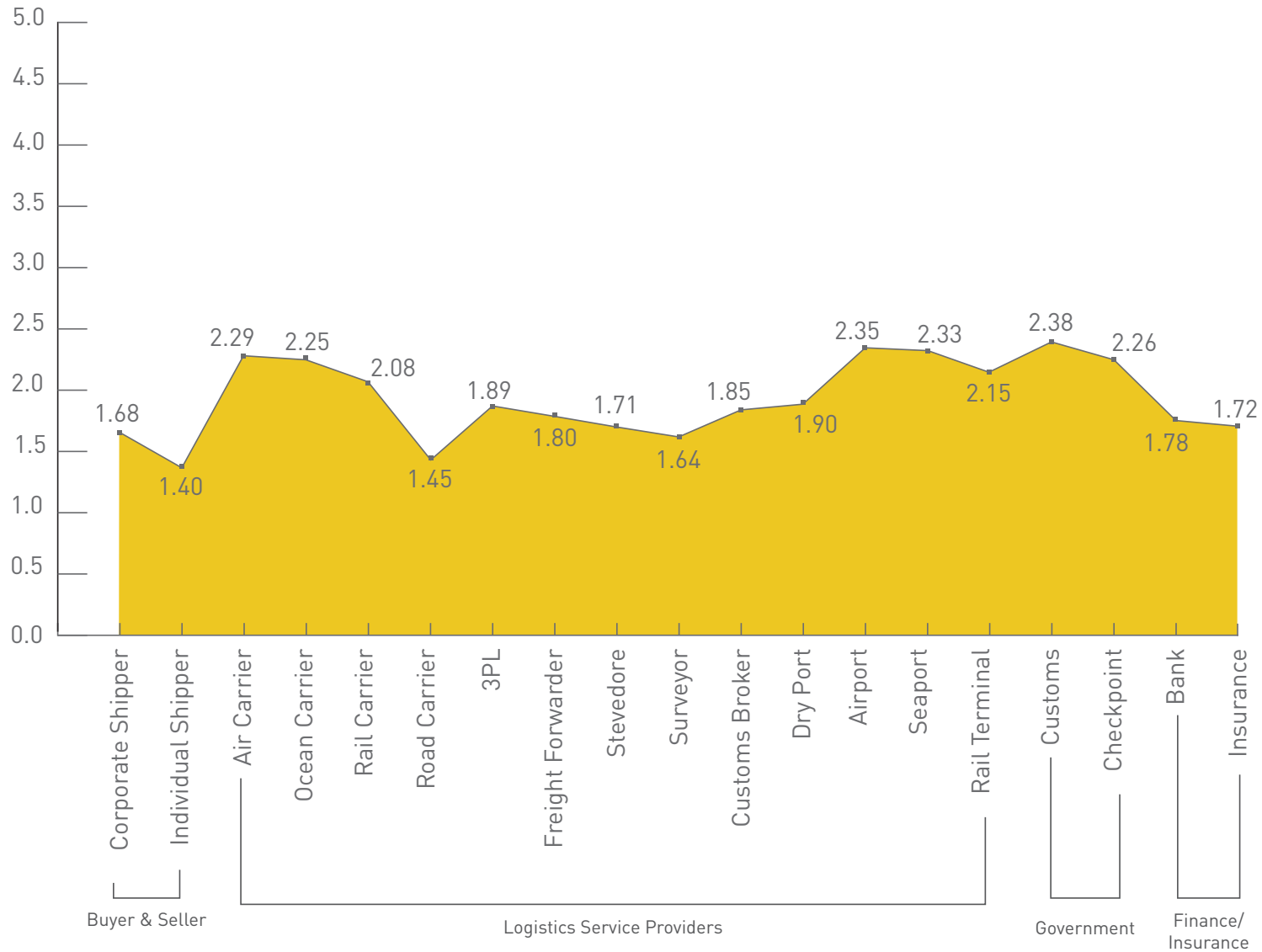
Analyzing the Competence results across the Economic Zones in the United States, the Midwest (1.93) zone scored the highest. All the other zones have comparable Competence scores with the difference between the highest and lowest scores being moderately low at 7%, indicating a countrywide opportunity to enhance Competence.

With the use of more advanced tools to transform contractual obligations into electronic metrics, monitor job completion and escalate issues when necessary, the competence level of employees can be improved to optimal levels across all the economic zones, which in turn, contributes to improving the efficiency of the trade pipelines across the United States.



## Competence Efficiency by Trade Cluster

- Participants train a few employees, some of the time
- Those participants who automate the management of Competence typically use off-the-shelf not customized systems



## CARGO SECURITY

### Findings – Data

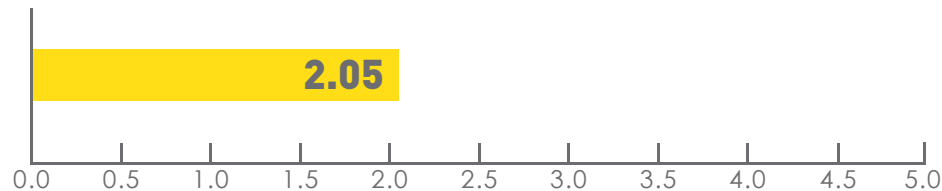
Cargo Security Efficiency scale in brief:

**Level 1** = Absence of effective Cargo Security procedures. Shelf-to-shelf Cargo Security depends on the collective effort of the participants in trade pipelines, whether they are domestic or international. However, an organization that invests in its vertical systems to enhance its Cargo Security, without any horizontal integration, can obtain a Cargo Security score of 2.5 at the most.

**Level 5** = Presence of effective Cargo Security procedures

### The United States' Overall Cargo Security Score

The overall national Cargo Security level represents aggregated data from all surveyed participants. Given that a score of 5.0 reflects maximum implementation of Cargo Security measures, a moderate score of 2.05, which is one of the highest scores among the G20 Nations, indicates that the investments made by the United States for improving Cargo Security in the last fifteen years have been effective.



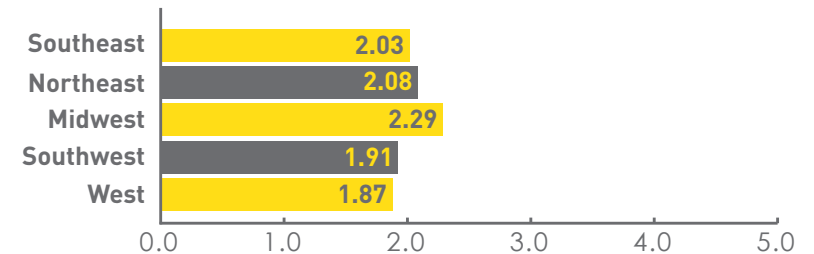
The implementation of several innovative programs such as C-TPAT, ATS, FAST, eCSD, and ACE National Single Window, have all contributed to the increase availability of timely information needed for the government agencies of the United States to detect and intercept dangerous cargo.

Nonetheless, with implementation of more comprehensive tools that connect all the vertical systems across its global value chains, the United States can enhance its Cargo Security within and outside the nation.

### Cargo Security by Economic Zone

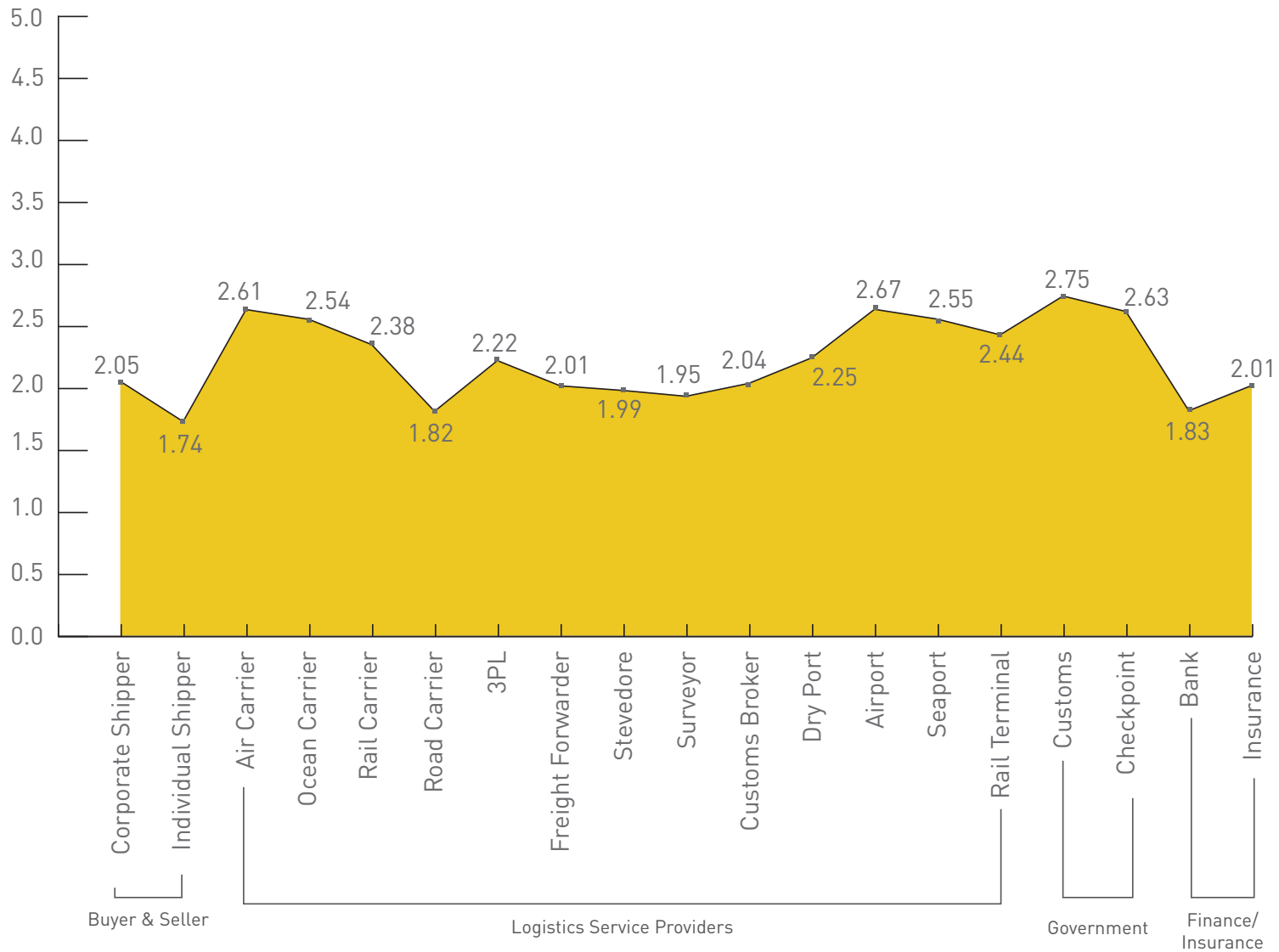
Analyzing Cargo Security by Economic Zone, the Midwest (2.29), Northeast (2.08), and Southeast (2.03) zones have scored relatively higher than the other zones. However, the difference between the highest and the lowest scores is moderate at 7.6%, indicating that all economic zones are comparable.

In an era where international trade accounts for over 60% of the GDP of nations, embracing innovations that enhance Cargo Security is a must for the United States to sustain its economic prosperity.



### Cargo Security Efficiency by Trade Cluster

- 21-40% of trade partners ask for Cargo Security information—domestically or globally
- The shipment security information sent and received is ≤50% complete



## GLOSSARY OF TERMS

## Glossary

<b>21-6-EETI</b>	21st Century 6 Elements Trade Efficiency Indicators	<b>ICS</b>	Integrated Cargo System
<b>APAC</b>	Asia Pacific Region	<b>IHS</b>	Integrated Horizontal System
<b>ABAC</b>	APEC Business Advisory Council	<b>IPE</b>	Interdependent Process Environment
<b>ADB</b>	Asian Development Bank	<b>JIT</b>	Just in Time
<b>ADFIAP</b>	Association of Development Financing Institutions in Asia Pacific	<b>KANBAN</b>	Variation of Inventory Level (Japanese terminology)
<b>APEC</b>	Asia-Pacific Economic Cooperation	<b>LPI</b>	Logistics Performance Index
<b>ASEAN</b>	Association of Southeast Asian Nations	<b>LSP</b>	Logistics Service Provider
<b>BSCIFI</b>	Buy/Sell, Country, Industry, Finance and Insurance Requirements	<b>MOU</b>	Memorandum of Understanding
<b>BTL</b>	Benchmark Trade Lane	<b>NGO</b>	Non-Governmental Organization
<b>DEP</b>	Digital Economy Platform	<b>NTD</b>	National Trade Dashboard
<b>EDI</b>	Electronic Data Interchange	<b>RFID</b>	Radio Frequency Identification
<b>ERP</b>	Enterprise Resource Planning	<b>SEA</b>	Shipment and Trade Efficiency Assessment
<b>CFIT</b>	Commerce, Finance, Insurance and Technology	<b>SME</b>	Small and Medium-sized Enterprises
<b>FTP</b>	File Transfer Protocol	<b>UDE</b>	Universal Data Elements
<b>GCEL</b>	Global Coalition for Efficient Logistics	<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>GDP</b>	Gross Domestic Product	<b>UNESCAP</b>	United Nations Economic and Social Commission for Asia and the Pacific
<b>GPS</b>	Global Positioning System	<b>WFDI</b>	World Federation of Development Financing Institutions
<b>ICAO</b>	International Civil Aviation Organization		





