

MAKING CO₂ REDUCTION **PROFITABLE** THROUGH THE DIGITAL ECONOMY



GLOBAL COALITION
FOR EFFICIENT LOGISTICS





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INTRODUCTION

ACHIEVING A GREENER PLANET THROUGH THE POWER OF TODAY'S 21ST CENTURY TECHNOLOGY

The inability to achieve a greener environment is largely due to two primary challenges. First, there is a lack of real time information about high carbon emission activities within the global value chains. Second, there is a global divide regarding who will bear the cost to implement the necessary measures to make our planet safer for future generations, while ensuring continued economic growth for all nations.

In collaboration with prominent private and public sector organizations worldwide, the Coalition aims to make the reduction of Co₂ emissions profitable through the Digital Economy. The Coalition's proposed Digital Economy Platform is a strategic solution to achieve sustainable economic growth by providing digital visibility of the Co₂ emissions across the world's trade lanes; and, second, by providing the required digital tools to reduce the Co₂ emissions while making businesses more profitable.

The key is to make a short-term investment in digital tools for the global B2B marketplace that will, in the long run, rebalance and grow the global economy while incentivizing businesses to reduce their overall Co₂ emissions.

A Global Public-Private Coalition Committed To Lower The Carbon Footprint Benefiting All

THE COALITION is a Swiss based, non-profit public-private partnership that is leading a global economic development program ("HumaWealth") with regional implementation powered by a Digital Economy Platform (DEP). The public sector involves 150 countries through their pan regional organizations representing 75% of the world's population. The private sector encompasses the world's leading 12 information technology firms working in collaboration with more than 57 national e-commerce, finance, and insurance firms globally.

THE COALITION'S OBJECTIVE is to lower carbon emissions in the B2B market place by at least 230 million metric tons annually and unleash a 17% increase in the world's GDP by 2035. In addition, the Coalition aims to generate a new USD 20 trillion digital services industry globally, and create more than 400 million manufacturing, agriculture, and services jobs worldwide. The DEP's innovative tools will accelerate the achievement of the G20 Leaders' digital economy objectives to create a greener global economy, grow SME prosperity and expand the middle class, enhance supply chain resiliency, and accelerate achieving 11 of 17 UN Sustainable Development Goals.

THE DIGITAL ECONOMY PLATFORM is called MDDEAS® (Multi-Dimensional Digital Economy Application System). The MDDEAS® is protected by international patents and digitizes the B2B marketplace end users by providing free of cost logistics, operations, and financial apps and communications tools to efficiently conduct their B2B activities. MDDEAS® empowers national banks, insurance, and e-commerce firms with new digital features to expand services to businesses more efficiently and generate a new multi-trillion market opportunity.

THE MDDEAS® delivers seamlessly integrated e-commerce, e-finance, e-insurance, and e-logistics platforms that facilitate productive social distancing, de-risk doing business, reduce excess costs, and ease access to finance and insurance, thus resulting in rebalancing and growing global commerce. Utilizing Artificial Intelligence, Big Data Analytics, and Blockchain technologies, MDDEAS® provides seamless point-to-world integration via plug-in or portal-in access for enterprises of all sizes.



INTRODUCTION

ACHIEVING A GREENER PLANET THROUGH THE POWER OF TODAY'S 21ST CENTURY TECHNOLOGY - *Continued*

The Coalition's achievements through more than 15 years of R&D towards deployment of the MDDEAS® include:

-  **GLOBAL POLICY ADOPTION:** The Council's participation at the G20/B20 Forums contributed to the G20 Leaders' adoption of the Digital Economy as a key policy directive to achieve sustained global economic growth.
-  **END-USER DEMAND:** 94.5% of B2B participants representing nearly 80% of the world's GDP demand the MDDEAS®, as confirmed by the Coalition's G20 Nations Case Study, a diagnostic assessment of B2B efficiency, performed with 90 G20 ministries, IGOs/NGOs, academia and private sector experts, including Deloitte, Frost & Sullivan and the Nielsen Company.
-  **TECHNOLOGY INDUSTRY COMMITMENT:** 34 technology firms, including the world's leading companies with annual revenues of more than USD 470 billion and a 4.4 million workforce, have signed exclusive strategic agreements with the Council towards selection to deploy the MDDEAS® globally.
-  **CENTER OF EXCELLENCE ESTABLISHMENT:** Supported by India's Prime Minister's Office and nine Union ministries, the Telangana State Government and India's top 5 technology firms executed preliminary agreements towards selection to host, maintain and enhance the MDDEAS® under the E-Hub of the World with continuous use safeguarded by the United Nations, a Coalition member via the UN Capital Development Fund.
-  **DEPLOYMENT PROGRAM:** Agreements have been executed to initially deploy the MDDEAS® in Germany, Italy, the United Kingdom, India, Indonesia, and Malaysia.
-  **NATIONAL ADOPTION AGREEMENTS:** More than 150 countries, through their pan-regional organizations representing about 75% of the world's population, have executed strategic agreements with the Council to promote the adoption of the MDDEAS®. These organizations include the Union for the Mediterranean, Organization of American States, Organization of Islamic Cooperation, League of Arab States, and African Union. Agreements have been completed with national e-commerce, financial, and insurance firms to enroll their 80 million registered users on the platform.



UNCONTROLLABLE CHALLENGES

Today, our world encompasses High-Income Countries (HIC), representing 15% of the world's population, and Mid and Low-Income Countries (MIC and LIC, respectively), comprising the remaining 85%. HIC are challenged by an aging population with low birth rates. They have efficient production that far exceeds their market demand. Meanwhile, MIC and LIC have large populations and high birth rates. But their communities cannot afford the products and services of the HIC. Their industries are concentrated in SMEs, making them risky for HIC to work with and preventing them from becoming wealthy enough to afford high-value products. This imbalance is at the heart of our current and recurring economic problems (*Refer to Figure 1.0*).

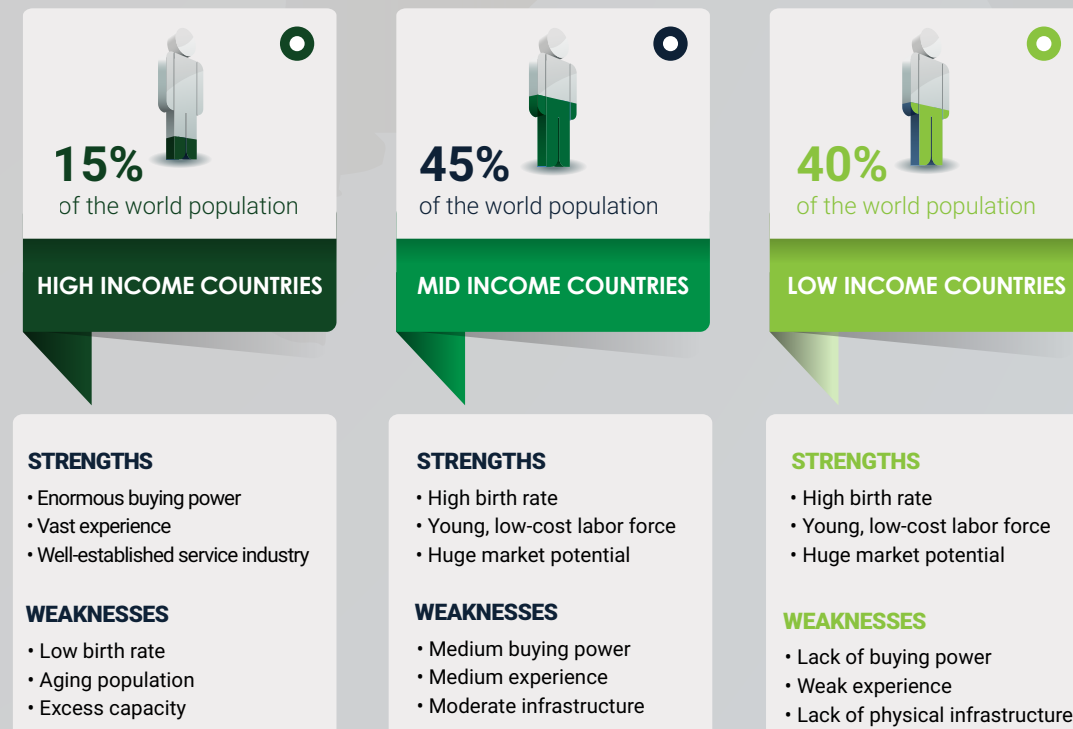
Through digitizing the global B2B marketplace under a universal system, the Digital Economy will create new levels of transparency & efficiency among B2B participants that will de-risk trade among High, Mid, and Low-income countries. The lower risk will spur a new era of sustainable growth in international trade, resilient to economic cycles and political uncertainty. Every 1% increase in the buying power of Mid & Low-income countries will result in an increase of USD 166 billion in the world GDP (*Refer to Figure 2.0*).

It is worthwhile to note that trade and trade data are of national security importance. Therefore, to achieve the promise of a genuinely global Digital Economy, a single organization cannot monopolize this solution. Instead, a coalition involving the world's leading technology, e-Commerce, Finance, and Insurance firms can deliver this global solution in a manner that offsets geopolitical and monopolistic concerns yet is provided free of cost to the end-users, sustained by a unique business model.

While monopolistic and geopolitical concerns are of critical importance in global trade, so is the need to lower the carbon footprint during the exchange of goods and services. As we rebalance the economies of HIC, MIC, and LIC through the use of new digital tools creating greater efficiency and transparency, we believe that an objective and neutral Digital Economy Platform should also be predominant to measure and incentivize the Co₂ reduction in global trade among all countries.

For the first time in history, our interrelated economies have the real possibility of affecting a new paradigm: A universally connected Digital Economy representing a win-win formula for all the countries of the world.

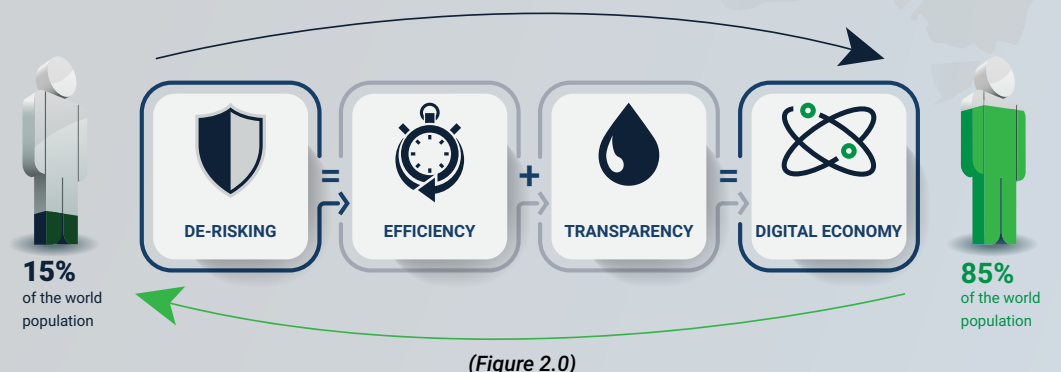
STRENGTHS & WEAKNESSES



(Figure 1.0)

THE REQUIRED CHANGE

The key is to de-risk doing business between HIC, MIC, and LIC







THE GLOBAL DIGITAL ECONOMY INITIATIVE IN BRIEF

WORLD LEADERS DEMAND DIGITAL ECONOMY

The Council's participation during the past several years at the G20/B20 forums has contributed to the G20 Leaders' adoption of the Digital Economy as a key policy directive toward diversifying economies and achieving sustainable economic growth (*Refer to Figure 3.0*).



In 2011, GCEL executed agreements towards the deployment of the Digital Economy with Malaysia, India and Indonesia



There was no mention of Digital Economy in the Australia 2014 G20 Leaders' communique



The 2015 G20 Turkey adopted the Digital Economy as a key policy directive, 17 out of 25 key B20 policy recommendations involved Digital Economy.



The 2016 China G20 has adopted the Digital Economy Development and Cooperation Initiative to achieve sustainable growth.



The 2017 G20 Germany established the B20 Digitalization Taskforce to follow up on implementation of the digital economy policies.



The 2018 G20 Argentina advocated the adoption of innovative Digital Economy business models, with focus work on artificial intelligence and new business platforms.



The 2019 G20 Japan reaffirmed the importance of interface between trade and Digital Economy.



(Figure 3.0)

Similar pronouncements were made during the 2020 KSA, 2021 Italy, and 2022 Indonesia G20 summits.

Since the Council's intervention at the B20/G20 level has led to the adoption of the Digital Economy as a key policy directive to achieve sustainable economic growth, our next challenge was to define and agree on a common definition of the real Economy is, and what it means to all participants and most importantly how Digital Economy is the solution to secure an environmental cleaner trade world.

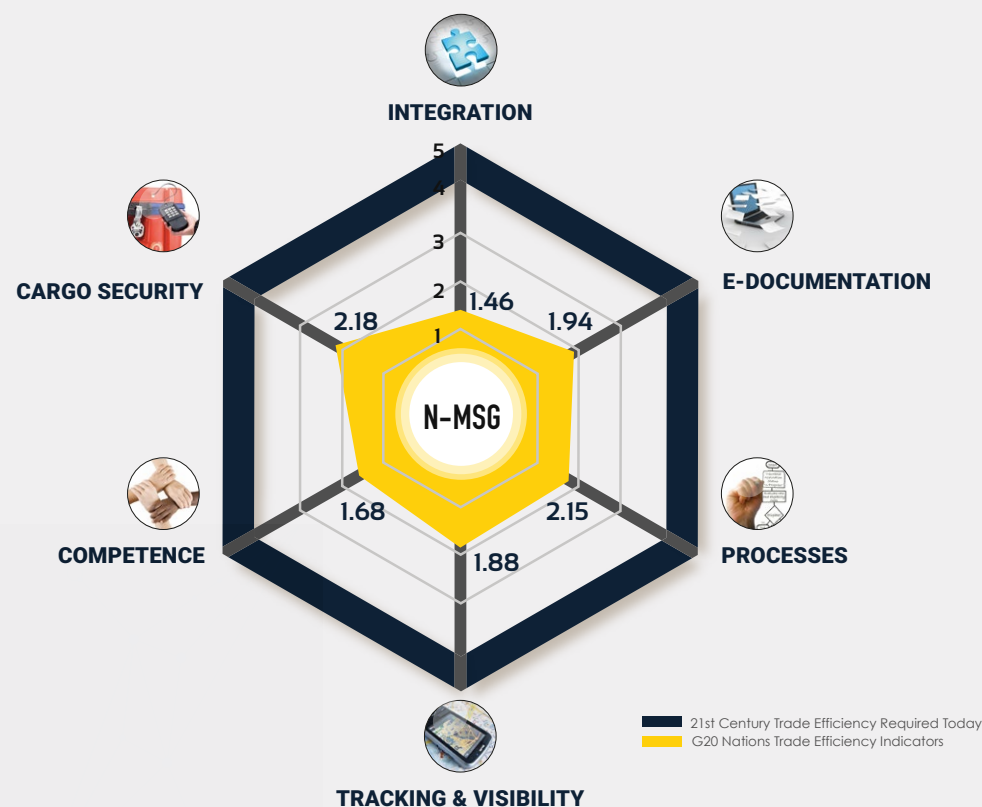
Our approach to addressing this was to start with the End-Users, to understand what technology tools they needed on the ground level to improve their performance, efficiency, and transparency.



THE VOICE OF G20 CITIZENS

A global policy cannot be successful unless it meets the aspirations and needs of its global citizens. The voice of the real economy participants on the ground level conducting business day to day must be heard so that we understand what digital tools they need to enable them to do a better job. To that end, the Council conducted a 4-year diagnostic assessment of trade efficiency based on what technology makes possible today, known as the G20 Nations Case Study. This Case Study involved more than 90 Ministries, National Business Associations, NGOs/IGOs, and Academic Institutions (*Refer to Figure 4.0*).

VALIDATION FROM THE G20 NATIONS CASE STUDY



The Location
G20 Countries

The Economic Size
78% of the world GDP

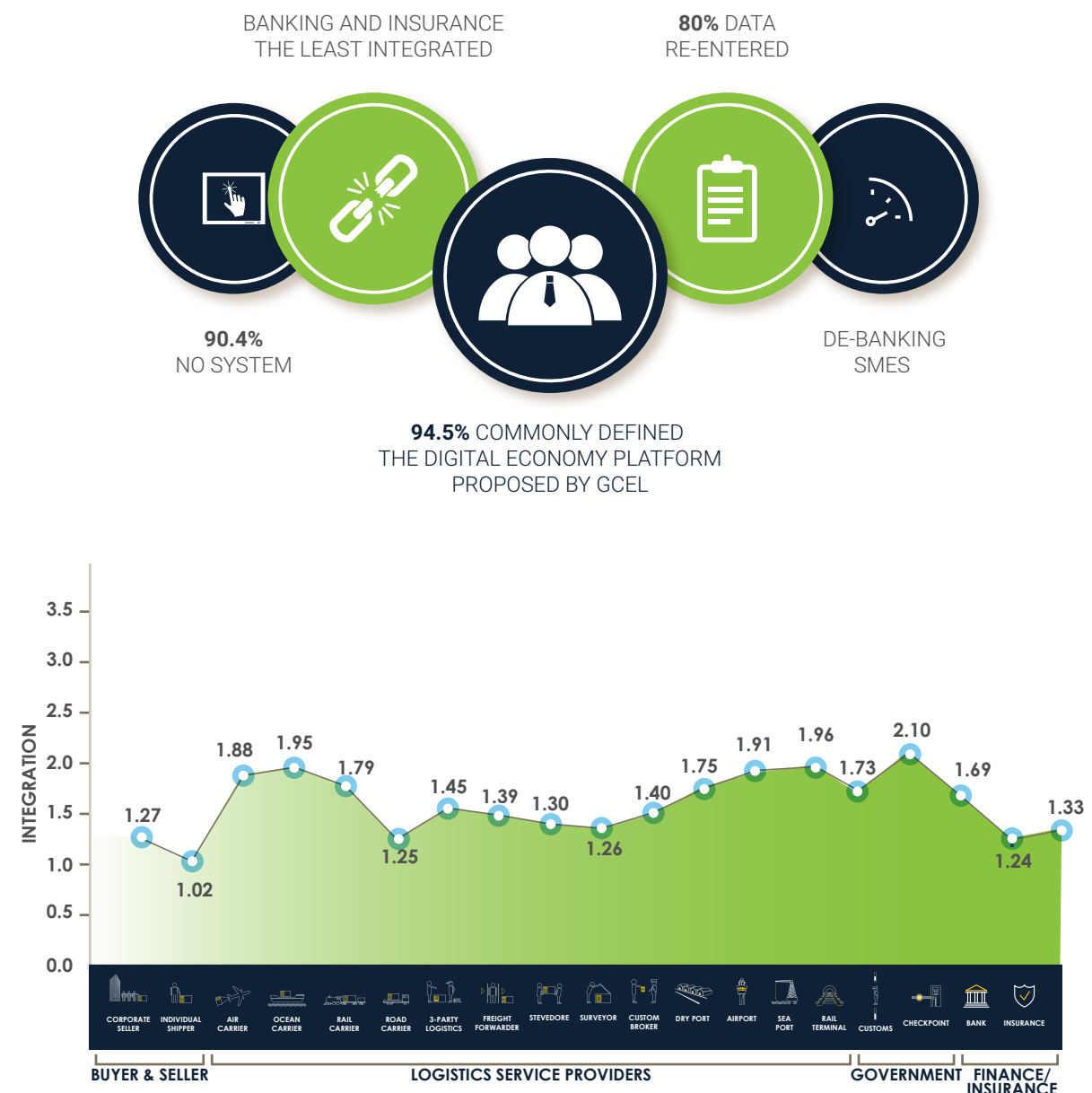
In Collaboration With
90 ministries, IGOs,
NGOs, Academia,
Private sector experts

The Sample Size
1.2 million data points

(Figure 4.0)

RESULTS OF THE ASSESSMENT

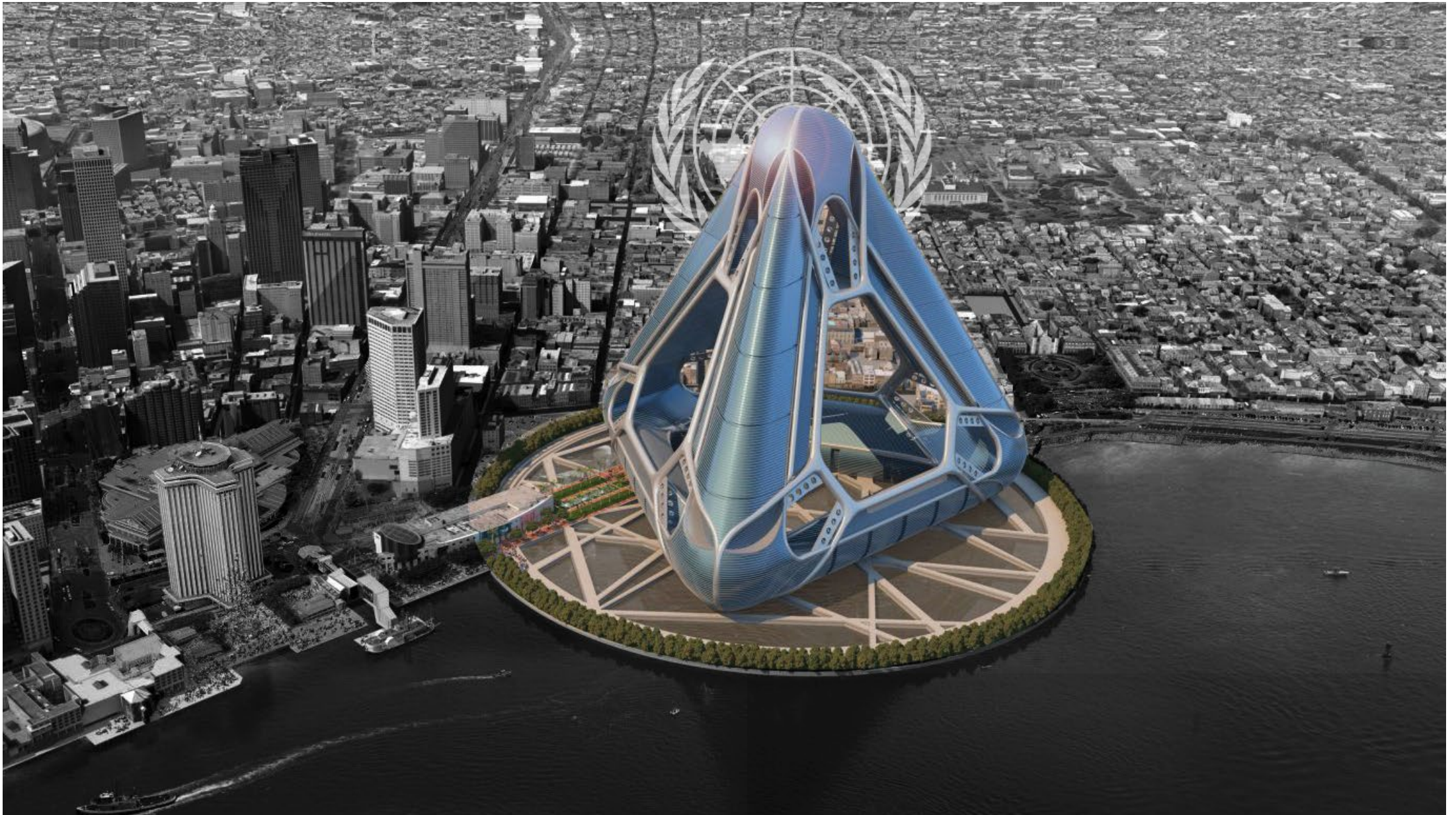
The results of the G20 Case Study were staggering: 90% of the G20 / B2B participants have no integrated system, and 94.5% agreed with our proposed Digital Economy Platform. Furthermore, banks and insurance companies were among the least integrated into the global value chains (*Refer to Figure 5.0*).



(Figure 5.0)



THE GLOBAL DIGITAL ECONOMY INITIATIVE IN BRIEF



CENTER OF EXCELLENCE

WHERE WILL THE E-HUB BE LOCATED?

With the support of India's Prime Minister's office and 9 Union Ministries, Telangana State executed a preliminary agreement for selection to host the E-Hub in Hyderabad, the "Silicon Valley of the East." The E-Hub will be under the protection of the United Nations to ensure continuous, uninterrupted use of the platform.

WHO WILL DEPLOY THE MDDEAS®?

34 technology firms, including the world's leading companies, with nearly USD 470 billion in annual revenues and a 4.4 million workforce, have signed exclusive agreements with the Council towards selection to occupy 13 exclusive seats that will deploy the MDDEAS® globally.

WHAT WILL THE E-HUB DELIVER?

Thousands of Apps and connectivity tools for the B2B environment provided free of cost to the end-user, will be deployed over 18 months through a Benchmark Trade Lane program across 4 world regions.



GLOBAL DEPLOYMENT AGREEMENTS

Digital Economy Communique

- Union of Arab Banks & European Banking Federation
- CONFAPI (Italian SME Association)
- Mediterranean Gulf Initiative
- International Association for SMES (INSME).

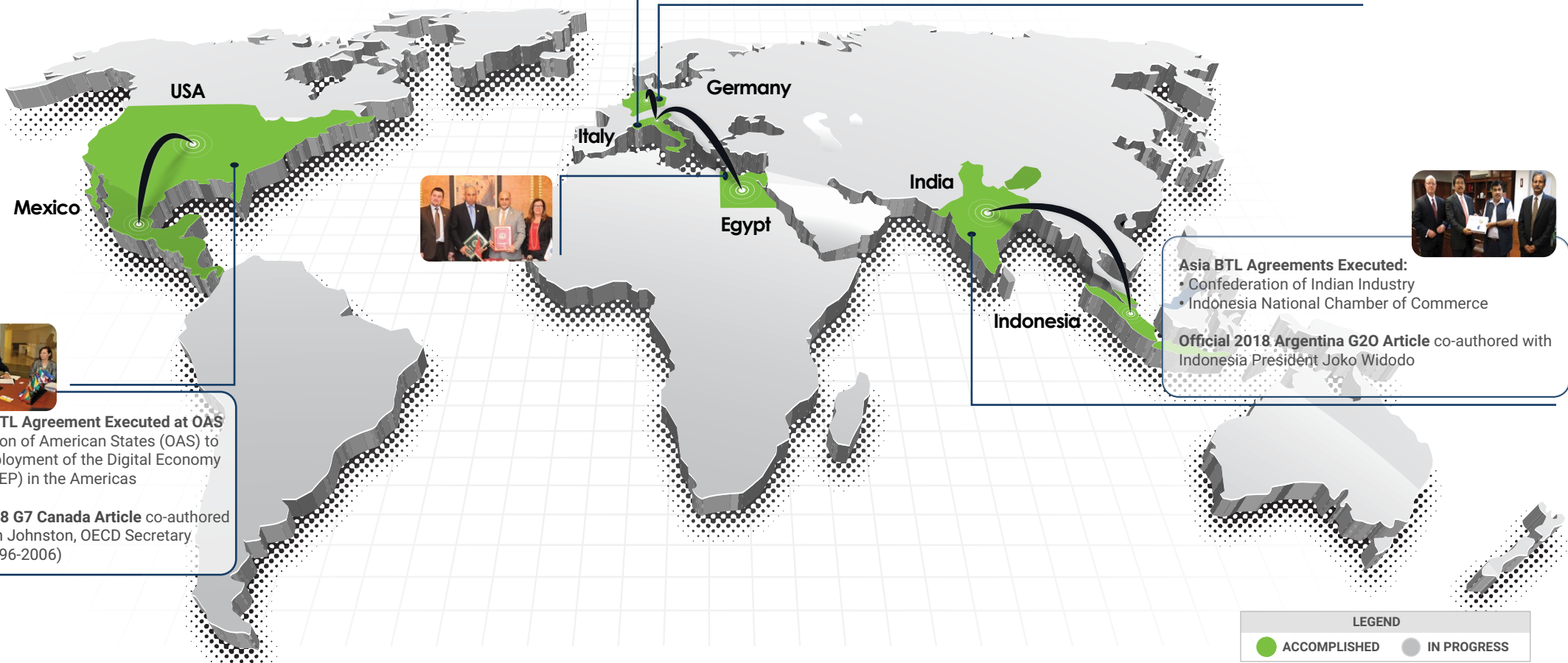
International Arab Banking Summit held in Rome on June 25.



Europe BTL Agreements Executed at European Parliament

- INSME (International SME Association under the auspices of the OECD)
- CONFAPI (Italian SME Association)
- BVMW (largest SME Association of Germany – perennial # 1 in trade efficiency)

Official 2018 Argentina B20 Article co-authored with Dr. Dirk Niebel, German Minister of Economic Cooperation and Development (2019 – 2013)



Americas BTL Agreement Executed at OAS

- Organization of American States (OAS) to support deployment of the Digital Economy Platform (DEP) in the Americas

Official 2018 G7 Canada Article co-authored by Hon. Don Johnston, OECD Secretary General (1996-2006)



Asia BTL Agreements Executed:

- Confederation of Indian Industry
- Indonesia National Chamber of Commerce

Official 2018 Argentina G20 Article co-authored with Indonesia President Joko Widodo



WHERE WILL THE DEPLOYMENT OF THE PLATFORM OCCUR?

The MDDEAS® will be deployed across 4 world regions - Americas, Asia, Europe, and Middle-East/Africa through the HumaWealth Program Benchmark Trade Lane (BTL) Program over 18 months.

The BTL can be deployed over three phases across several international trade corridors.

- **Phase 1** : Trade lane between e.g. India & Indonesia.
- **Phase 2** : Trade lanes between e.g. Germany & Italy, Italy & Egypt, USA & Mexico.
- **Phase 3** : Global deployment.

Each Trade Lane will include buyers, sellers, logistics service providers, public entities, e-commerce, e-finance, and e-insurance; everyone participating in the shipment process from shelf to shelf.

The BTL Program is designed to "Connect the Strengths of the World Community, Creating Well-Being Across Humanity" by engaging both public and private stakeholders to solve the inefficiencies in today's B2B marketplace through an empowered Digital Economy.



THE DIGITAL ECONOMY IN SIX STEPS

EMPOWERING THE DIGITAL ECONOMY IN SIX STEPS

Broadly, a country's economy is bolstered by three main economic pillars consisting of Manufacturing, Agriculture, and Services. These pillars comprise the global B2B marketplace, the mother of all industries, which is projected to increase from USD 168 trillion in 2019 to USD 337 trillion by 2030.

Since the economic activity of these industries includes the production and consumption of both products and services that are exchanged in a global B2B marketplace, we can digitize the global economy by systematically digitizing the B2B marketplace and the entire global value shelf-to-shelf.

A pragmatic approach and path to such digitization efforts consist of digitizing the global economy through the following six steps:

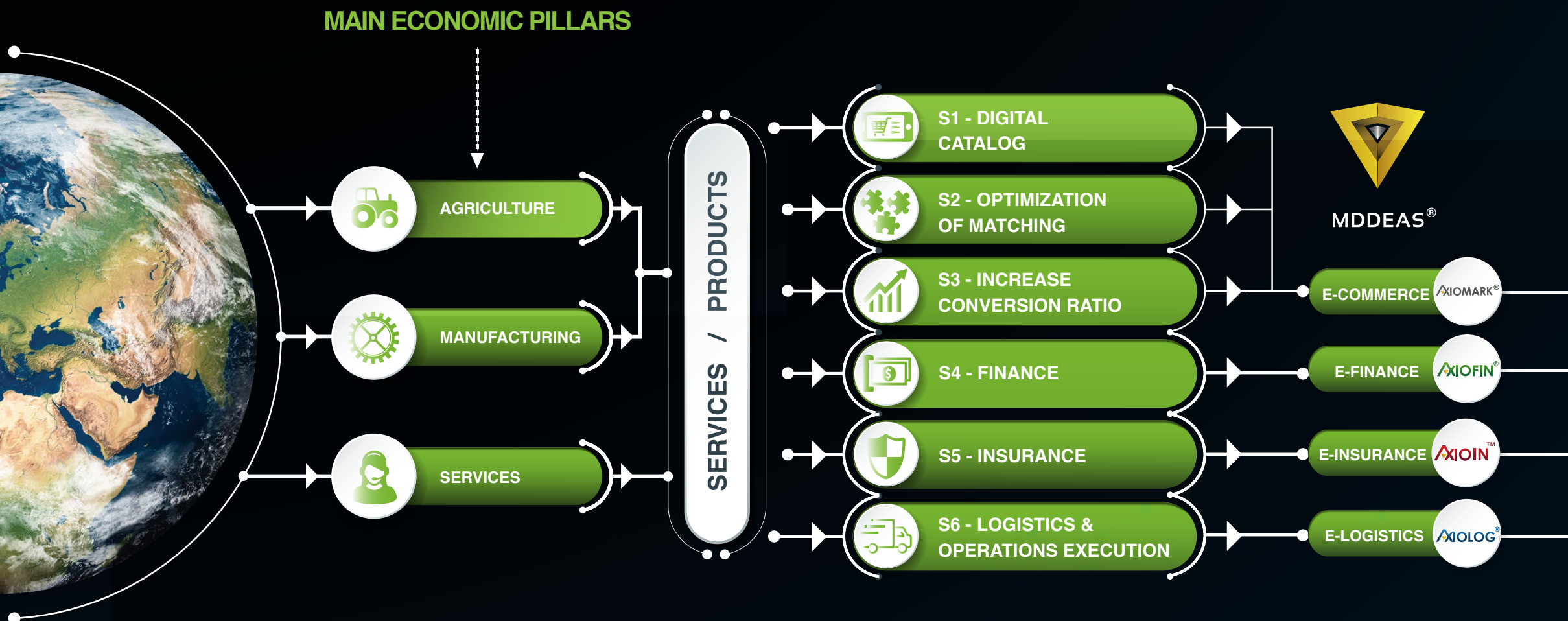
S1 Create a Digital Catalog for products and services to be made available online through a global e-Commerce marketplace.

S2 Optimize Matching among buyers and sellers looking for products and services through Smart Personation and based on their historical, current, and planned commercial activities.

S3 Increase the Conversion Ratio of the buyer from seeing the products and services to their acquisition based on Six key "QFILIC" Attributes (Quality, Finance-ability, Insure-ability, Logistics Reliability, Value Chain integration, and Carbon Emission Optimization). These are important attributes in the B2B marketplace when deciding to acquire products or services.

THE FIRST THREE STEPS ARE EMPOWERED BY E-COMMERCE

S4 Secure financing of products and services with the utilization of an e-Finance platform that enables financing with lower risk and easier transactions. It includes bill consolidation, the automated release of direct payments, and dynamic matching of customer financing needs with the product offerings of banks and financial institutions.





S5 To deploy an e-Insurance platform that enables insurance services and provides online access to Digital Policy documentation while expediting claims processing. It will secure Insurance to cover risk through online Insurance for cargo, trade credit, and business owners' policies.

S6 Execute logistics and Operations to efficiently deliver products and services through logistics optimization of route, load, cost and schedule as well as monitoring operational performance.

THE COUNCIL NETWORK

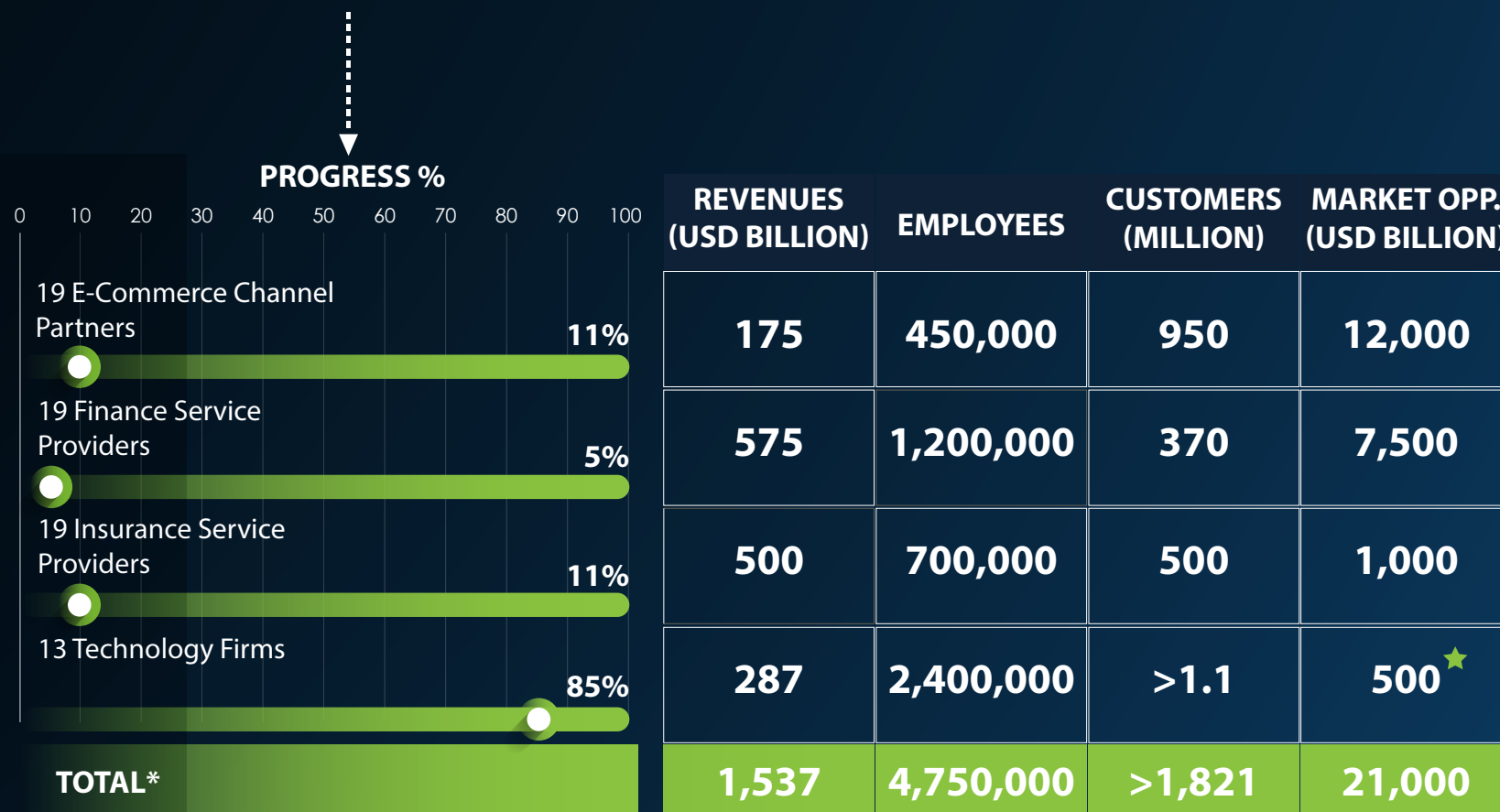
These e-Commerce, e-Finance, e-Insurance, and e-Logistics are all available under one platform that digitizes the global B2B marketplace across products and services: The Multi-Dimensional Digital Economy Application System - MDDEAS®.

At least 70 National Technology, E-commerce, Finance, and Insurance firms that have over USD 1.5 trillion in revenues yearly, 4.7 million employees, and 1.8 billion customers will all deliver the MDDEAS® Apps free of cost to the end user.

At the core of the E-Hub of the World are 13 top technology firms selected by a consortium of semi-government, private, and academic organizations, working collectively to commercialize and deploy the MDDEAS®. This Council will operate under the guidance of the international community while drawing together the multi-faced expertise required to deliver the MDDEAS® globally.

Thousands of Apps will be developed by the E-Hub of The World and provided free of cost to the end users under the Axiolog® e-logistics dimension. These Apps will open up a world of logistics and operational advantages previously reserved for the largest companies that can afford them.

COUNCIL NETWORK



* Approximate figures based on available public information





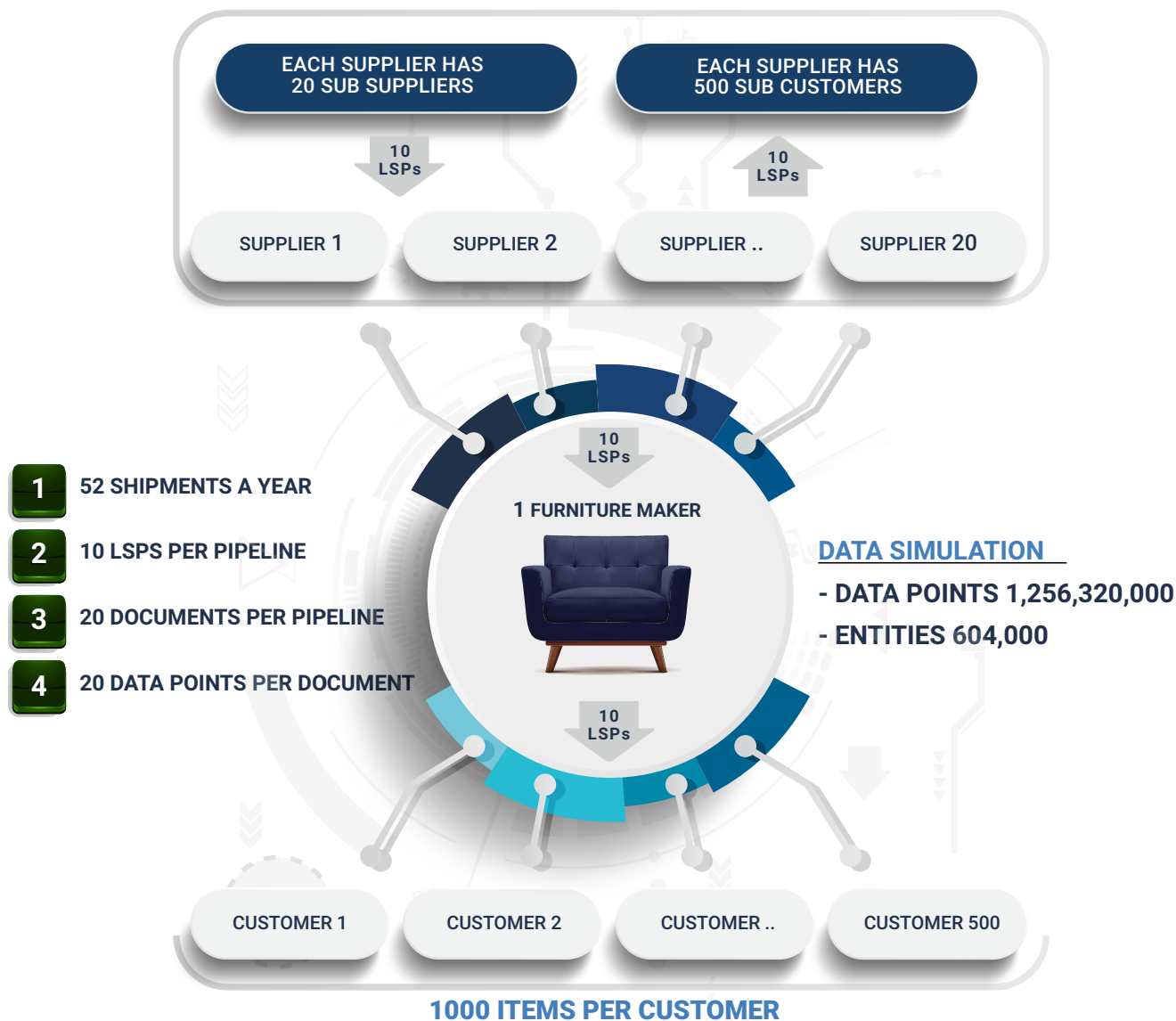
BIG DATA - THE ULTIMATE DATA QUALITY (UDQ)

Today, 80 percent of the data available online is single-source, non-validated data. However, to advance our Digital Economy and particularly to digitize the global B2B marketplace – the nature of data available to the world will need to change. To have a truly Digital Economy means that we have real-time data generation and real-time decision-enabling processes throughout the global value chains. This can only be achieved if the decision-making processes are based on data with the highest quality.

The MDDEAS® Apps will generate high volumes of real-time transactional data to perform real-life actions that are continuously validated by multiple parties in the same supply chain. This dynamically validated Big Data is called Ultimate Data Quality (UDQ) information that will have a high degree of veracity and positively impact time-critical business decisions.

The UDQ is the gold mine of high-quality validated real-time data, providing comprehensive visibility of business transactions and facilitating informed decisions across all of the industry clusters engaged in global trade. This information is used to detect and correct errors and anomalies by cross-checking against historical, current, and planned data shared throughout the supply chain. This powers AxioScore™, which enables the required business transparency to de-risk and empower the e-Commerce, e-Finance, e-Insurance, and e-Logistics marketplaces.

The below illustration shows the enormous size and high-quality data that can be provided by MDDEAS®.



(Figure 6.0)

In a typical supply chain, the furniture maker buys raw materials from 20 suppliers to make several lines of furniture for weekly shipments to 500 customers where each customer has 1,000 items in its showroom.

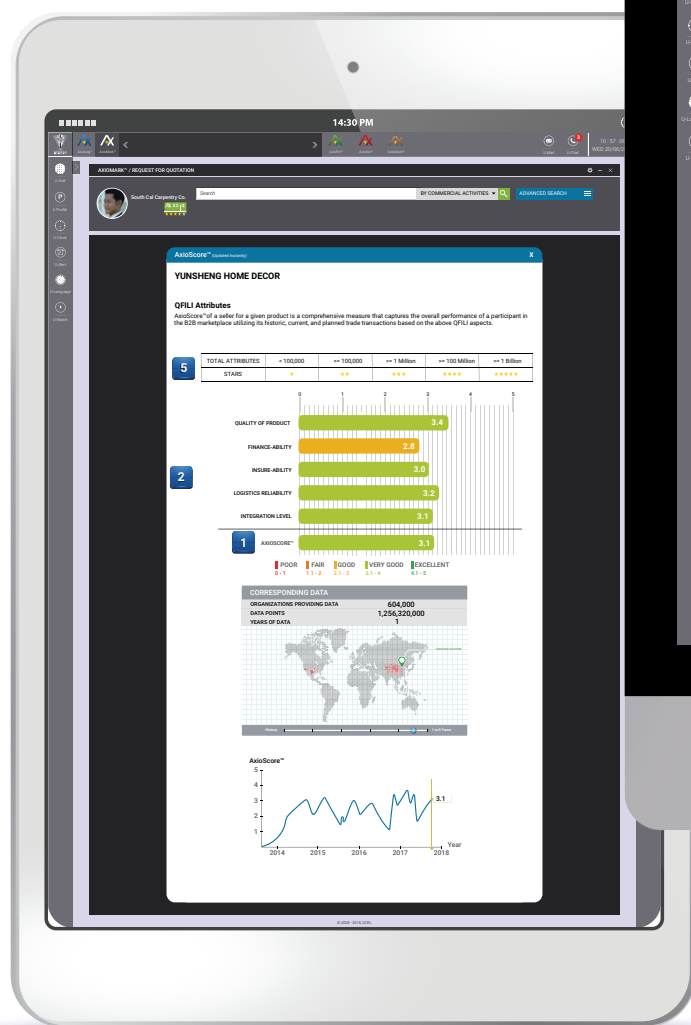
Each supplier also has 20 sub-suppliers and 500 other customers. From a logistics viewpoint, there are 10 logistics service providers in each pipeline, exchanging 20 documents per pipeline, with 20 data points per document. Over the course of one year, this value chain will generate **1.2 billion** validated data points! This is the power of MDDEAS®!

The operational usage of the MDDEAS® business Apps by the B2B participants generates these data points that are independently validated **604,000** times by different entities in the global value chain in real time (Refer to Figure 6.0).



AXIOSCORE™ MULTI-DIMENSIONAL SCORING

- 1 AxioScore™ is a multi-dimensional objective measure of business performance and risk for B2B participants utilizing Artificial Intelligence and Big Data Analytics to process and compute UDQ information into specific attributes and factors (Refer to Figure 7.0).
- 2 AxioScore™ represents a weighted average of attribute scores related to the 6-key "QFILIC" attributes (Quality, Finance-ability, Insurability, Logistics Reliability and Dependability, Integration, Carbon Emission Optimization) (Refer to Figure 7.0).
- 3 Each AxioScore™ attribute is calculated from numerous factors based on UDQ, validated by multiple parties in the trade pipeline as opposed to unsubstantiated reviews and self-generated promotional materials (Refer to Figure 8.0).
- 4 AxioScore™ is measured on a scale from 1 to 5, with 5 being the most attractive score, signaling the overall commercial viability of a potential product or service provider (Refer to Figure 8.0).
- 5 AxioScore™ is further substantiated by the accompanying "5-Star Rating", which is a data reliability indicator based on the volume of underlying data that went into the calculation of the AxioScore™ (Refer to Figure 7.0).



(Figure 7.0)



(Figure 8.0)



LOGISTICS INDUSTRY CARBON FOOTPRINT

THE STRUGGLE WITH SHIPMENT DELAYS, MISTAKES, AND INCREASED OPERATION COSTS

The logistics industry plays an important role in our global economy. Billions of tons of cargo are transported around the world each year by trucks, planes, ships, and trains. Freight transport generates nearly 3.2 billion metric tons of Co₂ emissions annually (*Refer to Figure 9.0*), or 8% of global greenhouse gas emissions, and almost 11% if warehouses and ports are included.

A growing world population translates into more demand for trade. Emerging economies in Asia, Africa and Latin America are expected to triple global demand for freight by 2050, which will double freight transport greenhouse gas emissions in their regions. Despite current transport decarbonization policies, including the use of non-carbon fuels, the absolute Co₂ emissions from freight transport is projected to be 22% higher by 2050.

Freight transport receives less attention from policymakers than it deserves, given its cross-border complexities and commercial nature. Policy ambition has been relatively low compared to passenger transport, even though freight is responsible for nearly 43% of all transport Co₂ emissions.

If we continue with business as usual, freight transport will become the highest emitting sector by 2050. Accordingly, additional efforts are needed to reduce freight transport Co₂ emissions to achieve the Paris accord’s zero carbon objectives by 2050.

	Global Freight CO ₂ Emissions (million metric tons)	% of Global Freight CO ₂ Emissions	CO ₂ Emission Grams per Ton/Kilometer
Truck	2,230	62.8%	60 to 150
Ship	657	25.6%	10 to 40
Train	170	7.0%	30 to 100
Air	155	4.7%	500
TOTAL	3,212	100.0%	

(Figure 9.0 - Global Carbon Emissions by Freight Transport Mode)



CARBON FOOTPRINT BY FREIGHT TRANSPORTATION MODE

Trucks are the dominant mode of surface transport. The trucking industry currently emits nearly 63% of all freight emissions or nearly 2.2 billion metric tons. On average trucks emit 60 to 150 grams of carbon per ton per kilometer. Transportation equipment also emits over 20% of the world's black carbon, a powerful climate forcing agent that contributes to global warming, human morbidity and premature mortality. If you have ever seen a black plume of smoke coming from a truck's tailpipe—you've seen black carbon. Unfortunately, due to the lack of real time information to properly schedule and maximize truck capacity, more than 300 billion truck miles annually are empty worldwide. This inefficiency creates nearly 460 million metric tons of Co₂ each year.

Today nearly three-quarters of the world's cargo is carried by ocean-going ships which create about 26% of the global freight Co₂ emissions. However, due to the ability to efficiently carry a substantial number of loaded containers over long distances, cargo ships emit the least amount of carbon per ton for each kilometer traveled averaging 10 to 40 grams. However, loading and unloading delays caused by port congestion and container utilization of only 65% on average contributes to greater carbon emissions per ton per kilometer of freight movement.

Conversely, while global air transport yields the lowest amount of overall Co₂ emissions at 4.7%, it generates the most carbon per ton per kilometer at 500 grams. Clearly, the convenience and fast delivery time of air transport comes at a higher carbon cost than shipments via water which can take several weeks.

While advances in vehicle technology can enhance carbon emission reduction, carbon-neutral solutions for long-haul heavy-duty trucks are not yet commercially available for widespread adoption. Hence, advances in soft-infrastructure are needed across the supply chains toward mitigating the freight transportation industry carbon footprint

TOWARD CLEANER FREIGHT TRANSPORT

Strategies that reduce carbon emissions from freight transportation are good for the climate, and for our health. Modern engines and low-carbon fuels, among other strategies, are necessary to achieve a cleaner environment, but faster progress is needed to achieve our global climate goals and more efficient practices.

The significant difference in the carbon footprint by mode of transportation confirms the assumptions underpinning the EU's modal shift policy. One objective is to increase rail freight transport nearly 50% by 2030 and a doubling by 2050. Freight transport by inland waterways and short-distance sea shipping should increase by 25% by 2030 and 50% by 2050. Reaching these milestones is expected to contribute to a reduction in the environmental pressures from road transport.

The American Association of Railroads analyzed federal data and reported that annual greenhouse gas emissions would fall by approximately 13.1 million tons if 25% of the truck traffic moving at least 750 miles went by rail. Railroads also help reduce the huge economic costs of highway congestion. According to the Texas Transportation Institute's 2019 Urban Mobility Report, highway congestion cost Americans \$166 billion in wasted time (8.8 billion hours) and fuel (3.3 billion gallons) in 2017.

However, it is not always possible to substitute one mode of transport for another. Issues related to critical time frames (e.g. perishable agriculture products or supply chain delivery commitments), weather conditions, geography (e.g. water transport), and infrastructure capacity, limit alternative transport choices. In addition, the most efficient road transport modes must be used between transport hubs such as sea ports and rail freight terminals.

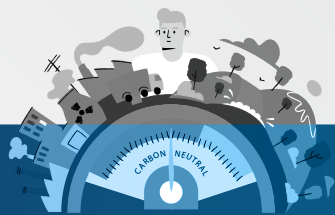
Hence, effective decision making requires innovative digital tools for improved visibility and better coordination across the supply chain. These tools can lower the carbon footprint, reduce transport costs, reduce delays to meet delivery times, and maximize capacity utilization across all transport modes.



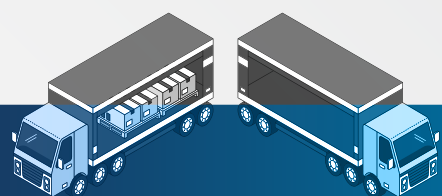
THE FOUR INNOVATIONS FOR ECO-FRIENDLY AND PROFITABLE TRADE

MAKING CO₂ REDUCTION PROFITABLE THROUGH THE DIGITAL ECONOMY

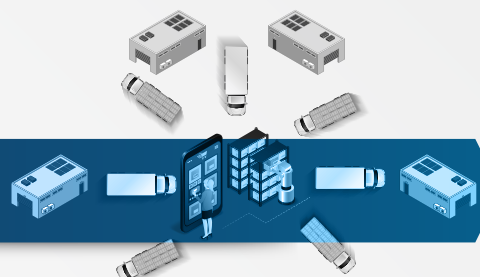
THE MDDEAS® HAS FOUR MAIN TECHNOLOGY INNOVATIONS THAT CAN ASSIST TO REALIZE OUR OBJECTIVES TO ATTAIN A GREENER WORLD AND ACHIEVE SUSTAINED ECONOMIC GROWTH



First, the MDDEAS® incorporates a multi-dimensional objective risk-based scoring system, AxioScore®, that measures the performance of B2B participants across several attributes. One of these attributes is a state-of-the-art **carbon emissions scoring** mechanism, the C-score, which measures the carbon emissions of domestic and international value chain participants and allows businesses to identify and conduct more business with the most efficient partners having the lowest carbon footprint.



Second, the C-scoring mechanism assists to **maximize logistics capacity utilization**, reducing the excess carbon footprint caused by less than full container loads. According to the U.S. Environmental Protection Agency, medium and heavy-duty truck freight in the United States accounts for 436 million metric tons of CO₂ emissions per year. Nearly 35% of these container miles are empty as freight carriers are forced to hunt across multiple brokers and load boards to keep their trucks full. On a global basis, there are approximately 300 billion empty truck miles. This has been the case for decades, with no material progress toward reducing these empty miles.



Third, the MDDEAS® encompasses digital tools that create “**virtual container yard**” that maximize MDDEAS®’s unprecedented data visibility to decrease carbon emissions. Virtual container yards link conveyance demand by shippers to the availability of empty containers at depots and warehouses. Road carriers receive online authorization and are then dispatched to pick up the nearest available empty container. This virtual capability significantly reduces road congestion, lowers fossil fuel burn and CO₂ emissions, and minimizes empty container storage.



Fourth and finally, the MDDEAS® encompasses an **advance shipment clearance** module to reduce cross-border documentation and inspection delays thereby expediting throughput at points of entry and minimizing CO₂ emissions.

The above technology innovations will make production, transportation, and consumption throughout our value chains more profitable and cleaner. GCEL welcomes international cooperation to support the MDDEAS® implementation to decarbonize our supply chains and facilitate sustainable global economic growth.

Let's take a look at these features in more depth in the following sections and how they can assist to create greater economic prosperity and a greener environment.





MEASURING THE B2B MARKETPLACE FOOTPRINT - CO₂ SCORING

THE STARTING POINT TO REACH NET-ZERO CARBON EMISSIONS BY 2050: DIGITIZING OUR GLOBAL VALUE CHAINS

The starting point toward achieving net-zero carbon emissions by 2050 is to quantify and reduce the carbon emissions across each segment of our value chains. The digitization of our global value chains provides the pathway to identify how each part can be optimized to drive overall CO₂ reductions.

The efficient logistics of shipments is a key focus of the MDDEAS®. Trade lanes differ by mode, purpose, productivity, timing, and other localized variables, resulting in a broad range of emissions factors associated with transportation activities. To account for this complexity, we use a robust modeling framework that estimates carbon emissions as shipments move from shelf to shelf and accommodates different levels of data availability. The scope of our assessment includes transport activities and data managed by a third-party transportation provider.

AXIOSCORE'S UNIQUE C-SCORING-CARBON FOOTPRINT VISIBILITY, MEASUREMENT, AND OPTIMIZATION:

One of MDDEAS® unique components in AxioScore® is the sixth element, C-Scoring. C-Scoring can quantify the carbon footprint emission, allowing us to identify the most significant contributors of carbon emissions across the trade lane. With this critical information, we can take the required actions to lower high carbon emission activities that will drive the greatest impact on lowering the overall carbon footprint while maximizing profitability. We are committed to using the C-Scoring advanced technology and innovative solution to systematically track the progress toward optimizing the carbon emissions reduction of the global trade.

THE SCIENCE AND DATA BEHIND THE AXIOSCORE® MEASUREMENT OF THE CARBON FOOTPRINT:

Our team of researchers and data scientists have developed the MDDEAS®'s cutting-edge methodology to collect global trade data with ultimate data quality (UDQ) to develop the robust C-Scoring mechanism. The MDDEAS® processes billions of operational and financial data points from B2B participants across the value chains to calculate the carbon footprint of each participant

As MDDEAS® evolves as a technology to improve the efficiency of B2B activities, so too will the approach to driving carbon reductions. C-Scoring's ongoing visibility, tracking, and monitoring of carbon emissions for global trade will result in less carbon emissions. With C-Scoring's continuous ability to capture greater levels of trade data, its algorithms can identify the CO₂ emissions throughout the value chains and provide the required transparency and accountability to reduce carbon emissions faster and more efficiently. C-Scoring aims to make this information easily available to end-users of MDDEAS® at every step of the trading journey.



HOW DOES IT WORK?

To start, we can measure the CO₂ emissions for each value chain participant by various performance areas or factors based on the UDQ captured by MDDEAS® as shipments move from shelf to shelf. (Refer to Figure 10.0). For example, the CO₂ of a shipment alone can be calculated using the shipping distance, weight of the shipment, and the CO₂ grams per metric ton per kilometer. Additional factors can be calculated utilizing imports, supply chains partners, employees, etc. and then compared to industry standards. These performance factors are then totaled using a weighted average resulting in the overall C-Score per participant. The trend over time of a participant's C-Score can also be evaluated.



(Figure 10.0 - C-Scoring factors)



MEASURING THE B2B MARKETPLACE FOOTPRINT - CO₂ SCORING

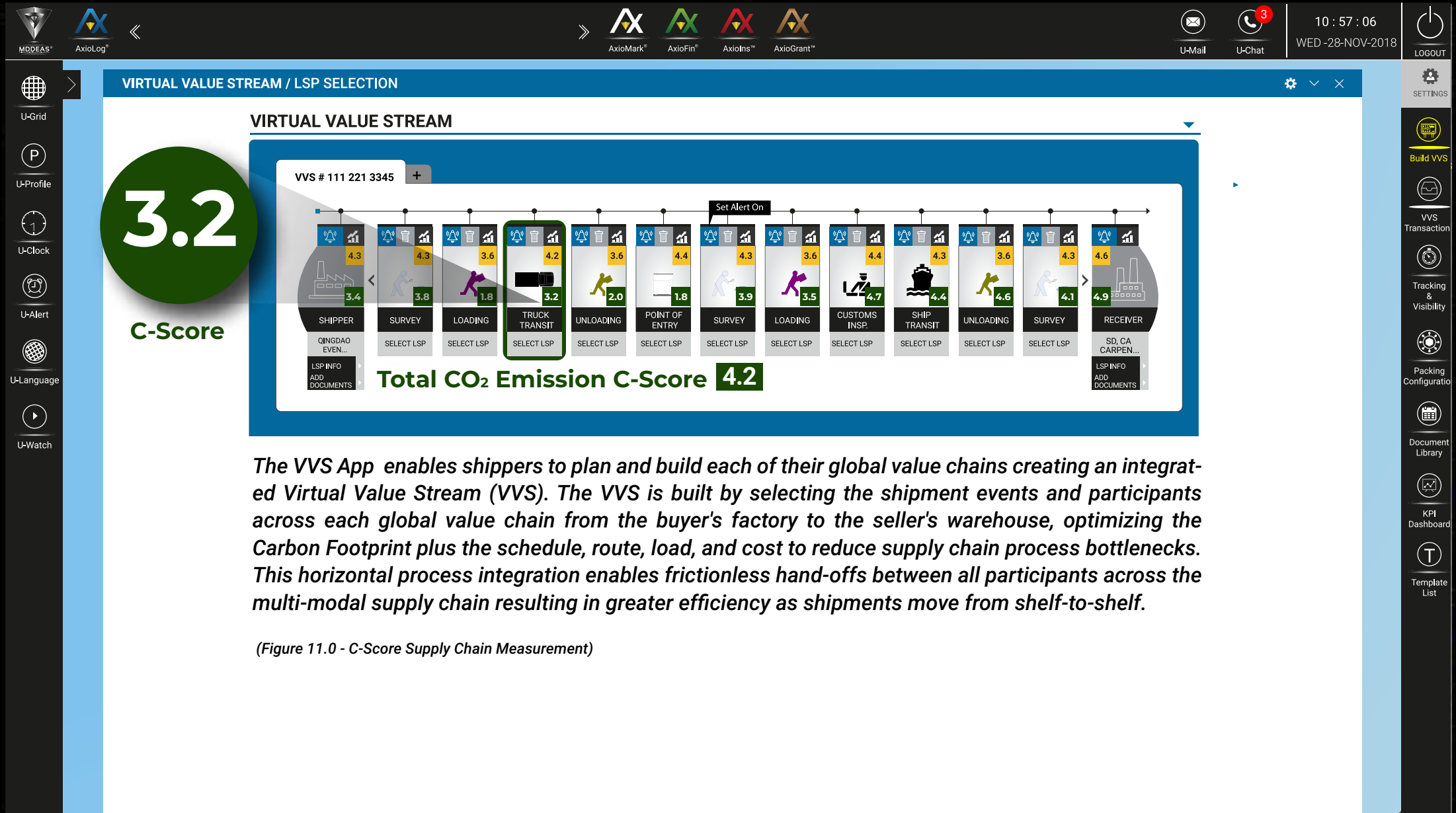
HOW DOES IT WORK?

Once the emissions for all trade activities for each participant are identified and calculated, we sum them to produce the total carbon footprint for the entire trade lane (*Refer to Figure 11.0*). Our approach to quantifying the carbon footprint for each participant in the global value chains reflects the importance of AxioScore's C-Scoring.

Our C-Scoring measurement uses big data computational and data analytics capabilities to score the carbon emissions for specific trade activities (e.g., shipping, packaging). In essence, the C-Score allows us to track the total emissions associated with shelf-to-shelf shipments as they travel through the trade lane from the supplier's network, to the manufacturer.

We then use the outputs of these calculations to assemble a complete trade lane carbon footprint and identify the biggest emissions sources for each of the trade activities. The results are designed to equip MDDEAS® users with actionable data and metrics to help them identify the best suppliers and customers within the supply chain that meets their standard commercial requirements such as cost, quality, and delivery parameters and those businesses which have a lower carbon footprint.





The VVS App enables shippers to plan and build each of their global value chains creating an integrated Virtual Value Stream (VVS). The VVS is built by selecting the shipment events and participants across each global value chain from the buyer's factory to the seller's warehouse, optimizing the Carbon Footprint plus the schedule, route, load, and cost to reduce supply chain process bottlenecks. This horizontal process integration enables frictionless hand-offs between all participants across the multi-modal supply chain resulting in greater efficiency as shipments move from shelf-to-shelf.

(Figure 11.0 - C-Score Supply Chain Measurement)



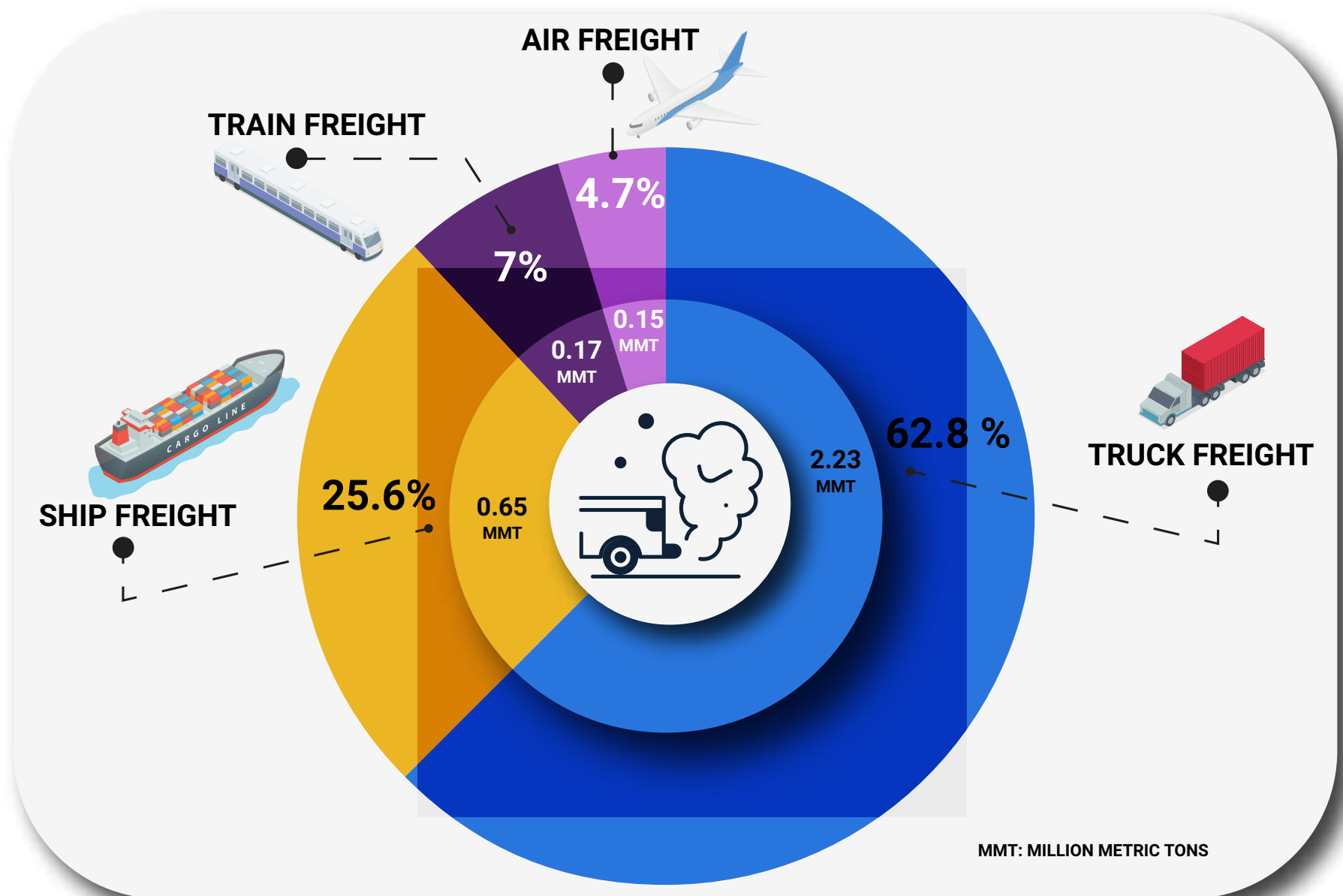
MAXIMIZE LOGISTICS CAPACITY UTILIZATION

EMPTY TRUCKS REPRESENT A MAJOR OPPORTUNITY TO LOWER THE CARBON FOOTPRINT

The reduction of air pollution and global warming have become political and economic priorities in recent years. At the recent COP26 held in Egypt, nations publicly communicated their climate concerns and commitments to an action plan to reduce Co₂ emissions.

While G20 governments stress attaining a Net-Zero target by 2050, it is important to recognize that transportation and logistics play a big role in fuel consumption and Co₂ emissions. Per the International Energy Agency, the 2020 Co₂ emissions generated by worldwide transportation is 7.3 billion metric tons. Of this amount, medium and heavy trucks, light commercial vehicles, shipping, and air transport account for 49% of the total transportation emissions, or nearly 3.2 billion tons (*Refer to Figure 12.0*).

Distribution of carbon dioxide emissions produced by the freight sector worldwide in 2021, by subsector

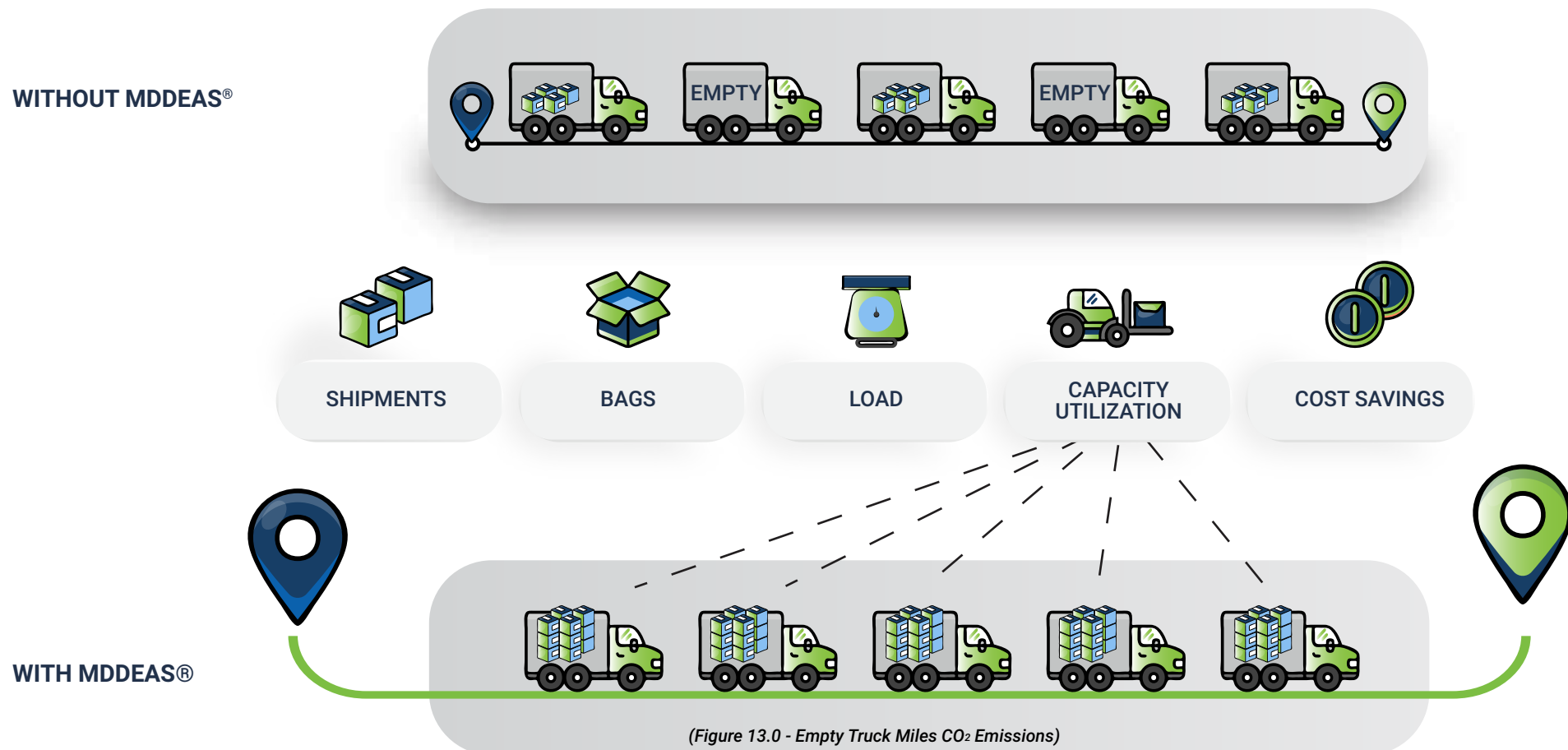


The international transport forum's ITF transport outlook 2021

(Figure 12.0 - The international transport forum's ITF transport outlook 2021)



A major contributor to these carbon emissions is due to the tremendous number of empty trucks on our roads. In the USA alone, there are 60 billion annual empty truck miles annually, generating 87 million metric tons of carbon emissions. Globally, empty miles account for nearly 460 million metric tons of CO₂ emissions. (Refer to Figure 13.0).



EFFORTS TO DIGITIZE THE GLOBAL LOGISTICS INDUSTRY (GLI) TO LOWER CARBON EMISSIONS

Efficient logistics digitization is now a clear trend, with governments, manufacturers, and the IT sector competing worldwide for leadership in this space. Due to the clear business case and relatively controlled environment, digital trade lanes of road freight trucks on motorways have generated much interest. These concepts range from twinning to platooning and, ultimately, full automation of processes to improve logistics capacity utilization.

However, the GLI is a large, critical industry with many components. The complexity of end-to-end digital collaboration among all B2B participants faces fundamental problems:

- Inability of vertical systems to share common information effectively to maximize the shipment flows from shelf-to-shelf
- Vulnerability of shipments to cargo terrorism, theft, and fraud
- High cost of complying with regulatory and industry requirements

The lack of timely and validated information exchanged among the B2B participants leads to inefficiencies in managing transport activities for shipments, resulting in the underutilization of shipment capacity, and contributing to a higher carbon footprint.



MAXIMIZE LOGISTICS CAPACITY UTILIZATION

MDDEAS® APPS MAXIMIZE LOGISTICS CAPACITY UTILIZATION

The MDDEAS® begins with a state-of-the-art e-Logistics suite of Apps to streamline the flow of goods from shelf-to-shelf. In doing so, these Apps capture unprecedented levels of continually validated Big Data with “Ultimate Data Quality” (UDQ) providing the highest levels of precision and reliability across the value chains.

The MDDEAS® Apps provide shippers and carriers several capabilities toward optimizing capacity utilization, including but not limited to:

- Standardized communication processes for all participants across the value chain
- Shipment tracking globally, shelf-to-shelf, with minimal technology requirements.
- Improved data accuracy because data is not frequently reentered into multiple systems
- Forecasted and coordinated shipment schedules based on contractual obligations
- Optimized resource allocations by delivering timely shipment information to responsible participants
- Decreased storage/ handling efforts by selecting local/ global carriers with most effective service, lowest handling costs, and fastest delivery time
- Dynamic access to early alerts for incidents or anomalies plus necessary information and tools for a proper resolution
- Automated, efficient re-routing of shipments due to shutdowns, strikes or bottlenecks
- Direct linkage to carrier equipment control systems to update equipment movements captured directly from shipment events

These MDDEAS® capabilities, among others, empower all B2B participants across the e-commerce, finance, insurance, and logistics industries with the required information to better collaborate for the optimization of logistics route, load, cost and schedule.

Hence, by digitizing the logistics processes across the entire multimodal value chain, the MDDEAS® will enhance collaboration to move shipments more efficiently, thereby accelerating the carbon footprint reduction throughout the commercial transport industry.

In simple terms, MDDEAS® allows shippers and carriers to adopt an “Intelligent & Always Loaded” approach to ensure that the right truck is always on the right route with a full load. Intelligent & Always Loaded involves the use of remote monitoring and scheduling of “ready to go” conveyances matched with the products to be consolidated and efficiently shipped to desired locations.

In summary, GCEL projects the capabilities of the MDDEAS® Apps to maximize capacity utilization can decrease the global empty truck miles by 50%, resulting in a reduction of 230 million metric tons in global emissions by 2035.







VIRTUAL CONTAINER YARD

THE CHALLENGE OF REDUCING NON-FULL TRUCKS ON THE ROAD AND THEIR CO₂ EMISSION:

During the last decade, there has been steady growth of international trade between countries. This trade has resulted in significant imbalances between imports and exports which have created a substantial problem of empty container management. In particular, at densely populated port cities, the tremendous increase in container volumes coming into and going out of the port has caused a corresponding increase in the number of truck trips to and from the port, and more specifically, an increase in the number of unproductive, empty truck trips to and from the port.

According to current logistics patterns, trucks leave the port with the imported full container to the importers' facilities and warehouses and then make a trip back to the port to return the empty container. When a need for an export load arises at a warehouse facility in the region, another empty truck needs to travel to the export facility to pick up the export container load and haul it back to the port before it leaves for its overseas destination. This pattern produces two unproductive trips associated with every export-import cycle. This situation arises because there is a lack of efficient communication among key players as to information about empty containers available for loading in certain locations, or empty container demand in other locations.

This excess number of empty trucks not only causes significant inefficiencies, but also adds to the congestion in and around the port, and the highways that feed into the port area. This inefficient process is increasing operation costs and causing heavy fuel consumption that has increased global warming from the resulting CO₂ emissions.

Given that the population increase globally will eventually increase trade and container volumes, it is clear that there is an urgent need to implement a solution to the problem of empty truck trips.

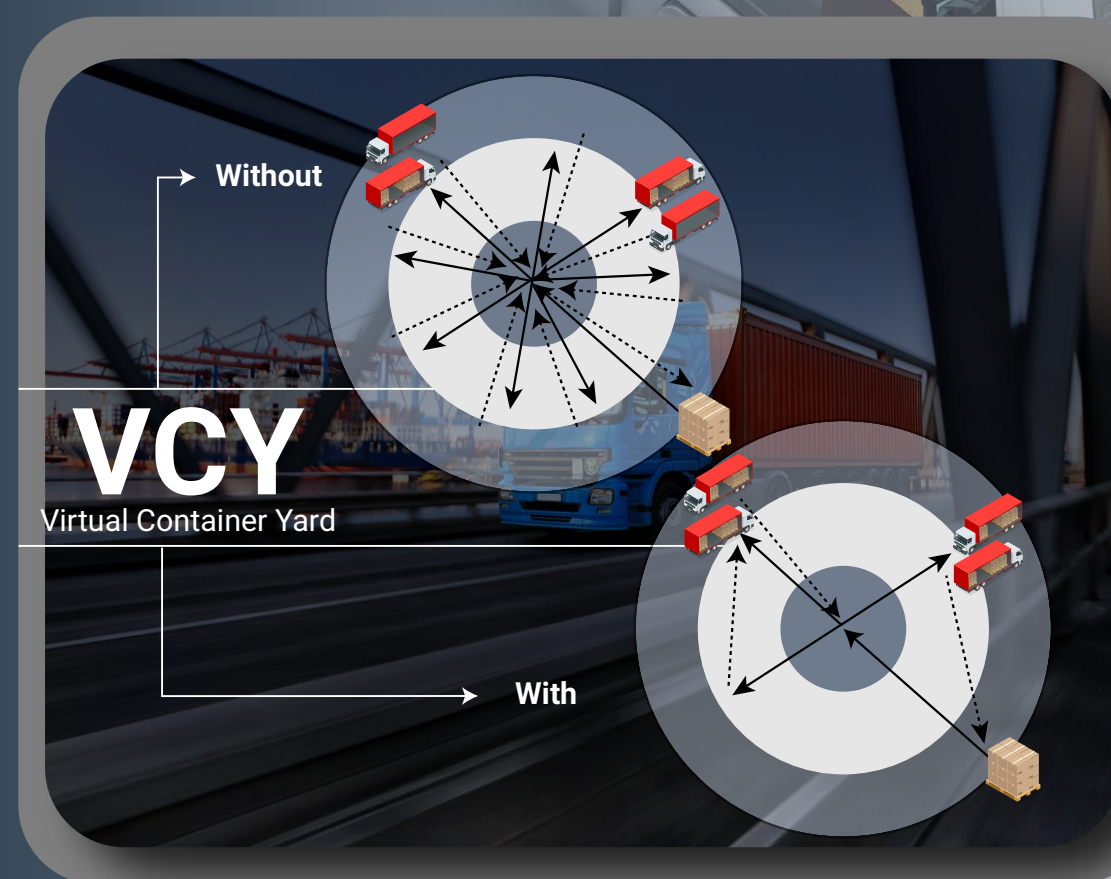
MDDEAS® ENABLING A VIRTUAL CONTAINER YARD TO REDUCE OVERALL CO₂ EMISSIONS

One of the most efficient ways to minimize unproductive empty trips and related problems is to facilitate the direct interchange of empty containers, the so-called "street-turns". The street turn will involve a trucker delivering an import load at a particular facility, and then utilizing the empty container directly from a nearby facility using either the same trucker or another truck operator, thus eliminating the need for two empty truck trips.

To enable these street-turns, the digital data-driven trade ecosystem created by MDDEAS® platform enables a so-called Virtual Container Yard (VCY). This VCY enhances direct empty container interchanges between trade lane parties and avoids empty trips to/from the marine terminal. (Refer to Figure 14.0).

MDDEAS® provides the following capabilities to deliver an efficient digital VCY:

- Real time visibility in collecting big data and information about containers and their status and location.
- Interactive, communication tools and apps facilitate communication between parties (motor carriers, ocean carriers, leasing companies, chassis pool operators) to match their needs.
- Virtual monitoring shipments and other processes to take place without moving the empty container back to the marine terminal.
- Assist in optimal decisions making regarding container logistics (return, reuse, interchange, etc.), rationalizing moves, and planning.



(Figure 14.0 - Virtual Container Yard)





ADVANCE SHIPMENT CLEARANCE

THE STRUGGLE WITH SHIPMENT DELAYS, MISTAKES, AND INCREASED OPERATION COSTS

Today the global value chains struggle with significant inefficiencies including cross border clearance delays caused by the increasing import/export documentation required by cargo security initiatives implemented since the September 11, 2001 incident.

In a 2021 report by the San Diego Association of Governments, truck traffic often sits idle for hours making the slow creep crossing from Tijuana into San Diego. The regional planning agency estimated that traffic emitted more than 1,238 kilograms of carbon dioxide per day or nearly 400,000 kilograms per year. Across North America, the border-crossing processes for truck transport at the US-Mexico and the US-Canada land borders result in hours-long waits costing the region billions of dollars and thousands of jobs.

The main causes for these cross-border delays include improper and lack of documentation, security inspections, and the lack of advanced traffic management.

- **Improper documentation** is largely a result of information errors or incomplete information. The information errors are driven by incorrect keystrokes to enter data into a multitude of documents, which must be corrected before a shipment is cleared for cross border entry. Incomplete information results from human error to process the required documentation on a timely basis
- **Lack of documentation** involves the above plus communication errors and late document arrival. Communications errors include connection interruptions, improper and misdialed line numbers, in-correct e-mail addresses, files with viruses, and illegibility of data. Late document arrival occurs when short transit time shipments arrive to the border before the required documents arrive.
- **Security inspections** have increased following the 9/11 incident, including secondary inspection stations
- **Lack of advanced traffic management** involve the inability to segregate legitimate and non-legitimate shipments for inspection resulting in bottlenecks at border crossing as roads “funnel” traffic in queue. The lack of advanced visibility for shipments in transit often results in insufficient personnel to manage traffic flow and process documentation

Although recent investments in technology systems have attempted to resolve the foregoing, information gaps remain due to the fragmentation of such systems among the supply chain participants, including buyers, sellers, logistics services providers, governments, finance, and insurance firms.

This fragmentation has resulted in the lack of real-time high-quality data as each participant must log into a separate system to look for information or manually insert data into different formats. This process causes inefficiencies and data mistakes that delay cross-border shipment clearance, increase costs, and result in greater CO₂ emissions.





THE LACK OF EFFECTIVE E-DOCUMENTATION CREATING CAUSING GREATER CARBON EMISSIONS

It is important to note that despite our current era of technology, most of the current trade data exchanged among multiple industry clusters across the global value chains is in the form of paper-based documentation. This antiquated documentation method contributes heavily to cross border shipment delays resulting in longer conveyance wait times creating greater carbon emissions.

In cooperation with 90 G20 ministries, IGOs/NGOs, industry associations and private sector experts representing 80% of the global GDP, the Coalition conducted the G20 Nations Case Study of B2B shipment efficiency. Following the collection of 1.2 million data points, the results were staggering. The aggregate average e-Documentation score achieved by all the G20 countries was 1.94 on a scale of 1 to 5. Accordingly, e-Documentation is not being 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.

Consequently, the number of days for Customs clearance across the G20 Nations varies significantly between high, mid and low-income countries. This represents a huge opportunity to increase the electronic transfer of shipment data across the G20 countries and their trade partners. However, digitization of the Customs cluster alone will not be able to sufficiently offset trade inefficiencies which caused by the bottlenecks in the downstream supply chain processes which use paper-based documentation.

Therefore, the necessary solution requires implementation of comprehensive e-Documentation for all of the trade data encompassing the entire global value chain. Such a solution can be achieved only through the implementation of the MDDEAS®.





ADVANCE SHIPMENT CLEARANCE

MDDEAS® E-DOCUMENTATION SOLUTION FOR ADVANCE SHIPMENT CLEARANCE

MDDEAS® delivers an efficient e-Documentation environment encompassing all the 19 clusters' trade transactions thereby enabling the digital Advance Shipment Clearance capability. This innovation brings together the public and private sector stakeholders to optimize cargo flows through seamless data exchange, reducing cross border shipment delays and lowering Co₂ emissions.

MDDEAS® facilitates Advance Shipment Clearance through the following functionalities:

Efficiently Prepare Documents

- Coordinate and consolidate shipment documentation such as the bill of lading (*Refer to Figure 14.0*) as soon as the shipment is scheduled. Data is electronically accumulated throughout the shipment process thus providing feedback on document status and accuracy, avoiding delays from incomplete documentation.
- Electronic data population reusing entered information and providing data entry only when necessary. This reduces required personnel and eases workload which speeds the flow of documents.
- Applies data validation logic, eliminating errors and correction time as well as improving document accuracy.

Speed Accurate Transmission of Documents to Customs Broker

- Replaces fax/email transmittals through a secure intent protocol communication line, creating ease of information access and automatic cross check of data for accuracy and authentication of source.
- Expedite Processing of Documents by Customs Broker
Eliminate manual document preparation with electronic data population, validation and correlation to required government regulations, reducing manual work effort, keystrokes and errors.

Facilitate Electronic Submission to Customs

- Eliminate manual entry into separate systems through electronic data population and submission to Customs, ensuring accuracy of information
- Replace manual review for accuracy through electronic authentication and data validation to data bases, ensuring completeness and required compliance.





VALUE PROPOSITION - IN BRIEF

The HumaWealth Program provides the digital tools to create a greener B2B environment by reducing Co₂ emissions by at least 230 million metric tons, rebalancing the global economy, creating greater SME prosperity, and enhancing global value chain resilience.

A GREENER B2B ENVIRONMENT

- Measure the carbon footprint across the global value chains and provide businesses incentives to select low carbon producing partners while reducing costs and increasing revenues.
- Increase business profitability and government tax revenues providing necessary capital for funding greater investments in new low carbon manufacturing methods and alternative sources such as wind, solar and hydrogen energy.
- Reduce empty conveyance miles and fuel consumption by increasing capacity utilization and optimizing the schedule, route, load, and cost to reduce supply chain process bottlenecks throughout the logistics pipeline, especially at ports and border crossings.
- Lower carbon monoxide emissions by reducing multimodal freight congestion at high-volume ports and other logistics chokepoints.
- Provide new e-commerce and e-logistics tools to efficiently identify, reuse, repair, and recycle materials optimizing the carbon footprint.
- Improve global visibility and more efficient, reliable logistics to acquire required energy inputs at a lower cost reducing the overall Co₂ emissions.

REBALANCING THE GLOBAL ECONOMY

The HumaWealth Program is projected to deliver a global economic benefit that exceeds USD 31 trillion by 2035. The program will increase the world's GDP by 17%, generate a new USD 20.5 trillion digital services industry, and create nearly 430 million high-paid jobs.

	MEA	ASIA	Europe	Americas	Global
Reduced Trade Costs (USD billion)	582	2,202	704	1,281	4,769
Increased Goods Trade (USD billion)	422	2,124	2,422	1,362	6,328
New Digital Services (USD billion)	2,385	9,452	4,172	4,490	20,500
Job Creation (million)	55	222	69	83	430

Access to USD 1 trillion Fund to Build SME Capacity



CREATING GREATER SME PROSPERITY

The HumaWealth Program provides SMEs with a free digital platform that includes communication tools coupled with Operations, Logistics, and Finance Apps to optimize operations. These innovative tools will allow SMEs to achieve several benefits, including:

- Expanding their supplier base towards reducing unit costs, boosting product quality, and improving delivery time.
- Increasing customer reach and optimizing matching to grow revenues.
- Ease access to financing and insurance providing the necessary working capital and risk coverage to expand operations,
- and Access to an annual USD 1 trillion SME fund by 2035 providing grants and subsidized loans to build SME capacity.

ENHANCING GLOBAL VALUE CHAIN RESILIENCE

The HumaWealth Program provides an ecosystem of global value chain and logistics apps delivering greater efficiency for shipments from shelf to shelf. Thousands of free apps are provided to the entire global logistics industry enhancing global value chain resilience, including:

- An integrated, validated data environment providing optimum visibility.
- E-documentation providing dynamic verification of business transactions.
- Optimized tracking and visibility across the entire value chains enabling shipment re-routing and other needed contingency measures.
- Improved competence through dynamic monitoring of trade performance based on contractual obligations.
- Enhanced cargo security and shipment clearance through dynamic validation of participant and shipment-related data against domestic and foreign security databases.



**GLOBAL COALITION
FOR EFFICIENT LOGISTICS**

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