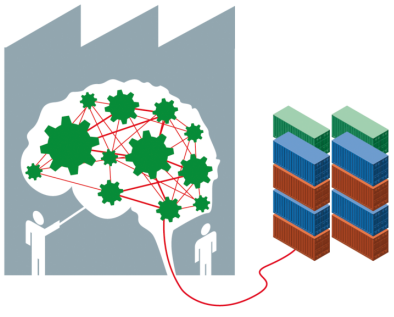
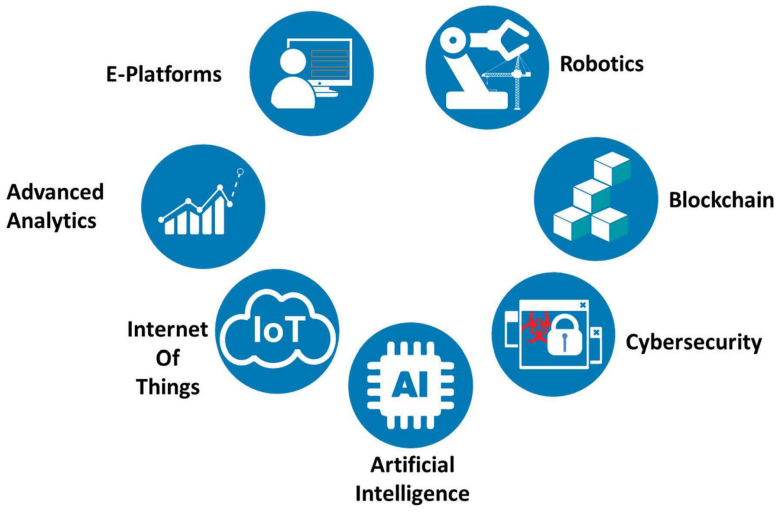
THE PATH TO AN INTELLIGENT SUPPLY CHAIN

An INTTRA Whitepaper

The idea of an Intelligent Supply Chain is not new. Back in the early 2000's during the Internet Revolution, many thought leaders began to explore the concept of leveraging internet connectivity to bring transformative change to the way supply chains operate. It was a great concept, but impossible to execute at the time. Fast forward to 2018, and we are starting to hear more about intelligent supply chains again. The technology is still not available to make the vision a reality, although the building blocks for the intelligent supply chain are starting to come into focus. For the logistics industry, its eventual arrival represents many of the things shippers and carriers have been looking for. A supply chain that is smart enough to predict and anticipate customer needs. A supply chain that senses changes. A supply chain that responds to unplanned events, and most importantly, a supply chain that continuously learns and improves. When realized, the intelligent supply chain should provide end-to-end visibility, plus the ability to implement actions autonomously in real time based on the analysis and interpretation of massive amounts of data.



Intelligent supply chain components



From 2012 to 2017, $3.3 billion was invested in shipping and logistics startups focused on digital technology.[1]

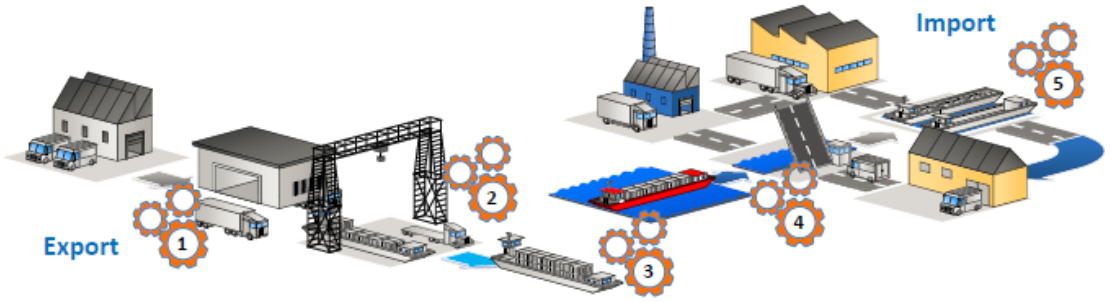
Some elements exist today while some don't. We are still years away, but we can predict that it will include a combination of automation, connected communication, predictive analytics, robotics and artificial intelligence. So how do we get from where we are today to the intelligent supply chain of the future?

WHERE WE ARE NOW

It is still far from a practical reality, but the resources are flowing and that's beginning to making a change. According to BCG Analysis, from 2012 to 2017, $3.3 billion was invested in shipping and logistics startups focused on digital

[1] 2017 BCG Pitch Book Analysis

The steps in the container shipping process



Today each segment has its own silo'd IT system.

technology. We don't have complete solutions yet, but continuing advances in e-platforms, analytics, robotics, blockchain, artificial intelligence and the Internet of Things (IoT) are starting to create some of the building blocks required to bring the intelligent supply chain to life.

Most organizations are in the process of digitalizing many of their important operational processes. INTTRA network members have long recognized the importance of an electronic booking process, and we are seeing unprecedented adoption of our ocean trade platform across shippers and carriers alike. But today most companies in the ocean freight industry still have a mix of manual and digitalized operations, and many roadblocks exist to expand the transformation.

New technologies, such as IoT and blockchain, can help overcome barriers to digitalization. IoT, for example, may seem like a far-off concept, but it's not. One of INTTRA's carriers, Maersk, now equips reefers with sensors for high-end and valuable goods, and in the process turns ships into floating data centers to provide greater protection for those valuable and sensitive shipments.

Blockchain is another technology that is receiving widespread coverage, and in particular around shipping and the supply chain because of its capabilities related to trust and smart contracts. There have been many pilots, including ones related to bill of lading, regulatory or rates provisioning, but there is still a gap between the promise of the trials and the reality of operational implementation. That's not uncommon with potentially groundbreaking innovations in early days, which is why it's fair to take a step back and be pragmatic when assessing its uses. This is not simply a message for blockchain: at INTTRA we believe in exploring new technologies, that can potentially produce better or more efficient results than existing ones, and providing new approaches for our customers.

THE STEPS TO AN INTELLIGENT SUPPLY CHAIN

If some components for an intelligent supply chain exist, then the question is how do we get from where we are today to where we want to be tomorrow. We look at it as a journey. The industry will take time to get from the manual to the digital world, from orders placed by phone, to everything existing in a blockchain environment with robots and AI assisting humans in handling exceptions. Indeed, approximately half of the industry remains manual even in the booking process despite the great progress made over the last few years.

However, we believe that over the last year the industry moved past the digitalization tipping point, accelerating the adoption of IT across all areas of operations. We are seeing momentum. For example, INTTRA's network has grown to cover more than 60 shipping lines, including all top 10 carriers, with adoption by regional and domestic carriers accelerating. This expansion illustrates the rising pressure within the industry to use digital platforms as the means to achieve a cost-effective way to digitize connections to multiple shipping partners.

Once we have digital processes, we can focus on connecting various players across the value chain to enable the appropriate sharing of data. It comes with its own set of challenges and required standards. After sharing data comes insight – using predictive and prescriptive analytics to provide actionable intelligence based on multiple data sources. And intelligence means using the data for learning, reacting, anticipating and improving.

Here is a more detailed description and examples of these stages.

Manual to Digitalized — Digitalization means turning manual processes into IT-driven ones, helping to reduce costs and errors. It is often slowed down by organizational resistance to change and, in some cases, a lack of IT skills and resources, especially when it also drives modifications to existing operational processes. For example, when a company moves from a manual accounting system, using simple Excel spreadsheets, to an integrated ERP system, the transition almost never occurs on schedule or on budget because planners underestimate the resistance to change and the velocity of its adoption within an organization.

Over its 17 year history, INTTRA has helped the industry to standardize and digitalize a number of processes, including bookings, shipping instruction submissions, and tracing container events. These started out as manual processes, and while there has been great success in moving half of bookings into a digital format, the other half remains manual.

However, the trend towards digitalization is much more visible when a new process is established, as happened with VGM submissions. The industry leaped

forward in this instance due to a change in regulations in 2016 that created a requirement for a new form of information exchange. Since the process had to be built from scratch, it went digital naturally: a year later, the sweeping majority of VGMs in the industry are submitted electronically.

Connected — Once the various parts of a company's business are digitized, it becomes easier to connect the different parts of operations, as well as to partners and customers. These connections facilitate a smooth exchange of data and create a foundation of end-to-end optimization. One of the concerns emerging at this stage of the process relates to the privacy of data exchanges with other organizations and a possibility of unauthorized access. Addressing cybersecurity requires verifying that every company in the network meets the same security and data privacy standards as well as maintaining control of the types of information exchanged with others.

For example, let us look at container tracing. Today, carriers and terminals provide tracking signals on container positions and status events, but only some drayage companies do the same. The industry lacks a standardized way to get a consistent single-view, and a full set of tracking events from all sources covering each step along the shipping process after every container leaves the port and arrives at a warehouse. However, this can be accomplished with existing technologies and that does not require sharing the sensitive data except on a need-to-know basis. What it requires is establishing and maintaining certain standards around the quality of data sets and sharing rules. A great value can be created without violating data privacy.

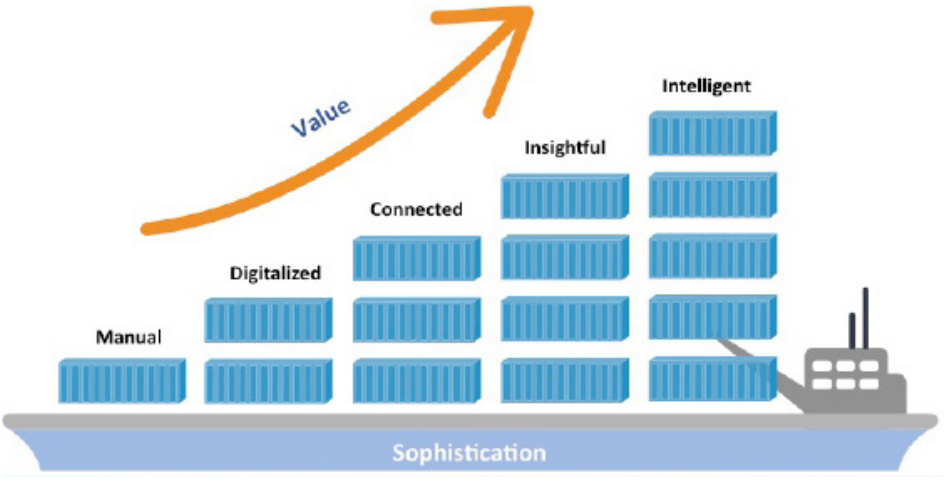
Insightful — Today we can save virtually every piece of data in an organization at reasonable costs, enabling improved efficiency through predictive analytics. Forecasting is vitally important for building intelligent supply chains, enabling them to anticipate and to react, and that calls for incorporating predictive analytics to solve specific problems. For example, INTTRA recently introduced a product called C-FAST for container forecasting and allocations by Freight Forwarders, NVOCC's and direct BCO shippers.

C-FAST matches the forecast of their anticipated container volume to the contractual minimum commitments and bookings to date to design the best allocation recommendations. To develop them INTTRA pulls data from three major separate sources: container bookings-to-date across all regions and branches, existing contracts for carriers, and forecasting data. We applied predictive analytics to the merged sets to come up with recommendations on shipment plans to meet delivery commitments and optimize financial results. We've reached a critical mass in digitalization processes and in critical data sets, which will increasingly enable organizations to analyze the data for better decisions, better solutions and increased visibility.

Intelligent — While the fully intelligent supply chain remains a vision, its early elements are being piloted and introduced across the industry. For example, we see intelligent cranes in terminals that when confronted with an issue, such as another crane stuck and blocking its way, will change course and start working on a different container move. Fully automated terminals are also in use today and provide a great example of what can be achieved through an innovative use of technology. However, automation requires standardization and the shipping industry is full of exceptions and fragmentation. Establishing common operational and data standards will be the first step forward and it usually takes much longer than writing software to support those standards. INTTRA believes that the next frontier will be in establishing the standards for the exchange of data, and especially for connectivity between financial and operational data sources. It will allow the industry to fully benefit from optimization of end-to-end value chains and in the process come closer to the promise of the intelligent supply chain.

No single company can accomplish this on its own. It will take the joint efforts of the shipping and technology communities. We aspire to help the industry in this evolution. With more than 60 carriers, 30,000 active shippers and over 150 software partners, INTTRA is uniquely positioned to connect the shipping community striving to make the intelligent supply chain for global container shipping a reality.

The path to an intelligent supply chain



Together we can make the intelligent supply chain a reality for the global container trade.

ABOUT INTTRA

INTTRA is the largest neutral electronic transaction platform, software and information provider at the center of the ocean shipping industry. INTTRA's innovative products, combined with the scale of our network, empower our customers to trade with multiple parties and leverage ocean industry information to improve their business. Connecting over 30,000 shipping companies across 200 countries with more than 60 leading carriers and over 150 software alliance partners, INTTRA streamlines the ocean trade process. More than 800,000 container orders per week are initiated on the INTTRA platform, representing over one quarter of global ocean container trade.