Innovating customs

Creating economic vitality through cloud, analytics, mobile and social technologies

IBM

Since its inception, information technology has helped transform business processes, and in this respect CAMS (cloud, analytics, mobile and social) technologies are no different. Each has supported such transformations, but what sets them apart is their mutual reinforcement and the increased impact when used together.

The most popular examples of this joint effect are typically derived from business-to-consumer (B2C) scenarios. In these scenarios, both consumers and businesses take advantage of blending mobile access with improved insights about buying and selling patterns based on analyses of social data and the supporting computing resources as and when needed.

This white paper demonstrates the impact of CAMS technologies in another context—international trade, specifically customs administration. We will detail this impact for two different circumstances:

- Where data sharing among participants is often limited to a one-to-one information exchange based on individual agreements or legal requirements
- Where data is systematically shared and enriched throughout the international trade ecosystem

The joint use of CAMS technologies provides the means to optimize current business processes. However, by adding improved sharing of information, CAMS technologies can create greater benefits and new business opportunities for all involved, ultimately leading towards improved trade facilitation.

Introducing the international trade ecosystem

With the rise of globalization, many nations owe their welfare to international trade. Smooth, simple and fast trade has become an essential element to the economic vitality of nations. Even shortening supply cycles by just one or two days can have an effect on economic competitiveness.

It is the task of customs administrations to facilitate trade while ensuring compliance with regulations and battling criminal and terrorist activities. The processes to fulfill these goals provide the backdrop against which the relevance and potential impact of CAMS technologies will be discussed in this paper. Figure 1 illustrates a simplified version of the relationships between buyers, sellers, logistics providers and customs administrations.
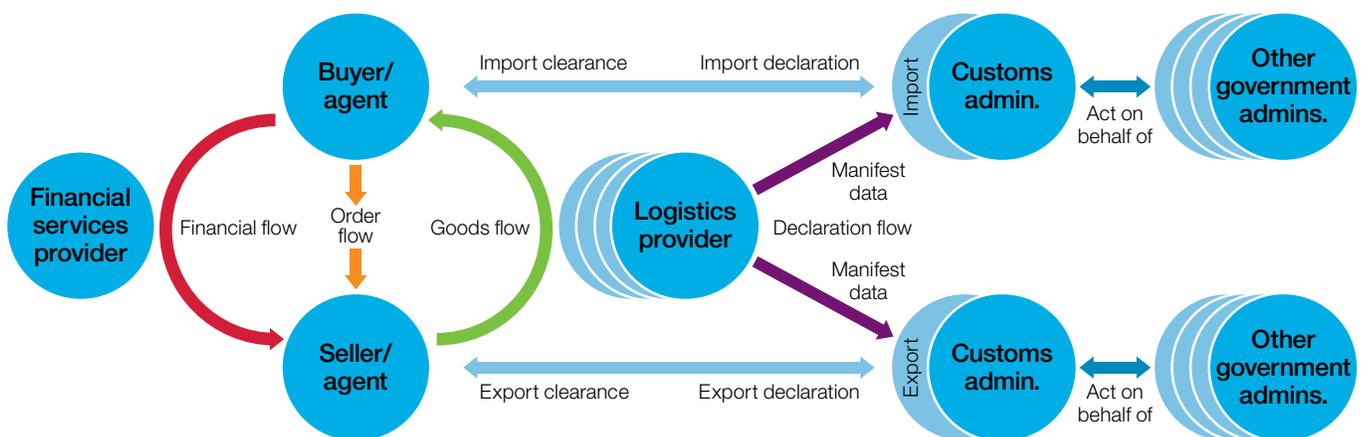

Figure 1. International trade ecosystem

The following business flows appear within the ecosystem shown in Figure 1:

- Financial flow (red): This flow relates to the payment and insurance for the goods.
- Order flow (orange): The Order flow represents the order submission from the buyer to the seller.
- Goods flow (green): The Goods flow represents the conveyance of the consignment from seller/agent to buyer/agent.
- Declaration flow (purple): There are two main flows of declarations:
  - Entry and exit flows: These processes reflect the physical entry and exit of goods, and focus on safety and security risks.[1]
  - Import and export flows: These processes, and the import/export declarations, represent the administrative handling of import/export transactions, and focus on financial and other non-security risks.

Introducing the challenges

The four major flows depicted in Figure 1 have essentially been in operation since the onset of trade. Changes in technology, regulatory approaches and global politics are forcing customs professionals to revisit these processes to identify and implement new approaches to help traders move faster and remain competitive.

The business challenges encountered in international trade typically depend on whose perspective is taken into account. Each group—suppliers, shippers, buyers and so forth—have differing and often conflicting priorities. Difficulties arise when each group must navigate the priorities of the other, while conforming to its own unique requirements and still handling trade goods in a timely and cost-effective manner.

Speed and costs

For suppliers, getting their goods to a given destination as quickly and inexpensively as possible is the fundamental driver for business health and growth. Therefore, suppliers look for partners offering the most compelling combination of speed and cost savings.

Logistics professionals, in turn, focus on managing the administrative burdens associated with international trade. Parts of these burdens are related to customs processes taking place during the logistics processes. In an effort to shorten supply chain times, the timeframe during which shipments can be cleared is put under constant pressure. Both suppliers and logistics personnel can view every inspection of cargo with negative results (the importer/exporter was compliant and the cargo was in accordance with the submitted declarations) as red tape, adding costs, and creating delays in the supply chain.

Rising volumes

International trade continues to increase year-on-year for a variety of reasons:

- The shift of work from more expensive countries to less expensive ones
- The evolution towards global supply chains
- The growth of e-commerce

Customs administrations, therefore, are being called to process an ever-increasing volume of trade (declarations) while managing shifting regulations and incorporating new security procedures. Simultaneously, budget cuts in the public sector are forcing customs administrations to do more with less. These changes in the reality of customs and trade are forcing administrators to seek out new ways to perform old tasks and incorporate new responsibilities without sacrificing quality of service and speed.

Increasing complexity

One aspect that could easily be missed is the intrinsic complexity in the logistics provider domain. This complexity arises from the innovation, specialization and dynamics of the logistics sector where goods are conveyed through a network of shippers/consignees. The most immediately felt consequence, in terms of CAMS technologies for customs, is the fragmentation of information. A shipper is often only aware of the actual date shipped and the expected arrival date, but has no information about the whereabouts of the goods during the actual shipment.

For the customs administrations, this fragmentation has the potential to introduce a myriad of headaches, as any insight into the route of a shipment could only be gained by contacting the successively involved logistics providers. In addition, safety- and security-related issues could be easily overlooked because of the lack of access to relevant information. This can lead to more inspections than necessary. As soon as uncertainty is introduced in a single shipper/consignee interaction, the entire chain of consistent and trusted information breaks down, triggering slowed shipments, wasted inspection efforts and additional costs.

Increasing uncertainty

Obviously, criminals and terrorists have an interest in concealing the true origin and destination of shipments, and technological advances and the nature of certain technologies make it difficult for customs professionals to discern safety or security risks, when referring to the dual use nature of some goods. This new reality puts additional pressure on customs administrations to acquire specialized knowledge to perform specialized inspection tasks while preserving the efficiency and effectiveness demanded by other partners in the process.

Introducing CAMS

CAMS, sometimes called SMAC, is the acronym for the integration of cloud, analytics, mobile and social technologies. Each of these technologies has been a game-changer for various industries.

Cloud

Cloud computing is the delivery of computing as a service, providing access to computing resources as a utility (like the electricity grid) over a network (typically the Internet).[2] Whereas in traditional approaches, setting up information communication technology (ICT) infrastructures is characterized by long lead times and up-front investments for predetermined capacities, cloud technology allows you to mobilize ICT resources quickly, delivering elastic capacity in a pay-as-you-go model, making it ideally suitable for supporting varying workloads.

Analytics

Analytics refers to the technology used to derive insights from data to make decisions, such as using patterns to gain insight into behaviors. Most of us have already been exposed to targeted advertisements on frequently visited web sites. But analytics holds more promise than simply encouraging consumers to buy more. For customs and trade, analytics can help identify "normal" behavior and when and where there are deviations from this historic pattern. For example, analytics allows us to answer questions such as:

- What happened? For example, what are the shipping routes used in the past for this type of shipment?
- What will happen? For example, which route would we expect to be used?
- What should happen? For example, what is the optimal route to use?

Mobile

Mobile refers to the technology used to provide access to enterprise applications and data by its employees, regardless of their locations. Introducing the ability to consult or gain access to enterprise applications while performing off-site activities, such as an inspection or while moving from one location to another,

can greatly improve the efficiency and effectiveness of such activities. While security challenges still exist in regard to accessing enterprise information and applications, the proliferation of banking applications shows that solutions exist to address these concerns.

Social

Social refers to the technology used to set up and maintain communities of people sharing a common purpose; for example, private communities within or across organizations to support specific business processes or areas of expertise. For the international trade ecosystem, this could mean supporting communities for all partners in a port, all customs administration officials sharing similar job functions, or all participants in a specific shipment of goods.

Cloud + Analytics + Mobile + Social

The combination of these four different technologies in global trade extends the reach and obtainable benefits of any individually applied technology:

- Cloud: The flexible use of computing resources drives innovation. The social, mobile and analytics components can rely on the cloud to limit up-front investment costs, to realize their added value to the business. These technologies drive the case for the cloud.
- Analytics: The benefits obtainable through analytics are driven by the quality of the available data. Combining social data with information from other sources—in our case supply chain data—provides a powerful starting point to derive useful insights that drive innovation. Sharing these insights through the mobile and social components can bring the insights to bear upon current work practices. Running and disseminating the results of these analyses relies on the flexible use of computing resources.

- Mobile: The ability to reach employees along the supply chain in their specific work context and location creates the opportunity to involve them by tapping their expertise, or making targeted information available at the same time, thereby extending the reach of the social network of trade experts. Preparing and delivering this information is supported by the flexible use of any required computing resources.
- Social: The power of social technologies becomes valuable when the knowledge of individuals (for example, customs officers with expertise in specific commodities) is made available organization-wide, perhaps through mobile technology. It also becomes valuable when that information is used to drive analytics to increase insights and identify patterns. Sharing insights with parties wherever they find themselves is a key capability delivered through mobile technology, and cloud-sourced computing resources ensure the flexible delivery of analytical and mobile capabilities.

In the next section we demonstrate how the combination of these technologies improves the business outcomes in the current international trade ecosystem.

Improving business outcomes in the international trade ecosystem

In this section we will walk through the international trade ecosystem-related processes. We will then analyze some of these business processes to demonstrate the added value obtainable through the application of CAMS technologies.

Table 1: Overview of the international trade ecosystem-related processes

Process	Description
1	The buyer orders goods that will be received through an international shipment under certain Incoterms such as EXW, FOB, CFR or CIF.
2	As part of the order intake processing, a background check is performed on the client.
3	The seller or a representative submits export data, such as a customs declaration, to the customs administration of the exporting country.
4	The customs administration processes the declaration and performs a risk assessment—fiscal, economic, health or other—of the proposed export. If necessary, a customs officer inspects the consignment.
5	The customs administration provides an export clearance.
6	A shipment order is submitted by the seller, and the goods are collected by the logistics provider who will ensure the delivery of this consignment to the client.
7	The seller updates the buyer on the progress of the shipment.
8	The logistics provider submits the exit summary declaration to the customs administration.
9	The customs administration processes the declaration and performs a safety and security risk assessment for the proposed export. If necessary, a customs officer inspects the consignment.
10	The logistics provider submits manifest data, such as pre-arrival, arrival declaration and temporary storage, to the customs administration of the importing country.
11	The customs administration performs a risk assessment of safety and security for the proposed import and decides whether or not the consignment will be inspected. If necessary, a customs officer inspects the consignment. The consignment is placed in temporary storage.
12	The logistics provider sends cargo conveyance notifications, manifest information, and the estimated arrival time at the destination.
13	The buyer or a representative submits import data, such as a customs declaration, to the customs administration of the importing country.
14	The customs administration processes the declaration and performs a risk assessment—fiscal, economic, health or other—of the proposed import. If necessary, a customs officer inspects the consignment.
15	The customs administration provides an import clearance to the buyer.
16	The buyer can receive possession of the goods.

A number of simplifications have been introduced in this overview. For instance, we are ignoring the fact that goods can enter the EU through one member state and be imported in another member state. In this case, the customs administration that handles the entry process is not the same as the one that handles the import declaration.
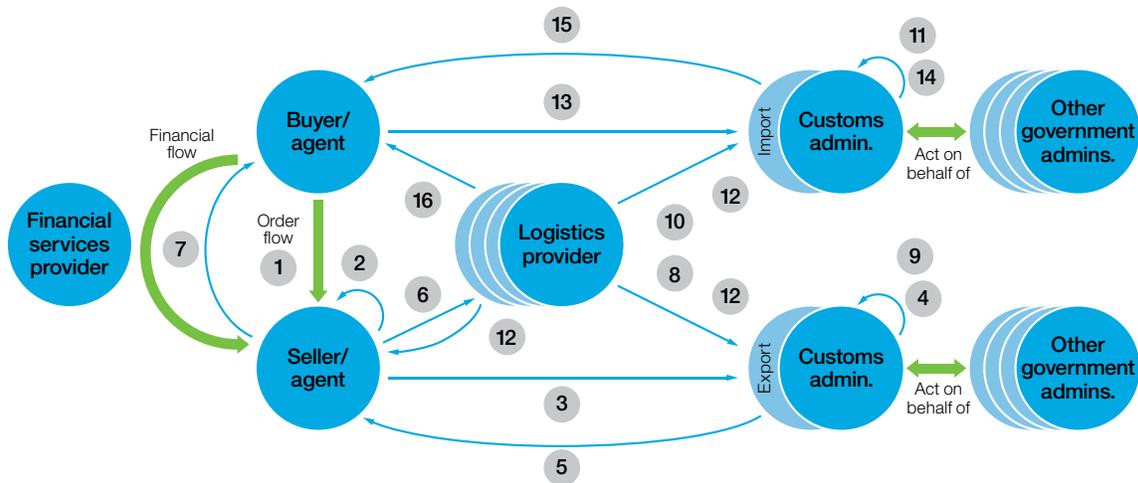
Figure 2. Key processes

Against the backdrop of the international trade ecosystem introduced in Figure 1, we have created a simplified overview in Figure 2 of some of the processes involved in international trade. These processes provide us with a starting point for discussing the improved business outcomes as a result of the application of CAMS technologies.

Applying CAMS to the current international trade ecosystem

In the following sections, we take a look at specific steps in the trade practice and how CAMS technologies can affect certain processes in the trade ecosystem. We demonstrate how:

- Cloud technology serves as the foundation for deploying the other technologies in a cost-efficient manner.
- Analytics helps to identify patterns in data and improves the development of risk profiles used to drive risk assessments.

- Mobile technology ensures that all available information can be put at the disposal of employees no matter where they perform their duties.
- Social technology enables the sharing of the specialist knowledge of the few with the many that need it to perform their roles more effectively.

CAMS for the seller/agent

CAMS technologies are particularly useful when the seller/agent performs background checks of the client as part of the order intake processing (step 2).

When performing background checks, analytics allow for faster identification of fraudulent identities and trends, particularly when incorporating information from social media. Sellers trading in sensitive goods can collect reference data about clients and past purchases, which can support them in their sales process,

ensuring they comply with all applicable regulations. Mobile technologies allow this knowledge base to be easily shared among the concerned employees on the seller's side, so they can make informed decisions even when off-site. Using the same technologies, sellers can inform their suppliers of an impending sale transaction, giving suppliers the opportunity to optimize or improve their supply processes, rendering the overall supply chain more integrated and efficient.

Either the seller, buyer, or the buyer's agent is responsible for the shipment of goods. Analytics solutions using historic shipment and social business data create insights about the best shipment option. Also, when the cargo is on its way to its destination, analytics solutions, made available also through mobile, can help the seller make dynamic choices about re-routing cargo to meet shifts in demand.

CAMS for the logistics provider
CAMS technologies offer benefits when the logistics provider sends cargo conveyance notifications, manifest information, estimated arrival time at destination and other added value services (Step 12).

The logistics provider tracks the cargo conveyance. Using this information, the logistics provider is able to determine the expected arrival date and time, and convey it to involved parties, such as sellers and customs administrations. Analytics technologies allow for advanced optimization algorithms to determine optimal routing, collect relevant data—such as historical performance data, weather forecasts, unexpected changes in demand or supply—and calculate cargo arrival date and time accurately. In addition, analytics can be used to optimize transport routes and modes, for both the overall logistics chain and specific cargo. Mobile technologies allow the analytic results to be shared in a timely fashion, which permits on-the-fly changes to optimize logistics and makes the latest information available to employees working in ports and warehouses.

This can be of particular value when chains or communities of multiple logistics services providers require alignment of their operations. Social technologies allow for the easy communication of shipment-related data such as cargo handling and applicable health and safety guidance, through one social community supporting the logistics provider/agent relationship. Such communities are of special interest for logistics providers because multiple providers are typically involved in a single shipment. Mobile access to such communities is vital to empower employees working in the ports, warehouses and on the road.

CAMS for the buyer/agent
CAMS technologies support the buyer/agent when submitting import data, such as a customs declaration, to the customs administration of the importing country (step 13).

A critical part of the import declaration is the correct classification of the goods, namely which commodity code to use. This classification is used to determine any import duties. Making all relevant background information, such as commodity codes and their explanation, available through the use of social and mobile technology shortens workflows and allows conflicts to be resolved more quickly. In addition, the use of analytics, through the search of unstructured text (for example, communities of interest or product catalogues) can help determine the most appropriate classification for the import declaration and the identification of the commodity codes which are typically used by the buyer. This reduces the probability of making errors and optimizes the selected commodity codes, thereby ensuring that the correct and least expensive commodity codes are used.

CAMS for risk assessment in customs administrations
CAMS technologies also provide benefits to customs administrations for processing declarations, performing risk assessments and consignment inspections (steps 4, 9, 11 and 14).

Throughout the supply chain process, customs administrations receive information from parties in the supply chain. In the case of importing, this includes pre-arrival manifest information, followed by an arrival notification, information about the goods that will be offloaded at the given port of arrival, and a customs declaration. The manifest-related information is analyzed starting from risk profiles and models that have been created based on an analysis of information, such as:

- Data about past transactions and violation history, financial status, shipment profile and so forth, for the entities—buyers, sellers, and logistics providers—that execute the transaction
- Data concerning the inherent risks for certain goods, and their country of origin
- Data related to past experiences with the means of transport and shipment route

This information can further be supplemented by sensor data obtained from cargo, containers and vessels providing real-time information about their locations, as well as indications of integrity breaches. The customs administration determines the risk level associated with the cargo and whether a control needs to be scheduled.

Cloud technologies support the delivery of key risk management functions, such as the processing of entry, exit, import and export declarations, and determining whether an inspection of the cargo is warranted. Analytics technologies allow the creation of risk profiles and models for cargo, trading routes and trade parties, and the identification of cargo to be inspected. Social and mobile technologies are then employed by customs officials to access this information during inspections.

CAMS for inspections in customs administrations

When the processes mentioned above indicate that a shipment presents a certain risk, the customs administrations will control the shipment. Control can be a physical inspection of goods by a customs officer or an administrative control of documents—or a combination of the two. Administrative control often takes place

after the release of goods (pending guarantee) to facilitate fast trade in cases where the risk is primarily financial and inspections due to health, safety or security concerns are not deemed necessary.

In order for inspections to be carried out efficiently, the assignment of an inspection task to a customs officer needs to take into account:

- Specific expertise required to inspect a given type of shipment
- Availability of inspection officers and inspection equipment at a given time and location

Cloud technologies support the delivery of key inspection functions, such as assigning customs officers to inspection tasks and making all relevant information for these inspections available. Analytics technologies guide the allocation of customs officers to inspection assignments. Mobile technologies ease access to back-office systems where a wealth of information, such as compliance histories, customs declarations and risk profiles, are available. This data allows the inspector to focus on specific verification points identified during the analysis. Social media platforms support the sharing of information between customs officers, ensuring that specialized knowledge can be brought to bear wherever and whenever it is needed, avoiding expensive follow-ups, such as laboratory research.

Preparing for significant steps forward in trade facilitation

The preceding section showed that logistics service providers and customs administrations are the primary benefactors of CAMS technology. However, for all parties in the ecosystem to derive the full benefits of CAMS technologies, the willingness to share information between all parties must be cultivated.

This section explores the current challenges related to information sharing and details the additional benefits that can be realized as an additional motivation to take significant steps towards introducing wider sharing of information.

Information sharing as the next step for trade facilitation

Figures 1 and 2 emphasize the major flows and business processes taking place in the international trade ecosystem. A number of challenges limit the degree to which current international trade-related processes can be further optimized:

- The lack of standardization of electronic customs declarations-related documents and international legal systems
- The complexity of the logistics networks
- Established business models that benefit from the lack of information sharing across supply chains
- Competing economic interests, as countries do not always have the economic incentive to help each other become more effective and efficient

Such challenges limit the degree to which trade can be facilitated and stifle opportunities for further innovation as they make it difficult to:

- Establish the end-to-end journey of any shipment
- Identify the actual seller and buyer
- Optimize inventory and production processes based on accurate shipment information
- Reuse information among customs administrations

From retail to industrial sectors, information—both its acquisition and use—has drastically changed how business is conducted in this century. Whether through targeted advertisements or refinement of industrial manufacturing processes, sharing data in industries across the globe has resulted in greater efficiencies, increased revenue and reduced barriers to maintaining competitiveness. The sharing of data is no less vital for international trade partners, and particularly for customs administrations. The question, though, is how to create that flow of information in a complex environment where parties are driven by competing goals, as in the international trade ecosystem.

One approach toward realizing the vision of widespread information sharing is to accept customs administrations as an integral participant in the supply chain. In this scenario, trade facilitation is improved by having each participant in the process share information with the customs administrations beyond providing only the legally required information. Establishing a means for sharing information requires careful decisions about information ownership, access rights to commercially sensitive information, security, and the use of this shared information by all parties. Figure 3 illustrates this approach to information sharing.
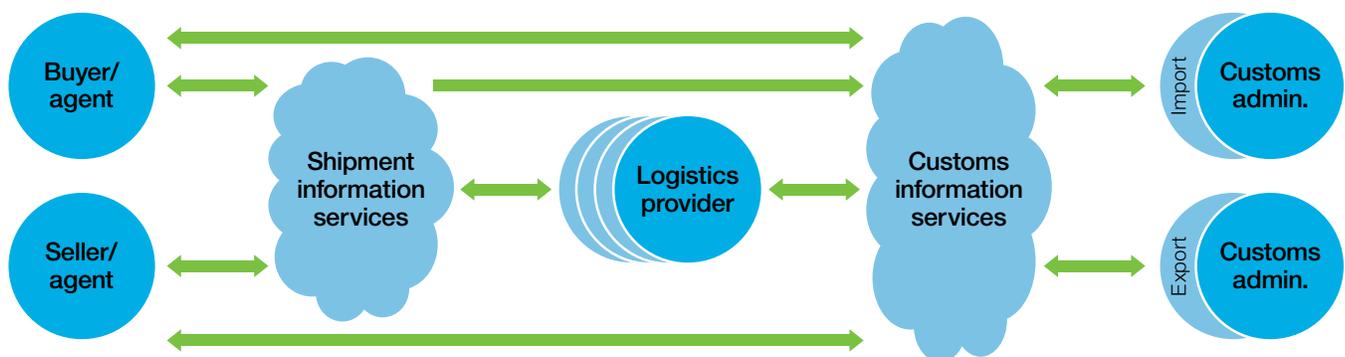

Figure 3. Managed information services in the international trade ecosystem

As shown in Figure 3, we propose to distinguish two different managed information services:

- Shipment information services: Services that are built on top of all information related to the goods and shipments in a container on a conveyance from seller to buyer across all involved logistics providers.
- Customs information services: Customs in the country of export and the country of import—and potentially customs in the country of transit—share services using information related to the shipment from seller to buyer.

These managed information services refer to a collection of services built on top of structured and unstructured data concerning a particular domain. In this case, it is the shipment and customs declarations related to cargo. It is important to point out that establishing managed information services requires addressing how information can be shared across legal systems. As shown in Figure 3, this still represents a vision rather than a short-term reality.

The managed information services for both shipment and customs provide a rich basis for introducing significant innovation and process transformation that can create opportunities for developing new business models. Our experience shows that a major inhibitor in realizing these services globally is the question who would own and run the services. Other issues, such as data security, legislative framework and revenue streams, are challenges to answering the ownership question. Due to the complexity of these questions, a feasible approach is to start small, yet think big. However, developing a global scheme for

such information services is a long journey. A more feasible approach is to develop smaller point-solutions, starting in a single country or a few countries that agree to collaborate, later extending to an economic zone, and aiming to become a global solution eventually.

In the next section, we discuss how these managed information services can drive the next generation of trade facilitation, and significantly improve the business outcomes through the application of CAMS technologies.

CAMS as enabler for trade facilitation

This section demonstrates how CAMS offers significant improvements for trade facilitation, once the managed information services vision has been at least partially realized.

Applying CAMS using managed information services

The creation of such managed information services creates the ideal starting point for applying CAMS-related technologies:

- Cloud technologies provide a flexible foundation for managed information services.
- Analytics technologies can now be based on richer and more extensive information.
- Mobile technologies give access to the managed information services.
- Social technologies structure the information into communities around specific subjects, such as a particular shipment or conveyance.

Applying CAMS for the buyer, seller or agent for managed information services

When the seller submits export data, such as a customs declaration, to the customs administration of the exporting country (step 3), it is shared with other relevant parties through the customs information services. The seller can then follow up on the status of his declaration. Furthermore, the supplied information can be used to address the import declaration-related information requirements in the country of import (data reuse).

When a shipment order is submitted by the seller and the goods are collected by the logistics provider who will ensure the delivery of this consignment to the client (step 6), the seller will provide shipment- and cargo-related status information through the shipment information services, making it available to the seller/agent, buyer/agent and other involved logistics providers.

In addition, this information could also be used by the seller to optimize their own deliveries. Taking into account the priorities of buyers, certain shipments can be redirected to optimize supply chain effectiveness. To do so, the logistics provider would have to publish revised delivery dates of potentially diverted shipments. Such additional services could make a seller more attractive because of the increased flexibility in delivering goods, a faster end-to-end process for shipping and reliable delivery

times. Information sharing across participants in the supply chain will also reduce delivery errors, which are costly when detected only by the consignee/buyer.

Analytics technologies support the optimization of the buyer's supply chain based on the expected shipment delivery times received from the logistics provider. These shipment delivery times are now based on information received from all involved logistics providers, providing a much firmer basis for the predicted delivery time of these goods. Not only does it become easier to plan advertisements on time (this is important for grocery stores or chains) but also any deviations from the initially determined delivery time are identified earlier. Mobile technologies ensure that all ordered goods-related information is collected and made available to all stakeholders. Mobile access can be used in warehouses and ports, and by operations managers. Social technologies provide online communities for collaboratively sharing information between the buyer, the seller and other involved parties.

In addition to the arrival-related information, other information related to the ordered goods, such as handling, installation, applicable health and safety guidance, can be made available through these managed information services. Information is made available from its source, often in the country of origin.

In the context of these processes, the shipment information services contain the necessary information to fully make use of CAMS technologies. This can result in giving the supplier access to accurate, up-to-date information, which can be used to optimize planning and making this enriched information available wherever required, generating benefits that cannot be achieved through the use of any one of the contributing technologies.

Applying CAMS for the logistics provider using managed information services

CAMS technologies offer benefits when the logistics provider sends cargo conveyance notifications, manifest information and the estimated arrival time at destination (step 12).

Logistics providers gain a central point where the cargo conveyance-related progress information can be shared with other logistics providers through mobile and social technologies. The shipment information services allow the creation of a single "superset" of supply chain data regarding a transaction. This single superset combines data from all involved parties and is the basis for optimizing the processes of all participants involved in the supply chain through the use of CAMS technologies. All required declarations for all involved customs administrations can be created on the basis of the data held in this superset in each country of export, transit and import. The logistics providers involved in the end-to-end conveyance can take advantage of the shared conveyance progress data and analytics technologies to optimize processes and refine estimates of the expected arrival date and time. Using this information, the logistics provider can decide to reroute shipments based on service level agreements (SLAs) for shipping and the availability of cost-effective means of transport. Enhancing the quality of this information will also improve the results of the optimal route evaluations for a given cargo, thereby optimizing the overall logistics chain. The increased supply chain visibility can result in fewer errors, which are currently only detected upon arrival of the goods.

Applying CAMS for customs administrations using managed information services

CAMS technologies provide benefits to the customs administrations in processing declarations, performing risk assessments and inspecting consignments (steps 4, 9, 11 and 14).

Through the customs and shipment information services, all order information from the buyer or the seller and all shipment- and cargo-related information is available to all concerned customs administrations. In turn, customs administrations make any relevant information related to any of the parties involved in the supply chain (both past and current) available to all other involved customs administrations, significantly enriching the information based on which risks can be assessed.

These risk assessments, based on more accurate, complete and qualitative information, allow customs administrations to better evaluate the risk level associated with the cargo and become much more effective in terms of control. This results in fewer false positives, reducing inspections of low-risk shipments and facilitating legitimate trade. In our experience, a major challenge in customs risk assessment is the quality of data. The solution presented here will offer a breakthrough in solving this problem. Moreover, the customs information services create new opportunities for:

- Validating declarations, because discrepancies can be identified through the application of analytical techniques. In this case, the information from the export declaration forms the basis for the import declaration, and the importer only needs to add a limited amount of additional information. At the least, the import and export declarations will be compared. A more advanced scenario includes data from all of the countries involved in the trade in this analysis.
- Creating social business communities that enable customs officers to consult in real time the experience of others during inspections, which leads to faster customs inspections with fewer follow-up checks (lab research).

It is important to note the systematic delivery of information throughout the supply chain, both in shipment and customs information contexts, would effectively eliminate the fragmentation of the information leading to faster customs clearance, which in turn improves the economic competitiveness of the country. Cloud technology is ideal for creating such a decentralized, international, information sharing infrastructure which in turn allows users to leverage the CAMS technologies to their full potential.

Conclusion

By ensuring that trade complies with regulations that govern international trade, including fiscal, economic, security, health, consumer safety and environment codes, customs administrations play a fundamental role in international supply chains. But ever-increasing complexity is forcing customs administrations to revisit how trade practices are carried out.

In international trade, CAMS technologies can create opportunities for improving the effectiveness and efficiency of the existing business processes. They do so by enabling the analysis of already existing data, improving the exchange of expertise within the existing organizational boundaries, and making the results of these analyses available where necessary. Cloud technologies allow this to take place without significant investments in the underpinning IT infrastructure.

There are limits, however, to what can be achieved currently, when information is shared only to a limited extent between the participants involved in international trade. Transforming the international trade ecosystem through the creation of managed information services—one focusing on all shipment-related information, and one focusing on the information shared between the different customs administrations regarding a particular conveyance—would create significant opportunities for trade facilitation.

Not only would the effectiveness of the currently existing business processes significantly increase through access to richer information related to the journey of a shipment, but significant opportunities for innovation would be created through processes that open up the information services to all participants in the international trade ecosystem. Such information services are fertile grounds for business innovation. In the future, CAMS technologies will be essential to realize the full potential of these innovations by exploiting information through analytics, throughout an ecosystem using social technologies, and making the information available where needed without significant up front investments.

For more information

To learn more about innovating customs, please contact your IBM representative or IBM Business Partner, or visit the following website:
ibm.com/industries/government/customs_borders.html

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[1] In the EU there are separate procedures for entry and import and for export
and exit because goods can enter the EU in one country yet be imported in
another country in the EU. The same holds for export/exit. In other
countries the distinction may be less strict, yet the end-to-end process
remains similar and the involved declarations are very similar.

[2] US Department of Commerce. "The NIST Definition of Cloud
Computing." National Institute of Standards and Technology.
September 2011.

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