

Getting a Grip on **Master Data**:
The importance of master data
management for **automating
product classification**

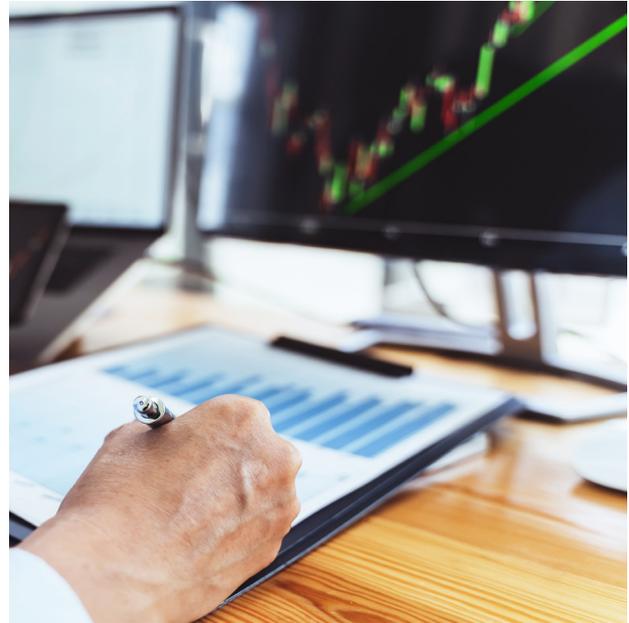
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Introduction

Master data is core, critical information that is essential for business operations, and customs compliance is no exception. Unlike the dynamic, fast-paced transactional data that informs real-time decision-making in today's data-driven world, master data is more foundational. It serves as a reference point for accurate information about customers, products, or suppliers. This information is constantly accessed by software systems, departments, and applications across your organization, and its accuracy directly affects their performance.

Without a strategy for gathering, maintaining, and accessing accurate master data, day-to-day business processes can break down, causing a ripple effect that can tax resources, blow deadlines, impact decision-making capabilities, disrupt operations, create customer service issues, and decelerate growth. Having a master data management (MDM) strategy in place will save you from these headaches by ensuring all systems and personnel have access to reliable data. Well-maintained master data and a solid MDM strategy will also allow you to successfully leverage automation and AI, which are becoming increasingly important for gaining and maintaining a competitive advantage.



Furthermore, a solid MDM strategy is the foundation for smooth customs operations. Accurate and complete item master data is essential for proper classification of goods, which lies at the core of customs compliance. The commodity codes assigned to goods during the product classification process determine a variety of things, including:

- Customs duty rate
- Import VAT rate
- Excise duty rate
- Import or export restrictions or limitations
- Requirements for special licenses, permits, or certificates
- How rules of origin apply to goods
- Gathering and producing Intrastat trade statistics

Before a customs declaration can even be filed, the goods being traded must be properly classified, and the information needed to do that is pulled from a company's item master data. Ideally, this data is centrally located in a company's ERP and includes details like the item description, bill of materials, manufacturing process, country of origin, weight, dimensions, cost of goods, supplier information, and purchase or sales price. However, when this data is incomplete, improperly maintained, or spread across multiple systems, it is difficult for those tasked with product classification to find the information they need to ensure the right commodity code is assigned. This makes classification time consuming and error-prone. Improper classification can lead to an array of negative consequences, including customs delays, fines, seizure of goods, disruptions to the supply chain, and inaccurate pricing due to incorrect duty calculations.

Automation and AI enablement can be leveraged to streamline classification, ensuring compliance and accelerating international trade. However, before any customs operations can be automated—whether that be classification, declaration filing, or origin management—companies need to get a grip on their master data. And with rapid innovations and product expansions continually increasing the volume of item master data that companies must manage, having an automated, AI-powered solution to support classification and customs management as a whole will be essential for effective foreign trade. Those with well-maintained master data and a solid MDM strategy will have a distinct advantage in adopting customs management technology.

This paper addresses the importance of proper MDM for customs management and details key steps for establishing a standard operating procedure (SOP).

"You must have the full master data to enable automated customs processing and transit processing. Furthermore, to enable import and export processing, the master data must be complete and up to date." SAP Global Trade Services¹

¹ [Master Data for Customs Management](#), SAP Global Trade Services

Typical master data management pitfalls

1. Poor data quality

Master data can be incomplete, inconsistent, or inaccurate for a number of reasons. Many times, it is because there is no established process for assigning item master data elements when the product is created or ingested into a company's ERP. There may also be no procedures in place for updating item master data when there are product updates or changes. Or, communication between stakeholders may be lacking, causing a partial entry of data with no follow-up to ensure it is completed. It could also boil down to simple human error, overlooking fields or making mistakes when entering information into the ERP system. McKinsey's Master Data Management Survey found that incomplete, inconsistent, and inaccurate data is the top data quality issue facing organizations.²

2. System limitations or silos

International trade often involves multiple systems (ERP, CRM, logistics, customs software, etc.) as well as multiple sites (countries, regions, lines of business, etc.) that need to communicate with each other. Lack of integration between systems can create inconsistencies or omissions in item master data, and users may not know where to go to fill in the blanks. Since different departments use item master data for different purposes, it is not uncommon for the information to be spread across various systems and databases. 80% of organizations that responded to McKinsey's previously mentioned survey reported that some of their divisions operate in silos, each with its own data management requirements, practices, source systems, and consumption behaviors. In multinational organizations, it also may be the case that multiple item IDs are used for the same materials across the company. In addition, some systems may not have the necessary fields to correspond with a product's relevant attributes, causing data gaps and discrepancies that could lead to inaccuracies in product classification.

"80% of organizations reported that some of their divisions operate in silos, each with its own data management requirements, practices, source systems, and consumption behaviors." McKinsey²



² [Master data management: The key to getting more from your data](#), McKinsey, May 2024

3. Out-of-date, unclear, or unvalidated commodity codes

Another type of customs-related master data is the commodity codes that are not created internally but rather accessed from external sources. Each component of the commodity code is maintained and updated from different sources, lending a margin of error to manual lookups. Harmonized System (HS) codes are updated every five years by the World Customs Organization (WCO). The Combined Nomenclature (CN), which adds further specification for European Union (EU) imports and exports, is updated every year. And TARIC codes can be updated even more frequently and with little notice if deemed necessary by the EU Commission.

The rapid pace of innovation and jurisdictional variations muddy the waters even more, leaving classification up for interpretation. This underscores the importance of communication between product engineers and customs experts to arrive at a valid code. Yet even despite best efforts, customs authorities may disagree with the assigned commodity code, which could cause shipment delays and unanticipated duty costs.

[3rd Wave cites poor master data management and limited master data visibility and accessibility as the top two causes of sub-optimal trade compliance performance.](#)³

The rewards of standardizing MDM

1. Centralized, visible data

MDM ensures that data is integrated and synchronized across various systems, preventing issues like duplicate records, inconsistent product details, or incorrect shipping information. It allows for centralized control of global data, while enabling local operations to maintain their unique requirements, e.g., local product variants or region-specific pricing. This supports a more efficient international business model.

We find it important to note that, while this paper's main focus is on the importance of maintaining accurate and complete item master data to support customs compliance and a frictionless supply chain, the implications of getting a grip on your master data are much more far-reaching than just customs. Item master data is used by sales for quotes and product conversations, by purchasing for inventory management, by accounting to determine inventory values, and by decision makers to inform production strategy.

This nearly universal usage of master data within an organization supports the business case for adopting a disciplined MDM process that captures data on the front end and provides a unified view. This promotes operational transparency, paves the way for business process automation at an organizational level, and provides the information needed for companies to nimbly respond to changes in international markets, such as shifting demand, price changes, or geopolitical risks.

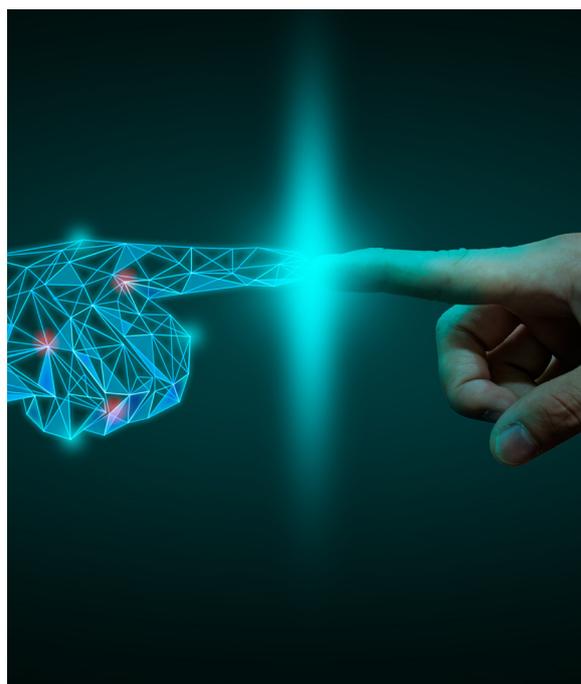
³ [6 Causes of Sub-Optimal Trade Compliance Performance](#), 3rd Wave, June 2021

2. Automation and AI

Leading customs software solutions use automation to facilitate fast and accurate product classification—as well as declaration filing, preferential origin calculation, proof of origin generation, and even trade compliance measures like export control and sanctioned party list screening. However, the accuracy of the software’s output is only as good as the quality of data it has to pull from. Consistent and accessible master data lays the foundation for automating customs operations to the greatest extent possible, increasing efficiency and freeing up resources to focus on more value-added customs activities. This includes automated access to the latest commodity codes.

Furthermore, AI advancements are making significant strides in accelerating product classification as well as increasing the accuracy of assigned commodity codes. Using natural language processing (NLP) and predictive analytics, AI can automatically analyze product descriptions, technical specifications, and historical data to predict the correct commodity code. Machine learning algorithms can be trained to further improve accuracy, pulling from datasets of previous classifications and related product details to predict the correct commodity codes. AI models can learn from new data continuously, improving accuracy over time. This reduces the risk of misclassification, leading to faster customs clearance and optimized cross-border trade.

While at the moment AI can provide many benefits for product classification, it is on a rapid trajectory to becoming a necessity for innovative organizations that intend to expand their global footprint. As AI technologies continue to evolve, we can expect even more advancements in this area, for example product image matching, the ability to handle global



variations by cross-referencing jurisdictional data against the most recent tariff codes, and even anticipating where innovations will fit into evolving international trade laws.

As with automation, however, AI depends on high-quality, accurate data for training. Vague or unclear descriptions—in other words, incomplete or missing master data—erode the effectiveness of AI.

“AI had been deployed for rudimentary oversights but is now ready to become the engine of full compliance... As the trade compliance industry starts to take advantage of an AI-driven world, it will grow more efficient, transparent, and adaptable, and continue to live up to the reason it was created in the first place: to power the future of global trade.”⁴

⁴ [Leveraging AI for Proactive Customs Compliance: Giving Shipment a Voice](#), WCO News, June 2024

3. International trade at scale

Taking a digital-first approach is the only practical way of scaling international trade. As businesses expand into global markets, managing data becomes increasingly complex. MDM provides a framework to ensure consistency, accuracy, and accessibility of critical business data across multiple regions, systems, and stakeholders. It can help businesses track the necessary information for international shipping, including product classification, commodity codes, and applicable tariffs, reducing the risk of shipping delays or fines.

Knowing that there is a consistent and accurate data set across all markets allows international traders to enter new markets with confidence. In addition, giving stakeholders real-time access to the same set of trusted data will expedite coordination and resolution if a question arises. In short, MDM acts as a backbone for managing the complex data landscape that comes with scaling international trade.

5 steps to creating a winning MDM strategy for foreign trade

1. Assess your current state

Before embarking on the development or improvement of an MDM strategy, it is advised to undergo an assessment to evaluate the current state of your master data, identify areas for improvement, and flag potential risks. This assessment will serve as a roadmap for designing or improving your MDM strategy.

Deep diving into your overarching master data will make it easier to evaluate what data is included in item master data for the purposes of your foreign trade operations. Ultimately, the identity of the master data needs to be decided by the business users. Not all data is master data, and Gartner recommends adopting a lean approach that uses business outcomes to identify the smallest amount of (master) data with the biggest influence on business outcomes.⁵

Once you have determined what item master data is essential, you need to figure out where to find it. Where is it being housed now? How does it flow between systems? When is it created, and by whom? How is it updated? How is it formatted, and does the current formatting support business requirements? Assess these processes and identify areas for improved uniformity and control. MDM technology solutions can help consolidate item master data spread across systems into a single source, providing standardization and transparency.

If internal resources are already strained or your organization lacks the in-house skill set to perform a targeted assessment, an external expert with experience in digital transformation and customs and trade compliance can help execute this stage efficiently. Ideally, this expert would move forward with your team to design and implement your MDM strategy, helping you maintain a bigger-picture view, avoid pitfalls, and ensure that the established MDM strategy addresses your organization's trade needs with the flexibility to scale.

2. Assemble a steering committee

Next, it's time to appoint a team to spearhead your MDM transformation. An internal steering committee works with the external expert to gain organizational buy-in, prioritize tasks, identify use cases, develop processes and policies, and educate users to arrive at a successful and sustainable MDM strategy. The steering committee should consist of individuals who have a vested interest in the project's success and have a clear purpose of ensuring responsibility, accountability, and follow through.

Depending on your operational infrastructure and product complexity, recording item master data elements could fall to procurement, purchasing, the product owner, engineer, or lab analyst. IT counterparts will also play an important role in steering the MDM strategy, as they have the most familiarity with existing systems and integrations. Finally, customs is a vital component, as customs managers interact with all of the above roles and their customs expertise is key to validating which item master data fields are required, not only to comply with trade regulations but to set up the organization for digital-first customs compliance.

As with any project, without the buy-in of stakeholders, your MDM effort will fail, so it is important that each affected area has a representative that possesses both decision-making authority and the time and resources to dedicate to this project. This ensures that, once the strategy is designed, there will be no roadblocks to implementation.

3. Design your to-be situation

Your to-be situation will include defining the where, what, who, and how of your item master data.

Where will your item master data reside? A centralized location where item master data is stored on a global scale provides an organization-wide, single source of truth, ensuring consistency in product classification. Typically, the system of record is the ERP or, if a company has one, their master data hub. However, it is important to note that ERPs don't always support the relevant fields needed to properly classify goods. You may find it best to store your item master data in customs management software that provides fields for more and customized data types. In this case, it would be important that your customs management software syncs with your ERP for updates to information that is used across departments.

"Master data is effectively your business metadata, which is equivalent to a glossary. As such, master data should be aligned, not distinct."⁵



⁵Market Guide for Master Data Management Solutions, Gartner, August 2023

What exactly qualifies as item master data? Gartner recommends to first document your most important use cases; next, prepare a dataset that represents the breadth and depth of your data in one or multiple domains.⁵ Break out all relevant attributes about the product or product type needed for proper classification. This could include item ID, description, manufacturer, dimensions, color, material, model number, unit price, currency, inventory and stock information, supplier and vendor information, usage data, and so forth.

From here, you will need to align the product details with the details provided in the nomenclature. Similar data elements will help you define product groups and establish an accurate, compliant, and repeatable classification methodology. This will involve reviewing a sample set of previously classified items from each product group and determining whether any need to be reclassified.

Who will be responsible for creation, validation, maintenance, and distribution of item master data? This will likely be a collaborative effort. Ideally, item master data is taken into account very early in the product lifecycle. It may even play a role in product development to leverage materials that offer lower customs tariffs, thus increasing margins and ROI. A knowledgeable product engineer or team of engineers is often the best choice to clearly own the item master data, however it is important to involve the customs manager to make sure the information provided is detailed and specific enough for the correct commodity code to be determined.

As technology changes and data volume grows, you will need to have data governance leaders and policies in place to provide oversight, ensure data quality, and account for process improvements. Steering committee members who lent the most value to establishing your MDM strategy would be obvious choices for these roles, however it is important to factor in knowledge transfer and appoint “understudies” who can take over roles and responsibilities should a key stakeholder leave the organization.

How will the process work? By this point, the following information should have been gathered:

- Current processes for classification
- Which teams are involved
- How and when the item master data is recorded/made available
- Requirements gaps in item master data
- How and where the data is stored and transferred
- Organizational structure
- A complete product portfolio with products broken into groups
- Determining factors for product groups
- Outliers that need to be addressed

Based on this information, the steering committee will develop a decision tree that will help the team arrive at the appropriate commodity code. This decision tree, along with the organizational structure and role each department plays, contribute to a streamlined SOP which lays the foundation for leveraging automation and AI to support proper classification and modern customs management as a whole.

4. Communicate your MDM strategy for company-wide implementation

Once the SOP has been established, it will need to be clearly communicated across your organization. This will require a comprehensive communication plan that outlines the key messages, target audiences, and the channels to be used. Liaising with communications teams across different regions will help ensure the message is conveyed with the appropriate local nuances and via the most effective channels. For example, internal newsletters, intranet updates, and corporate social platforms (e.g., Slack, Microsoft Teams) may be heavily used in certain regions whereas in others, in-person meetings, localized webinars, or conference calls may be necessary to reinforce the strategy.

Regardless, one of the most important elements of effective communication is repetition of a consistent message via a variety of formats. People process information in different ways, so it is important to make sure communications meet employees where they are. Media may include tailored presentations, infographics, videos, and written documents that clearly explain the strategy's objectives, expected outcomes, and the roles of employees in achieving these goals.

5. Monitor and enforce the new SOP

It's essential to follow up with continuous reinforcement and support throughout the implementation phase. Establishing a feedback loop to track how well employees understand and are executing the strategy will help identify where adjustments may be necessary. Share regular updates on the progress of the strategy, including milestones and successes, company-wide. Data governance leaders defined in stage 4 will be the champions for instilling the SOP, and recruiting leadership from various departments and regions to help extend their reach will be key to ensuring the MDM SOP gets ingrained in day-to-day operations organization-wide. By maintaining consistent communication, support, and follow-up, the strategy can be successfully embedded across your global workforce.

Conclusion

Leading international traders have abandoned manual processes and spreadsheet management in favor of the superior accuracy and efficiency provided by technology enablement. However, customs software can only be adopted when a company has a grip on master data management. Without the ability to modernize customs management processes, customs managers remain in firefighting mode, always responsive rather than proactive.

As new technology and rapid innovation continue to increase the complexity of product classification, automation and AI offer a compelling solution. AI in particular can take into account changes to features, functionality, and technology as well as emerging product categories to propose the most accurate commodity code, and its capabilities are ever-evolving. On a broader scale, customs management software improves efficiency, reduces costs, and enables better decision-making in the customs realm as a whole. However, inaccurate, incomplete, or non-existent item master data will stop the usefulness of advanced technology in its tracks.

Organizations with effective MDM programs are three times as likely to make data-driven decisions (Gartner, 2021)

Building a solid MDM strategy may well be one of the best moves a company can make to support and expand their global footprint. In the age of automation and AI, well-maintained master data is no longer just an advantage; it is a necessity and a prerequisite for keeping up with business operations, regulatory requirements, and the competition in the realm of international trade. Organizations with effective MDM programs are three times as likely to make data-driven decisions (Gartner, 2021). This is exactly what will shift the role of customs managers from firefighters to strategic players in organizational growth.

Now is the time to futureproof your international trade operations with foundational processes for MDM so your customs organization can automate, scale, and benefit from modern technology.

About AEB

AEB simplifies goods movements with cloud solutions for customs and trade compliance management as well as logistics and supply chain. The AEB Customs Management platform offers IT integration and smart automation for imports and exports, enabling companies to accelerate their customs processes. AEB's software is complemented by Managed Customs Services, which supplement a company's existing skill sets with international trade and technology expertise, facilitating the successful adoption of customs software. This component completes the AEB offering for a true end-to-end customs management solution.

Founded in 1979 on the principles of economic, environmental, and social responsibility, AEB has grown to be a leading provider of customs management software with more than 700 employees and more than 7,000 customers. Headquartered in Stuttgart, Germany, with 16 offices worldwide, AEB serves customers in key EU export economies with software integrations to support global customs operations. For more information, visit www.aeb.com.



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