



**BUSINESS JUSTIFICATION FOR  
AUTOMATED CLASSIFICATION  
USING MACHINE LEARNING /  
ARTIFICIAL INTELLIGENCE**

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# Overview

This analysis presents the value proposition of having automated classification using Machine Learning and Artificial Intelligence. The result is a repeatable, automated process that minimizes human error in the classification process, and by so doing, creates value. Investment in automated classification is a risk mitigation action that adds significant value to the business. This value can be best understood by detailing it on a Qualitative and Quantitative level.

**Qualitative** benefits can be difficult to measure precisely and are typically measured by subjectively assessing the probability (i.e. high, medium, low) of occurring and financial impact if the risk occurs.

**Quantitative** benefits can be objectively stated using direct financial value, such as work hours saved, and reduced expenditures. These benefits will vary by organization, as it depends on the number of skus, frequency of new product creation, duty exposure, etc.....

## Qualitative Benefits

The qualitative benefits of automated classification focus on reducing the business risk of compliance errors. These benefits can be difficult to measure, but relate directly to key components of business value, such as brand and business reputation. The main qualitative returns on investment are:

### Accurate classifications

Classification using the Harmonized Tariff is a complicated process and automating can ensure increased accuracy. Automated classification can also identify classified materials that potentially may be incorrectly classified, ensuring data consistency. Automated classification effectively ensures a “2nd level review” of classification decisions and mitigates the risk of a single person making a classification decision.

## Duty rates

Tariff classifications determine duty rates for imported material. Use of the wrong tariff classification can result in payment of incorrect duties, and improper cost of goods calculations. By ensuring accurate classifications, businesses can add certainty to their cost estimates.

## Free trade rules of origin

Tariff classifications are also a critical part of free trade agreement rules of origin. Using the wrong classification can result in a disqualification and loss of free trade privileges, if customs agency determines that the rules of origin were not followed properly. In addition, if a customs administration changes your tariff classification upon audit, this can result in the loss of free trade status for past imports, as the certificate of origin no longer references the correct classification.

## Reduced risk of penalties

Incorrect classification is a violation of customs regulations, for any country that is party to the harmonized system. As classification controls duty rates and revenue, it is frequently targeted for audit, and the importer is subject to penalties if found to be in violation. Under US law for example, the penalty can be up to 4 times the lost duty in cases of negligence, or much higher in cases of fraud. Accurate classification protects organizations from this risk.

## Reasonable care

All customs administrations expect importers to exercise reasonable care in their classification process. Failure to demonstrate this, can result in increased penalties if a violation occurs. Evidence of training, use of

outside assistance and application for customs rulings are often cited as examples of reasonable care. The use of an automated system for classification will also demonstrate the exercise of reasonable care and is an important mitigating factor in assessing the type of violation and amount of penalty.

## Tariff Wars

Tariff Wars or Chinese Tariff and related company “retaliatory tariff”, these are driven by your HTS classification and it is more critical than ever to get the classification right. Customs administration are looking more closely at HTS than ever. Company who use skilled, in-house classification expert are at risk of their leaving, and losing the institutional knowledge: by using system this risk can be mitigated.

## Second opinion

System might be used for pro-active classification re-screening based on “non-binding tariff information” principle and provide “second opinion” - appropriateness of existed classification or possible better fit’s as part of self-auditing.

# Quantitative Benefits

The quantitative benefits of automated classification include direct cost savings and cost avoidance in the classification process. Important Quantitative benefits include:

## Reduced cost

Duty and penalties were mentioned above, but also outside consultants can be costly and relying on outside help for classification adds a new cost to your business. Using automated classification, you can reduce your need for outside help, and the cost associated with it.

Here are 3 key ways classification automation can reduce your business cost directly:

- Payment of lower duty rates when products were previously incorrectly classified at a higher rate

- Avoidance of penalties, equal to 2-4 x value of your annual duty payments

- Reduction in outside consulting fees

## **Reduce transit and operational expense**

Faster classification through automation leads to a reduction of logistics cost for demurrage, and order delays if a product is not classified prior to shipment.

## **Operational efficiency and productivity**

Tariff classification is a complex, highly skilled process, and it takes considerable time to do properly. Time is spent researching the product in question, and also searching the tariff schedule, explanatory notes, etc. While automated classification may not classify 100% of your products, it will take a significant workload away allowing your classification staff to spend the required time on the remaining products. Furthermore, classification staff is typically skilled with customs regulatory knowledge, and they will be free to spend their time on other critical areas related to customs compliance: the result will be increased compliance for your organization, without an additional investment in personnel.

Using an estimated 30 minutes for a manual classification, your potential savings in time spent is:

- .5 hours x # of new products created annually

# ROI Calculation Sheet

New Product per Month	1000
Percentage of product auto classified	65%
Average Hours Spend per product classified	0.5
Employee Cost per hour	\$30
Contractor Cost per hour	\$ 100
Product Auto-Classified per mon	650
Hours saved per month	325
Value to compliance in other areas per month	\$97
Savings from Contractor costs per Month	\$ 32500

## Beyond tariff classifications

Avyay's Automated Classification approach is flexible, adaptable and can also be used for programs other than the harmonized tariff, such as (but not limited to):

- Determining export commodity codes
- Identifying controlled products in your supply chain
- Identifying hazardous goods
- Identifying products within your supply chain that require special handling
- Extend classification to materials normally not classified. Leverage for use in internal reporting for increased detail about product characteristics.
- Identifying product licenses, especially within dual use requirements
- If self-disclosure is unavoidable, system provides you with extra time needed for proper preparation and extra references for defense

# Key Business Impacts

KPI / ROI	Description	Key Insight	How AI and Machine Learning can Help	Business Impact
Compliance program costs: Internal	Internal trade compliance program	How much is being spent to ensure classifications are accurate?	Automation can reduce manpower requirements	Reduced cost per item classified
Compliance program costs: External	External trade compliance program: 3rd party fees and services	How much is being spent to ensure classifications are accurate?	Automation can reduce need to pay 3rd parties for classification assistance	Reduced cost per item classified
Operational costs: shipment transaction costs	End to End Shipment Cost, including delay/storage costs	How much does it cost me to execute a global shipment and process all the required steps	Faster classification will reduce risk of shipment delay caused by missing data	Less shipments held due to missing data
Operational costs: Inventory carrying costs	Inventory management, bonded warehouse and integrated ERP	How much cost is associated with slower customs clearance and larger safety stock inventories	Confidence that delays are reduced allows the business to lower regional inventory levels	Lower inventory carrying cost

KPI / ROI	Description	Key Insight	How AI and Machine Learning can Help	Business Impact
Preferential trade program savings	Free trade and other origin based preferential trade programs	How much I can save by using existing and available Trade preference programs?	Tariff classification is the basis for preferential trade, and incorrect classifications put the savings at risk	Confidence in preferential trade compliance, protecting existing and future savings
Accuracy rate for customs filing: amendments	# of amended filing or census warnings received due to incorrect classifications	For those who self-file, use of an invalid tariff classification can cause an error message and	Improved tariff classification accuracy will ensure filings are correct the first time	Reduced cost of filing amended entries, and reduced exposure to customs
		require an amended filing		administration over error rate
Accuracy rate for customs filings: post entry corrections	Use of a wrong tariff classification necessitates the filing of a post entry correction	Failure to catch the error under internal audit causes a compliance risk, and filing the corrections costs the business time and money	Increased classification accuracy reduces the need for corrections, and reduces compliance risk	Reduced cost of filing corrections, and reduced exposure to customs administration over error rate



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