

Building Mahyu's Module: What We Are Learning Along the Way

As I am finally catching up with the development of TigaUs' customs automation, I am also beginning to see more clearly how challenging this product development really is.

We have been working on the document extraction and conversion layer, together with a second verification layer designed to detect discrepancies created when the first layer fails to correctly interpret poor-quality or incomplete scanned documents.

But we also learned that automation cannot simply assume that every extracted and converted result is correct. **That assumption would be wrong.** This is why we have developed a second layer to identify and flag information that falls below a defined confidence threshold. The information is then verified and matched again, providing a higher level of accuracy and giving users a more efficient way to review the results, with minimal correction required when necessary.

One of the most challenging aspects is **understanding information across different documents, analyzing it, and correctly determining how it should be used before populating the customs form.** For example, payment terms in an invoice can appear in different formats and have different meanings. The system needs to recognize these terms and convert them into the appropriate values required by the customs system. We are teaching the system to understand terms such as **DDP, Net 30 days, COD,** and others.

Transportation mode is another challenge. The system needs to understand whether a shipment moves directly from origin to destination, point-to-point, or through a transshipment route. When there is a transit point, the information may need to be reflected differently in the documentation, particularly when the original documents are replaced by a new set of documents at the transit point.

This creates another layer of complexity when the country of origin stated on the commercial invoice differs from information appearing on the shipment documents received at the destination. This can also affect how **MAWB and HAWB** information appears in different documents.

These are not simply data-entry problems.

The system requires to understand the **relationship between documents, transportation movements, commercial and payment terms, and customs requirements.**

This is what makes building TigaUs challenging, but also what makes it valuable. We are not simply teaching a system to read documents. We are teaching it to extract and recognize the correct information, apply the appropriate verification, and produce accurate results for second-layer matching and identification.

The methodology is simple, but the execution is quite complicated. We need to define each field in the customs form, create an algorithm for each specific field, and establish the conditions required to retrieve the correct information from different documents. The system needs to make decisions based on verified source data rather than assumptions, reducing the risk of inaccurate or unsupported results.

What started as a *single-page customs form* has now grown into four pages of routines, subroutines, conditions, parameters, and explanations.

Today, that simple idea is becoming a full-blown application. Its purpose is not to challenge customs decision-making, but to provide better information and reduce unnecessary manual work. Shippers, forwarders, and customs brokers **should be able to search** a customer's past transactions, enter a commodity or HS Code to obtain a pre-estimate of duties and taxes, and review previous transactions involving identical or similar items to support a more accurate value declaration.

As TigaUs continues to develop, I have also been invited to speak at a technology symposium in Singapore this September, where I will share our experience in applying intelligent document processing to customs automation and teaching the system to recognize and understand different data structures.

Ultimately, TigaUs is being built as a **foundation that can connect with our broader logistics ecosystem, Mahyu.** Southeast Asia is our first target region, as our initial markets, expanding the platform country by country.