GIPC (Global Industry Practices Committee) Paperless Manufacturer Certificate of Compliance Working Group Report

February 2023

Problem statement

The process for the exchange of compliance documentation in the electronic component supply chain is cumbersome and inefficient as it is still largely done manually. The compliance documents must be in paper form and must accompany the components as they are shipped from the manufacturer to the distributor and on through to the end customer. This drives unnecessary costs with manufacturers, distributors, and customers in the form of time and effort spent locating and keeping track of paper documents and the actual costs of printing and handling them. All along the supply chain, those responsible for complying with these requirements are dissatisfied and frustrated with this inefficient process. In theory, this should be low-hanging fruit that could save time, money, and trees by changing to digital communication. However, the benefits only accrue when most of the component manufacturers and distributors decide to participate and when customers learn about and accept the new process. ECIA's Global Industry Practices Committee (GIPC) decided to take on this challenge.

Background

A paperless Certificate of Compliance process intuitively should deliver immediate benefits. The electronic component supply chain is very complex with millions of SKUs and thousands of component suppliers. Anything that can reduce the time an order takes to be fulfilled must be considered, especially in times of supply chain disruptions, such as the case in the past few years. Customers are digitalizing and automating many aspects of the manufacturing process. They want visibility and transparency from their suppliers. Creating a digital record of the Certificate of Compliance can hasten this process.

To this end, in 2019 the GIPC organized a Working Group consisting of two manufacturers and two distributors to explore ways to address this problem. The goal was to design an architecture to embed compliance documentation in a 2D barcode. Analog Devices, Inc. and Digi-Key began work on a pilot program to determine precisely how to digitally transmit documents during component transactions from manufacturer to distributor to customer.

Industry Benefits

Creating a streamlined process to digitally exchange compliance documents will bring outsized benefits to the component supply chain. While not as sexy as some digitalization initiatives, it will substantially reduce the time it takes and the cost of handling orders. These benefits are in three main areas.

First, eliminating paper compliance documents will save time. Paper documents get lost; tracking them down and ensuring they are attached to the component package as it moves through the supply chain means that each warehouse worker and logistics provider must be alert to the presence of a specific physical paper document. A paperless process can minimize/eliminate all the human touch points and reduce the number of activities that must occur during handling. This can save time and accelerate the order fulfillment process.

Second, the paperless document process reduces cost. Labor is expensive and hiring skilled workers is increasingly challenging. A digital document retrieval system is simpler and easier and more in line with younger workers' expectations. Eliminating the number of human touch points is a direct labor cost savings.

Third, the environmental impact of eliminating paper must not be overlooked. With more emphasis on ES&G, corporations are expected to reduce waste as a matter of course. Reducing paper is an important and obvious way to meet the goals of corporate social responsibility toward environmental sustainability.

Analog Devices Inc.-Digi-Key implementation

Compliance documentation begins with the component manufacturer. Analog Devices Inc. (ADI) agreed to participate in the pilot project with Digi-Key. They began with the manufacturers' certificate of compliance with the goal of considering other compliance documents that would enhance the offering but would not complicate or slow down the initial target of embedding the CoC into the 2D labeling process flow.

The project was divided into three phases; initially one manufacturer's documents would be transferred to one distributor. Phase Two is the participation of multiple manufacturers and distributors. Only in Phase Three would the distributors internalize documents for delivery to the end customers.

In the Analog Devices Inc.-Digi-Key implementation, the initial Phase One goals have been accomplished. Now Digi-Key is extending the program to some of its other 1000 suppliers. ADI is launching the program with dozens of other distributors. The program has not yet reached the end customer.

The figure below outlines the way the program works.

Approach

1. Minimize/eliminate human touch points.

2. Provide C of C Document via email at the time of shipment.

3. Provide C of C indexing data in order to retrieve Document easily.

4. Provide scan enabled shipping labels and part labels to link physical shipments to indexing data.

Document Relationships

- Email contains >=1 CoC Pdf file
- Email contains Indexing file = number of CoC Pdf files
- CoC Pfd file contains >=1 part CoC
- Indexing file contains data sets = number of part CoCs

Email -> CoC pdf   1 to many
CoC pdf -> Indexing file 1 to 1
CoC pdf -> Part CoC   1 to many
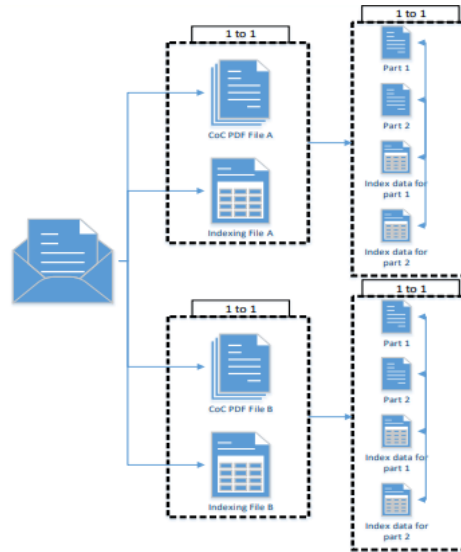
Results/ROI

The primary ROI for implementing the paperless document system arises from efficiency improvements, which are challenging to track and capture. The figure found below outlines some of the expected savings, but real data will not be available until more manufacturers and more distributors participate in the program. Most of the significant ROI must be measured across several enterprises and until the customer is folded into the program that won't be visible. That's where the real opportunities for efficiency and waste reduction lie.

Manufacturer COC's to Distribution
You Can Reduce Costs and Improve Customer Experience

Standardization 01
Digital Transmission of Manufacturer Certificate of Compliance

Sustainability 02
Paperless COC Save Trees

Efficiency 03
Reduce Human Interface, Administrative Tasks

Cost Savings 04
Work Force, Materials

Obstacles and Challenges

The electronic component supply chain must wean itself from all paper processes eventually. It is better for the environment and will accelerate the order fulfillment process. Adoption of 2D barcode is finally gaining momentum. The hope is that the paperless Certificate of Compliance process opens the gate for more paperless document handling efficiencies. But like any process change, the devil truly is in the details.

The implementation is dependent on IT departments that often have other priorities. The heavy lifting falls on the distributor; they have to re-structure and re-train employees in multiple departments.

The involvement of cross-industry groups like ECIA will be essential to persuade companies across the channel that this is a good business decision. Having a unique way of doing these transactions is NOT a competitive advantage, it is just the opposite. Standardization is always a weighing of competitive advantage versus industry-wide efficiency and in this case the argument for standardization is very compelling. But there will always be some companies that don't see this as a priority, especially with so much else on managers' plates.

Conclusion

Converting the current paper-intense component supply chain to a paperless process should be a high priority for distributors and component manufacturers as the industry faces a probable downturn in 2023. When business slows down, companies have time to devote to continuous improvement so that when demand returns, they are ready. For more information, go to www.ecianow.org

Analog Devices, Inc. (NASDAQ: ADI) is a global semiconductor leader that bridges the physical and digital worlds to enable breakthroughs at the Intelligent Edge. ADI combines analog, digital, and software technologies into solutions that help drive advancements in digitized factories, mobility, and digital healthcare, combat climate change, and reliably connect humans and the world. With reported revenues of more than $12 billion in FY22 and more than 24,000 people globally working alongside 125,000 global customers, ADI ensures today's innovators stay Ahead of What's Possible.

Digi-Key Electronics, headquartered in Thief River Falls, Minn., is recognized worldwide as the leader, innovator and pioneer of electronic components and automation products distribution. They offer more than 13.4 million components from over 2,300 quality name-brand manufacturers. Digi-Key is a $5 billion company and employs more than 5,000 people. More information can be found at digikey.com and on Facebook, Twitter, YouTube, Instagram and LinkedIn.