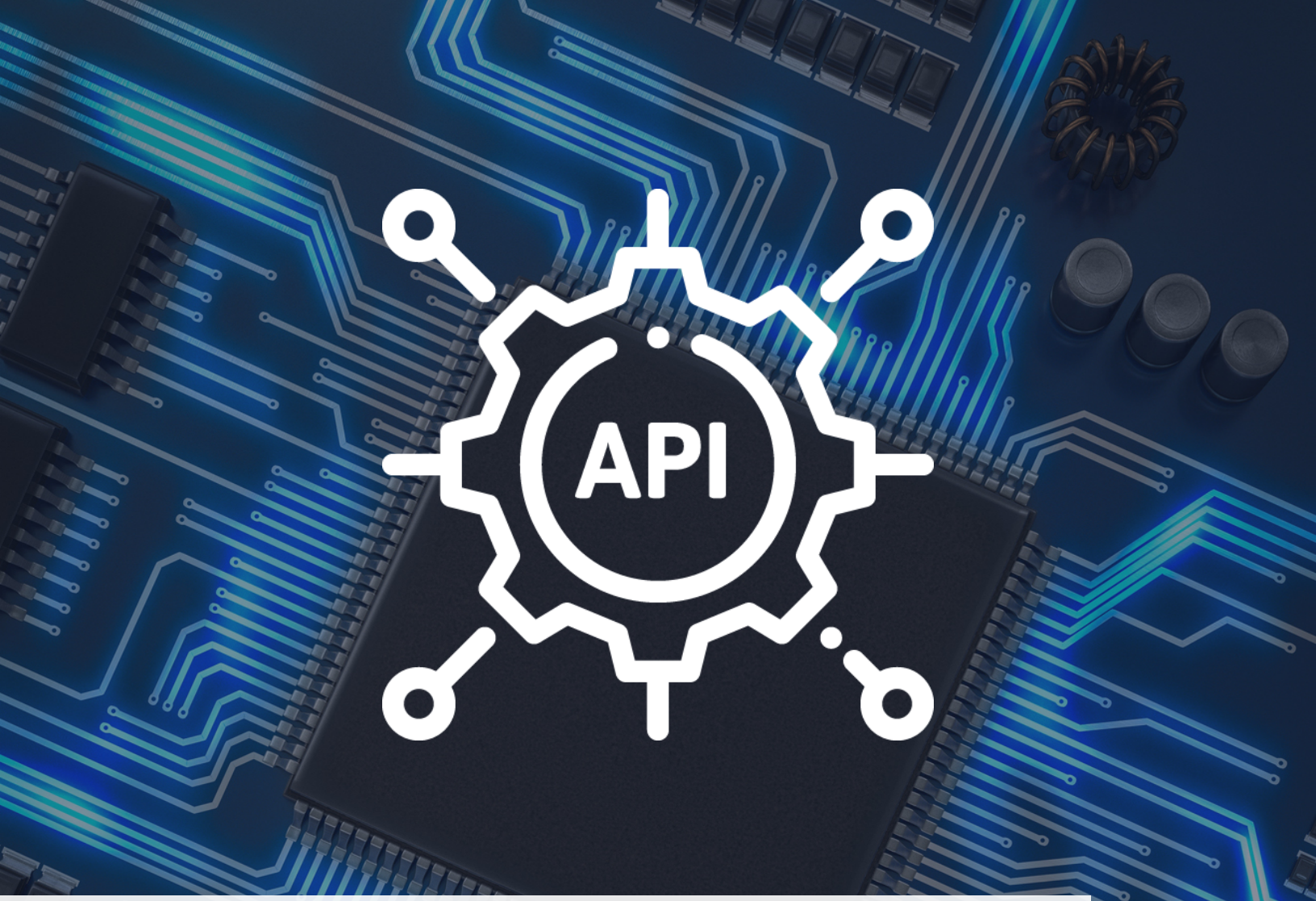


orbweaver

Data Exchange for the Electronics Industry:

How APIs Are Leading the Pack

Introduction

Over the past decade, the electronics manufacturing industry has faced a growing number of obstacles related to data exchange for procurement, inventory management, and supply chain administration.

Despite advancements in automation technology, many component manufacturers and distributors still rely on outdated data exchange methods and manual processes, often built on unpredictable infrastructure.

Data exchange is a fundamental component of the electronics manufacturing industry, as data is continuously moving between various parts of the supply chain and fueling operations. One data exchange mistake can negatively impact entire operations, causing a logistical nightmare that's costly and time consuming to fix.

To address these challenges for key industry players, leaders who want to stay ahead must ask themselves the following questions:

- **How do we grow a business without being consumed by administrative tasks?**
- **How do we minimize the cost of a transaction, increase accuracy, and provide scalability?**
- **Lastly, but most importantly, how do we get back to our core competencies and sell more parts?**

Leaders can find answers to these questions in the accuracy, flow, and automation of data. Modern data exchange solutions are universally transforming how the electronics manufacturing industry performs day to day tasks. Benefits like increased supply chain productivity, data accuracy, improved inventory management, and streamlined BOM, RFP, and RFQ processes are significant value-adds for electronics component manufacturers, suppliers, and distributors.

The long-term benefits of efficient data exchange far exceed the costs of replacing or retaining obsolete methods.

So what data exchange solutions might be dragging down your business and which should you adapt to improve operations?

In this eBook, we will unpack the hierarchy and evolution of data exchange and explain why Application Programming Interface (API) makes the most sense for businesses to achieve successful integration, flexibility, and scalability across their entire operation.

The Hierarchy of Data Exchange

In today's day and age, most data is recorded and exchanged digitally to maintain a secure and accurate account of information. **However, not all data exchange methods are created equal, with some providing more business benefits to component manufacturers than others.**

In 2018, the four primary means to exchange, transport, and respond to data across the electronics industry include:

- **Electronic Email**
- **File Transfer Protocol (FTP)**
- **Electronic Data Interchange (EDI)**
- **Application Programming Interface (API)**

In the following section, we analyze the pros and cons of each system and highlight how electronics manufacturers can streamline their processes to be more agile, future-focused, and less error-prone to remain competitive within the market.

Electronic Mail (Email)

The most prolific method of exchanging data and electronic information is email communication. It's near universal adoption, and extensive user-base allows for easy implementation and access. Every computer is pre-configured so a user can send and receive emails immediately, with little to no costs.

While email is still the most common method of exchanging data, there are significant and growing downsides, including security.

A recent study shows that people spend one-third of their time at the office, and half of their time they work at home, responding to and reading emails. In thirty percent of the cases, these emails are neither urgent nor time-sensitive.[1] For the electronics manufacturing industry, data exchange must be quick, as requests for quotes and proposals need to receive responses promptly otherwise companies risk losing out on key business opportunities or major deals.

Email is also alarmingly unsecure. A study in 2011 demonstrated that ordinary people with limited computer experience could hack into a stranger's email account in an average of fifteen minutes.[2] Email is also a popular gateway for spam, malware, and ransomware, leaving component manufacturer and distributor data vulnerable to cyber attacks.

File Transfer Protocol (FTP)

While the first major commercial email accounts started popping up in the early 1990s, FTP is a technology that dates back to 1971 and is a protocol by which users transfer files over the internet. An FTP server contains directories and sub-directories of folders and files that users can upload and download with additional software called an FTP client.

1 https://globalnews.ca/news/3395457/this-is-how-much-time-you-spend-on-work-emails-every-day-according-to-a-canadian-survey/
2 https://www.inc.com/graham-winfrey/the-staggering-cost-of-business-email.html

FTP is a reasonably secure method of moving large volumes of data, but the mechanism provides no additional business values to electronics manufacturers and distributors. **The process is agnostic to the content or quality of the data file it is shuttling, and other arrangements are required to make use of data content accessed via FTP.**

Furthermore, FTP file exchange is a batch process without any promise of timely action taken by the recipient. For example, if a response to an RFP was sent within a batch over an FTP server, the recipient may not be able to access the file immediately or have the software to do so.

Electronic Data Interchange (EDI)

EDI is a peer-to-peer electronic transmission of a single document in a fixed format. The format, or content, is defined by the document type and may be specific to a Purchase Order, Advance Ship Notice, Invoice, or a variety of other formats. The data to be included in an EDI document is defined by a set of syntax and structure specified by third-party committees such as EDIFACT or ANSI, and not between the sender or receiver of the data.

Like FTP, EDI lacks timeliness. Initially, EDI software promised that the exchange of fixed format documents between computer systems would not require additional manipulation or review. In practice, however, there is little difference in many cases between EDI and email, except that EDI is almost always going to follow specific formats as opposed to the unstructured nature of email. The response, action or consumption of data transmitted via EDI tools is no more reliable than something sent via fax.

To learn more about EDI software for the electronics industry, check out our blog: What is EDI Software?

While EDI is a better alternative to manual processes like emailing RFQs and POs, traditional EDI software is costly, rigid, and complex to implement and maintain.

EDI systems are not flexible, inexpensive, or timely. Electronics manufacturers will be required to hire skilled personnel to implement EDI solutions and pay additional costs to scale the solution for growth. EDI is commonly transmitted through a VAN (Value Added Network) and not directly between two business partners. This requirement for an intermediary introduces further variability and cost.

Due to the complexities in transferring data between disparate EDI systems and other data systems, component manufacturers and distributors waste valuable time that could be used towards growth opportunities like vendor relations and innovation.

Application Programming Interface (API)

While email, FTP, and EDI lack flexibility and timeliness, API delivers on the promise of interactive real-time data communication that is required for business today. Unlike the other methods of data exchange we have discussed, which are all “push” services, an API “pulls” the data in real-time when required at the point of use.

With an API you can access any computer or data repository in the world from your system of record and not just within the static spreadsheets on your computer via Excel VLOOKUP. Users can fetch a variety of data points from inventory position, column price break, order tracking, and lead time from suppliers immediately and make fact-based decisions as part of the natural purchasing cycle.

It's not just the purchasing cycle either, APIs facilitate every business process in an organization from the inbound RFQ process to facial recognition APIs used by Human Resources.

> *In today's business environment customer's demands are changing faster than ever. The way you conducted business in the past may be too slow for the future. New disruptive technologies are creating voids like we've never experienced before. If you aren't thinking about it, surely your competitors are.*
>
> — Digi-Key Electronics[3]

Use Case for API in the Electronics Industry

Increase in Peer to Peer Data Exchange Including:

- Exchange Price Books; Price and Availability
- Exchange Component Attribute Data and Images
- Conduct EDI Transactions Cost-Effectively
- Facilitate Data Availability on Mobile Platforms

Many global electronic component distributors are making public APIs available to facilitate the quoting and purchasing operations and to connect with their customers, Contract Manufacturers (CMs) and Original Equipment Manufacturers (OEMs).

As a result, peer-to-peer public APIs and custom client specific APIs are becoming more readily available as global companies recognize the benefits, speed, and efficiency of API. *Companies further down the supply chain, such as Component Manufacturers, that may be behind the curve in offering APIs to their distribution partners and direct customers are missing out on valuable business opportunities as APIs streamline communication and improve relationships between organizations.*

For Component Manufacturers, enabling API data communication allows changes in your system of record to be immediately available to channel partners. From internal systems, you may change a price for instance, and without the need to download that record, email your channel partner, confirm their receipt, or wait for their adoption of the new price. Instead, pricing is immediately available for the next time they make a request.

3 https://www.digikey.com/en/resources/api-solutions

API Implementation Over the Next Ten Years

As digital transformation and technological advancements improve, consumers and workers expect to be able to quickly access information with ease. **Speed may be the primary decision point, and study of value in B2B commerce in the future.**[4]

Many electronics professionals predict that API will be as pervasive and crucial in executing business strategy over the next five to ten years. If an organization does not have a seat at the API table, they will not be a part of the commerce conversation in the future, and likely competitors will pass them in the process.

In addition to being the platform of B2B commerce in the future, API offers tremendous benefits in efficiency. API is a machine to machine connection, as computers remove the possibilities of human error as well as save employees time from manual process.

Data may be segmented, instantly transmitted, timely received and validated by all parties over API solutions like Orbweaver Connect, which facilitates data exchange between disparate systems. Data is also far more secure as each API data transport is exclusive to the sender and receiver of that

Summary of Data Transport Mechanism Values

The time savings, efficiency, and business opportunities are worth 10x the cost of API enablement and maintenance. With that kind of ROI, it is easy to see why API data communication is growing. In the next decade, professionals should not be surprised to find CMs and OEMs trading API credentials the same way business cards are currently exchanged.

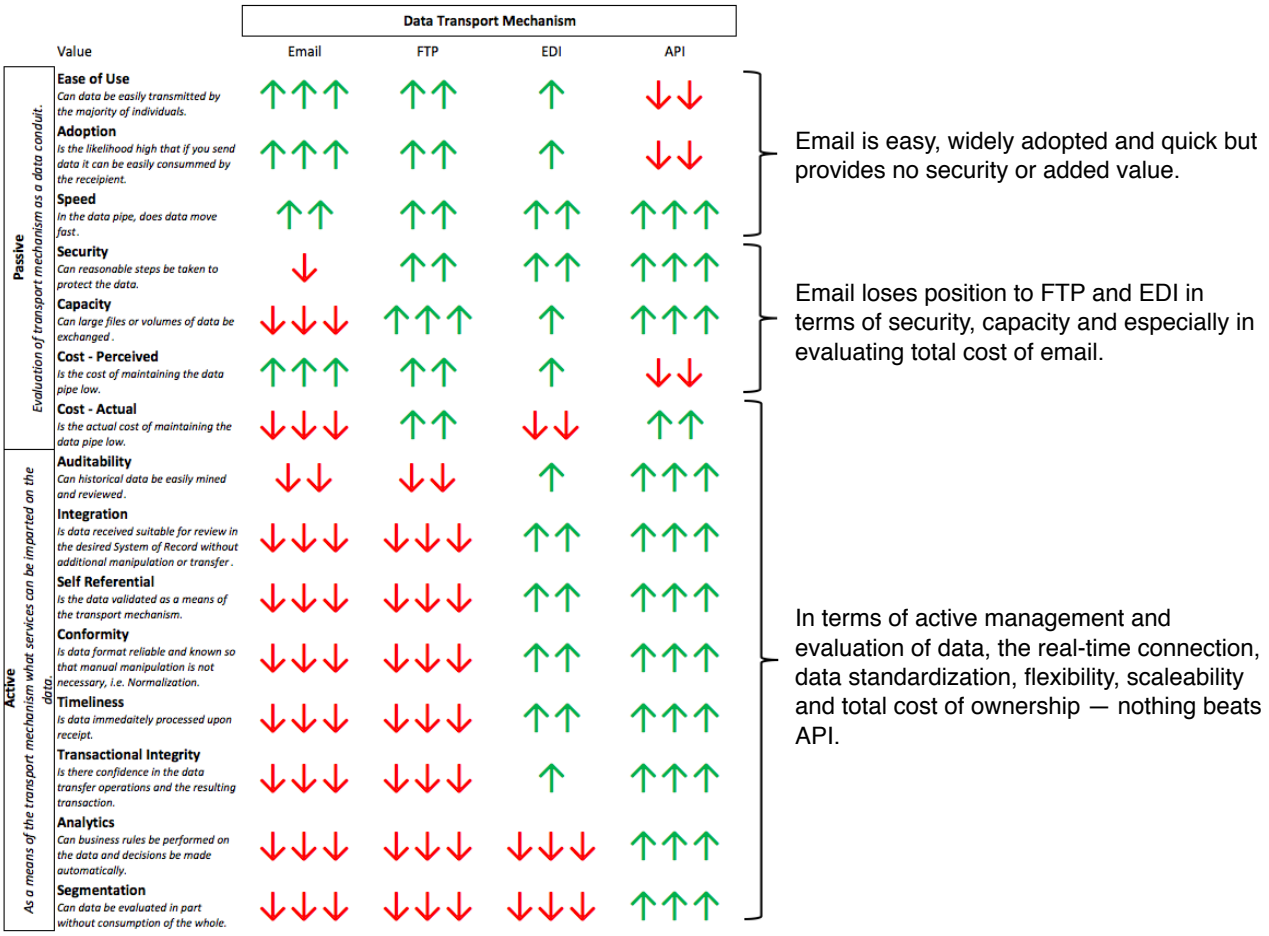
The electronics business is profitable moving into the final part of 2018. Chinese tariffs and some component lead time issues certainly present challenges, but it goes without saying: the economy is doing well and business revenues are up.

It is easy to assume an apathetic position regarding technology investment to improve efficiency and market share when business is humming. Therein lies the trap - because the time to invest is now. When the business cycle corrects, it will be too late, and competitors that made the technology investments you did not will establish an advanced position for which you may no longer have the resources to catch up.

The business of the future will be digital, automated and in the case of the electronics industry, reliant on APIs for data and information exchange. If you don't have a seat at the table, you will be left behind.

Download our eBook on *The Future of eProcurement: How Automation is Transforming the Electronics Manufacturing Industry*

4 http://www.dailymail.co.uk/sciencetech/article-1391297/How-takes-just-15-minutes-web-tuition-hack-email.html



A comparison of data transportation methods used in the electronics manufacturing industry.

> *In summary, the world has changed. Today's competitive forces are different from those of the past. Competition is coming from unexpected places, and customers' expectations and influences are different. Innovation is the real power in today's world, and speed is the new business currency. Therefore, new challenges and opportunities cannot be addressed with the old tools or the old way of thinking.*[5]
>
> — Forbes

Leverage APIs To Power Operations

We now know that electronics manufacturers can drastically benefit from the implementation of APIs over other methods of data exchange, but how can organizations harness this solution to power operations?

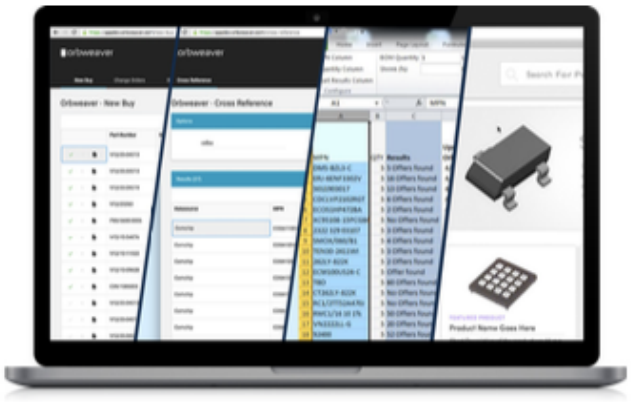
API platforms that are specifically designed for the electronics manufacturing industry, like Orbweaver, can bridge the gaps between data systems to foster business agility and growth.

5 https://www.forbes.com/sites/forbestechcouncil/2017/11/17/transformation-roi-versus-the-high-cost-of-doing-nothing-why-inaction-is-unaffordable/#2612aa325cdc

The Orbweaver Platform provides an end-to-end quoting, procurement automation and data integration solution for the electronic manufacturing industry. Orbweaver simplifies and increases productivity for employees along the supply chain by streamlining the quoting, purchase and distribution of electronic components.

The Orbweaver Platform:

- **Uses industry expertise to accurately enable APIs for clients, saving time and resources**
- **Helps organizations transform and normalize their data consumption and distribution processes**
- **Automate and simplify business processes to increase productivity and speed to market**



Orbweaver helps businesses create and manage APIs throughout the supply chain. In addition, the platform provides businesses with automation tools to facilitate RFQ responsiveness and management, enables efficiency and cost benefit to the procurement cycle, and analyzes data so enterprises are making smarter, more informed decisions.

Orbweaver offers these services and products exclusively to the electronics industry. Orbweaver is comprised of a cross-functional team of electronics manufacturing leaders and veteran software programmers, with over six decades of combined expertise. Orbweaver is familiar with the unique nuances of electronics manufacturing policies and protocols we and offer product features to manage POS, Ship and Debit, and global system integration.

We believe investments in technology should have a tangible economic benefit and we have a simple philosophy regarding the objectives of our engagements:

- **Be first to reply**
- **Have the smartest reply**
- **Sell more parts**
- **Be the preferred partner**

To learn more about our API-enablement services or see a demo of the Orbweaver Platform, request a consultation with one of our electronics manufacturing experts today.

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