Driving Reuse in the Supply Chain

The Cisco Systems Journey
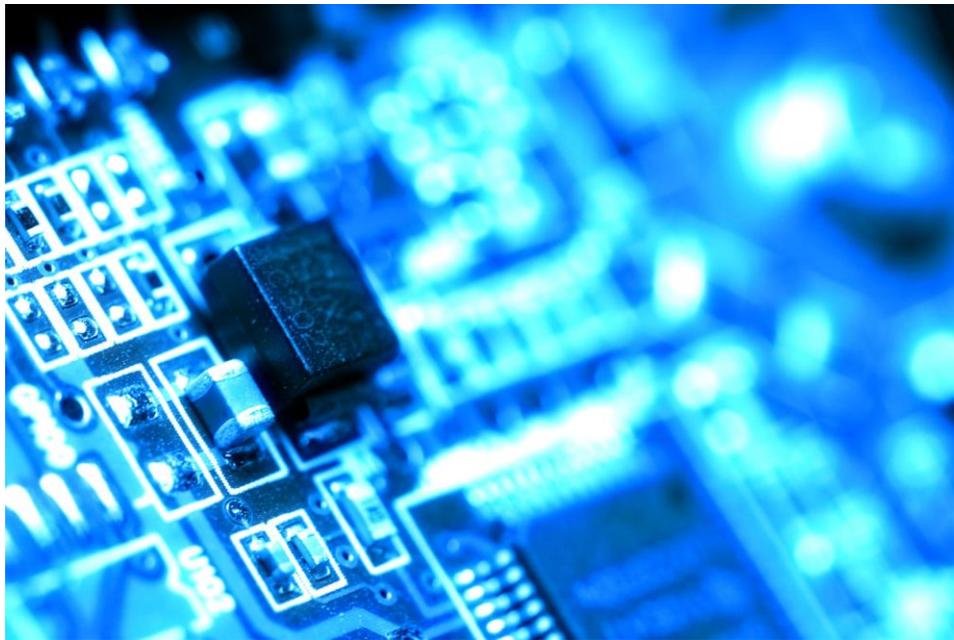
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Executive Summary – The Cisco Challenge on Reuse

There is a common understanding for any asset to be valuable in the world of business; it has to result in the ability to provide something useful and productive. Cisco Systems is a business that is the total of many acquisitions. In addition to many great people and great products, these acquisitions bring with them an enormous number of bill-of-material related parts information. The layers of complexity in Cisco's parts database make it increasingly difficult to use this asset for accurate, meaningful decision-making.

Greg Twiss, director of Engineering – Supply Chain at Cisco is known as an innovative problem solver. He accepted the challenge of making better use of its disparate and complex parts database to increase operational efficiencies at Cisco. Greg discovered that the solution for effective parts reuse is to repurpose 'Enterprise Search' for supply chain initiatives to give decision makers the right information at the time they are in the process of making parts-related decisions. This white paper is a condensed summary of Greg's webinar presentation on February 27, 2014. It describes the journey Greg and his team took with Perception Software's Encompass application in enabling effective searching of product data as an enabler for parts reuse within the company and the successful outcomes of that implementation. Cisco now has more than 5,000 active users of Encompass and the number is growing rapidly.

"Couldn't we do this better; couldn't we perhaps reuse what we already have rather than having duplicates or trying to do new things?"
-Greg Twiss

Why Reuse?

When thinking about product design, a fair question about reuse is, why is it important? There are several important reasons to consider reuse.

Cost, Quality and Delivery

When getting new products designed into high volume production, a number of factors become important - repeatability, reliable cost structure, quality and delivery. Reusing already sourced parts provide benefits in the overall design, development and production of new products. These benefits include:

- **Volume** - leverage purchasing volume contracts with vendors to lower costs on existing parts
- **Lead Times** – predictable, shortened lead times that ultimately, yield better costs and improved quality and delivery parameters for the parts and assemblies that you have created
- **Quality** - reuse parts that have all ready been tested in environmental, thermal and other internal quality control processes
- **Reduced negotiations** - don't have to negotiate with vendors that have not been qualified for use by the company

Support Cost and Complexity

Once a new product comes off the assembly line, it has to be supported and sustained while the product is available to the market. Through a reduction in the total number of parts, the cost of supporting these products is reduced, allowing resources to become streamlined and more efficient in managing the life of the product. As you reuse product data, you will not only reduce costs but also, reduce the complexity that goes along with it.

Risk Mitigation

With reuse, not only does dependability increase but ways to balance and quantify risk improves as well. While reuse does not eliminate risk, it does mitigate, manage, and quantify it, allowing you to reduce the risk threshold.

Why don't more Companies Reuse?

The question remains if reuse can do all of this, why don't more companies use it? The reality is, change in an organization is often more about sociology than technology. Cisco experienced that need for change management when implementing the Encompass platform.

Cisco's goal was to connect people quickly with the data they needed so they could make smarter, faster decisions about product data and its reuse. Cisco labeled their initiative Intelligent Search (iSearch). Oftentimes, the efforts to get to a solution to drive efficiency and productivity within a company do not translate into action and it's those actions within a complex organization that are critical to the implementation and use of technology. Requirements and mandates can be issued, but if the organization

does not change with the technology, its impact is going to be limited.

Encompass was no different with Cisco. The company had to look at the gap between its intent to improve the system, its ability to execute and the potential impediments that stood in the way. Changing the culture can create some significant challenges and Cisco's were defined in two key areas: 1) Lack of skills or functional ability; or 2) Motivation to change (or perhaps even both).

Lack of Skills/Functional Ability

Fortunately, acquiring talent and/or procuring a commercial application to use can manage lack of skills. There are companies that specialize in search and discovery applications and Cisco worked with Perception Software to be able to provide the necessary skills and capabilities to deliver this for iSearch.

Motivation

Even with the best skills or a great application, if you are not motivated throughout an organization to change, it is difficult to take good intentions and translate them into action. Cisco developed a home-grown reuse tool that was used for rudimentary parts search. It was slow, incomplete and not readily embraced by users.

Cisco knew if it could drive this new capability further up the chain of the decision-making process and if it could make it easy to find the right data at the point of inception, it could help the entire team make smarter decisions, faster.

Getting Company Buy-In

Even after identifying the major benefits of this new solution, challenges remained, not the least of which was how would they get Cisco to pay for it, adopt it and most importantly, use it every day?

Many companies experience the same dilemma - if you bring in a new tool, but it's embedded in the old process and old behaviors, it's often a struggle to get people to adopt it.

Cisco did something early on with iSearch that helped greatly with its successful implementation – it put context around the tool by answering some key questions

1. How does it operate?
2. What are the new capabilities?
3. How can a company successfully embed it into the culture, operating principles and behaviors of the organization?

When Cisco brought the tool to the users it also brought an overall change management plan on how to get the solution embedded into the organization.

The Successful Implementation of Encompass

Cisco picked a focused approach with the implementation of Encompass. As the company describes it, Cisco needed to hit "the center of gravity," the maximum pain points in the organization that would deliver the highest adoption and usage immediately. So, instead of creating a 100-page product spec, it gave the team at Perception Software a 13-word product spec. It simply said:

"Make ALL part data available and fulfill search requests in under 2 seconds"

The idea was twofold for Cisco:
1. Make _all_ of its part data accessible to users, and
2. Fulfill any search requests in under two seconds.

There are a couple of key ideas that were set forth in the product spec. The first is the use of the word 'all.' Cisco has millions of pieces of product parts and data, some of it in databases and others in Excel spreadsheets or Word documents, and Cisco wanted access to every piece of that data. While Cisco was not exactly sure at the time how it was going to be used, Cisco knew if it could get access to it, users would adopt it and find interesting ways to use it.

The second was the ability to get the specific data back very quickly to the user. If Cisco could deliver on this promise, not only would its users have a high search experience, users would search more often and look for other data. Instead of being just data retrievers, they became data explorers.

The Three Guiding Principles of Developing Encompass

The first principle was *"Part reuse is all about getting the right people to the right data at the right time"* and all three pieces are essential for success. The Cisco team spent a great deal of time understanding how people search for product data, not only how they search but also why they search. Those findings were incorporated into the design of the application.

"Adding a great user experience" was the second principle guiding the features of the user interface. The development was focused on delivering initial capabilities and then iterating on the interface with feedback from the users. By embracing user feedback and transforming it into a robust user interface, Cisco achieved high rates of adherence and adoption.

The third guiding principle is *"many data sources but 'one' view."* Cisco essentially took the application out of the equation so that when it was done correctly, people did not care where the data came from as long as they could trust the results. The company started small, one or two sources of data that has now grown to over a dozen different databases. However, one constant remains across all of those sources – the user interface looks exactly the same.

The Three Guiding Principles of Gaining User Adoption

In order to gain user adoption and traction, Cisco understood that *the time rate change of their data sources had to be greater than the time rate change of features*; that is, they were adding data far faster than adding features to the application. Development money was spent on new data services, not new features which helped drive wider adoption across the organization in areas like supply chain, engineering, quality and legal. Those groups started using the tool because it gave them access to data they did not have before.

Another key adoption consideration was *providing a solution that was easy, useful and integrated quickly into people's lives.* Users will adopt it if the organization meets those key needs and in Cisco's case, they were. Cisco also took a relaxed approach to how this was marketed to the company, basically saying, "if you like it, you're welcome to use it and if you don't that's fine too, try using something else."
That approach paid off, with the adoption now at 5000+ users, up from several hundred when it was first rolled out.

Finally, the company took a humble approach that said, "*users are collectively smarter than you.*" This application made the data as far reaching as possible and got the widest set of users provided feedback that not only benefited the company, but also the user community.

Discussion on ROI

As you consider an intelligent navigation solution like Encompass, one question that will be asked early in the process is, "what can my company expect to see as far as ROI? For Cisco, they answered that question several ways. One is to be able to find product data quickly. If a parts search could be cut down from 10-15 minutes to two seconds and you multiply that by someone's hourly rate and the number of people and by the number of searches, the efficiency gained on that time savings alone would justify the cost. It was estimated by Cisco that the **application paid for itself in just two months.** Beyond that, however, there were other ROI benefits:

1) Because users quickly accepted the application, Cisco used it more often and found new ways to use it.

2) It drove reuse that helped drive new efficiencies in the overall supply chain.

3) It was adopted by new users across the company - legal, supply chain, quality, product operations, support and services.

4) The unified view to ALL the data provided capabilities for IT to de-scope data migration into new application projects.

5) Enabled Cisco to end-of-life legacy applications – and their costs - that were being kept online just for data access.