



Survey Report 2016

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Executive Summary

Arena Solutions surveyed design decision makers in late 2015 at 405 product companies from a wide cross-section of industries to learn how they manage their bill of materials (BOM), the record that details the components, quantities of each component and the instructions needed to manufacture an end product.

The findings were surprising: Nearly two-thirds (61%) said that it's important for the smooth operations of their business that suppliers connect to their BOM, yet nearly half (47%) say they have no suppliers connected. In fact, 48% of respondents indicated that they are using either a spreadsheet (34%) or nothing at all (14%) to manage the BOM. Even among those who said that connecting suppliers to the BOM is absolutely critical to the smooth operation of their businesses, 26% still did not have any suppliers connected.

The reason for this disparity is clear: 70% said that the difficulty of deployment at suppliers prevents them from connecting the BOM to software. Security concerns (54%) and the cost of licenses for suppliers (50%) were also cited as issues.

Introduction

For most, the days of the fully vertically integrated product company are long gone. Companies started outsourcing manufacturing decades ago, and today, they typically rely on suppliers—and those suppliers' suppliers—for key parts of their product design. In truth, a product today is rarely produced by a single company, but rather by an intricate web of stakeholders that ultimately form a supply chain.

If the supply chain is to work effectively and efficiently, everyone must be working from the same set of information all the time. Otherwise, when a supplier ships the wrong parts or the manufacturer produces prototypes that suffer from known, correctable issues, it wastes precious time and money due to scrap and rework which can significantly increase time to market.

Unfortunately, working from similar sets of information is insufficient to prevent these kinds of problems. Just ask any high tech or medical device manufacturer; the level of precision needs to be exact. Stakeholders need constant, transparent communication about product issues so they can be resolved quickly, before these issues seriously delay the product release or thwart budgeted cost controls. Today's markets move fast, margins are tight, and competition is fierce. The difference between a blockbuster release and a dismal failure may be a delay of just a few months or a few percentage points above expected costs.

In product companies, the bill of materials is the product record – all the parts, subsystems, designs and assemblies are kept there, along with information about each supplier. It's where engineers spend a great deal of their time every day. Increasingly, companies are coming to recognize the value in connecting not just their primary suppliers and manufacturers to the BOM, but also their extended supply chain.

Anecdotally, it's abundantly clear that there are still plenty of companies who, even though they are aware of the negative consequences, do not connect their suppliers to the BOM in their product lifecycle management (PLM) system. Many others do not use a PLM system at all, but instead rely upon spreadsheets, which suppliers cannot connect to in real-time.

Arena Solutions reasoned it might be interesting to investigate these topics and quantify the findings using hard data. The questions Arena wanted to answer include:

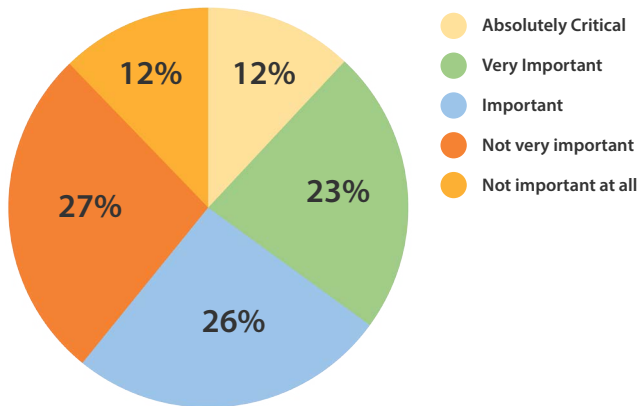
1. How important is connecting suppliers to the BOM to a product company's success?
2. What kinds of software are product companies currently using to manage their BOM?
3. What percentage of product companies connect suppliers to their BOM and how many suppliers do they have connected?
4. What factors are preventing product companies from connecting suppliers to their BOM?

Methodology

Arena surveyed 405 product companies from wide range of industries, including technology, consumer electronics, life sciences, clean tech, consumer products, transportation and industrial. Two-thirds of these companies had fewer than 500 employees while one-fifth had more than 2,500. 35% of respondents were engineers, and the rest were in managerial positions; 14% held VP-level positions or higher. A very high number of respondents, 88%, either interacted directly with the BOM or directly supervised those who did.

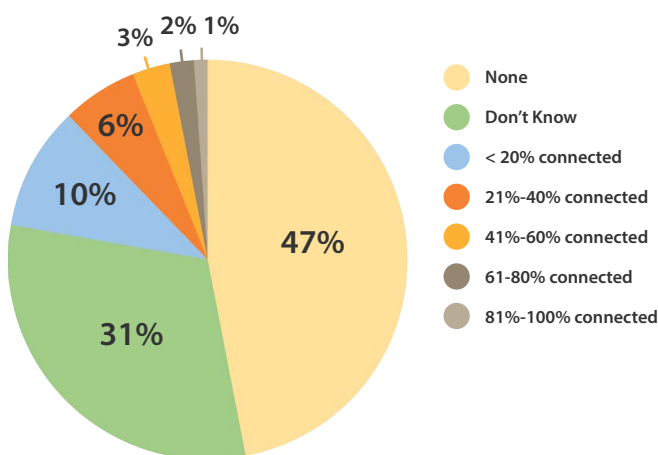
Findings

The majority of companies believe it is important for the smooth operation of their business to have suppliers connected to the BOM: Nearly two-thirds (61%) say that it's "important" (26.1%), "very important" (22.6%) or "absolutely critical" (12.5%) that suppliers be connected to the software that runs the BOM for smoother business operations.



How important is it to the smooth operation of your business that your suppliers be connected to the software that runs your bill of materials (BOM)?

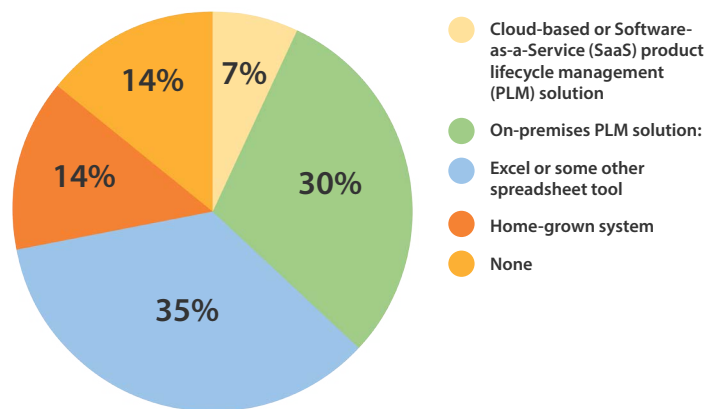
Curiously, even though it's clearly important to most organizations that key suppliers be connected to the BOM, nearly half (47%) of organizations say they have connected none of their suppliers.



What percentage of your key suppliers are connected to the software that runs your BOM?

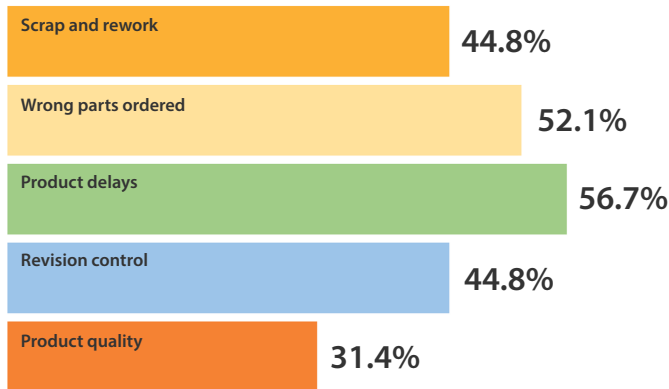
Even among those who say it is "absolutely critical" to connect suppliers to the BOM for the smooth operation of their business, 26% still do not have key suppliers connected. This may be explained by the fact that 23% still use a spreadsheet, such as Excel, to manage their BOM.

For the entire group of respondents, 35% use spreadsheets and, surprisingly, 14% use nothing at all to manage their BOM. Another 14% use a home-grown solution. Neither a spreadsheet nor a home-grown solution are likely to connect easily to suppliers, so it should come as no surprise that nearly half of the respondents do not connect to any suppliers at all.



What type of tool have you primarily used to manage your BOM over the past 18 months?

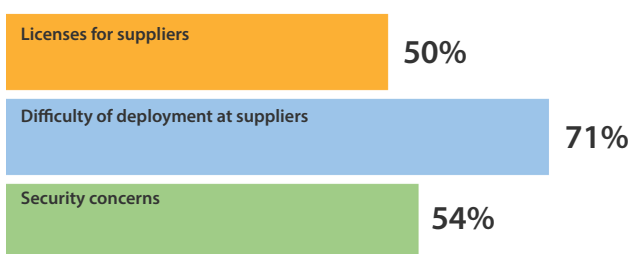
The data also show that not connecting suppliers to the BOM has negative consequences. The majority of respondents have experienced problems that they said could have been avoided had a specific supplier or multiple suppliers been connected. More than half had suffered from product delays (57%) or ordering the wrong parts (52%), and a significant percentage experienced scrap and rework (45%) or revision control errors (45%).



What kinds of problems have you encountered that could have been avoided had a specific supplier or multiple suppliers been connected to your BOM software? (select all that apply)

Indeed, a plurality of respondents (44%) said that, as long as cost and effort were not obstacles, they would add more suppliers to the BOM than they already have connected. Only 14% answered no, while 42% said they were unsure.

Unfortunately, the overwhelming majority of respondents said that the difficulty of deployment at suppliers prevented them from connecting the BOM (71%). Other factors cited as obstacles were the cost of licenses for suppliers (50%) and security concerns (54%).



What has prevented you from connecting more suppliers to your BOM software?

Discussion

The survey findings show that while nearly two-thirds of companies say it is important to connect suppliers to the BOM, curiously the overwhelming majority, 78%, indicated that they either have not connected, or don't know how many of their suppliers are connected. Furthermore, companies are experiencing serious problems that could be prevented had more suppliers been connected to the BOM.

The problem seems to be rooted in the type of software organizations are using to manage their BOM. The most frequently seen is the spreadsheet, a well-worn, general purpose solution originally developed in the 1980s that, unfortunately, cannot effectively connect key suppliers in real-time. The second most popular is traditional on-premises PLM software, which, while it can be connected to suppliers, also entails significant up-front expenditures to deploy both hardware and software at the supplier site, plus site licenses, which can also be expensive. Plus, once deployed, there are additional costs such as the staff required to maintain the software and hardware.

The obstacles to connect suppliers to the BOM certainly resonated with respondents, as clear majorities cited difficulty of deployment, security and the cost of licenses as impediments to connecting more suppliers.

While traditional, on-premises PLM solutions simply cannot offer cost-effective, practical solutions to these issues, cloud-based PLM can eliminate all three of these obstacles. First, because cloud-based PLM requires nothing on-site other than a standard web browser, there is no equipment or software to deploy at the supplier's location. And because linking them is easy with so little overhead, license fees cost far less than those of on-premises PLM vendors. Although security is a concern for some regarding the cloud, as long as the vendor runs a financial-grade, multi-tenant SaaS cloud with a

dedicated security team, chances are, data is actually far more secure in the vendor's cloud than it is in the vast majority of enterprise data centers.

Arena Solutions provides a complete, multi-tenant SaaS cloud-based PLM solution that enables organizations to connect their BOM easily, securely and affordably, and not just to key suppliers, but also to secondary suppliers and even to those same suppliers' suppliers. As a result, innovative product companies can relax knowing their quality and compliance issues are handled with precision throughout the entirety of their supply chain, change orders are shared with all stakeholders real time, costs are contained and first-mover time to market is preserved.

For more information on Arena Solutions, please visit <http://www.arenasolutions.com>.