



## Supplier Integration in an Outsourced Supply Chain World: A Benchmark Report

*Trends, Opportunities & New Generation Solutions*



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## *We are living in an outsourced supply chain world...*

There is really no question about that, as companies across the globe – for a variety of reasons – turn to contract manufacturers, co-packers, external suppliers, third party logistics providers and more, rather than performing these functions in house.

This outsourcing movement has really been going on for several decades, popular for example, in the apparel and high tech industries since at least the early 1990s, but spreading since then to virtually every sector. For example, in June of 2016, research firm Technavio released a report predicting an 11% annual growth rate in manufacturing outsourcing in the medical devices sector from 2016 to 2020, rapid

growth in an industry that was somewhat slow to the outsourcing paradigm.

There have been a number of watershed events along the way. In the 1999, iconic blue jeans maker Levi's announced it would close half its US manufacturing plants and move to an outsourcing model, moving completely out of US production a couple of years later in a move that shocked the industry.

In 2001, China became a member of the World Trade Organization (WTO), an event that clearly accelerated offshoring by Western manufacturers.



In 2007, Hershey Foods announced for the first time it would start to use outsourced manufacturing for some chocolate production, using a third party for what had been considered its core competence since the company's founding in 1894.

In 2008, computer giant Dell announced it was for the first time going to use contract manufacturers to assemble its PC and laptops, with plans to shutter its famous Round Rock, TX factory, known for its make-to-order production, in the process.

Over several years in the 2007 period, Boeing announced a new strategy for production of its Dreamliner 787 aircraft, in which major assemblies would be outsourced for the first time. Unfortunately, that strategy goes awry, as the suppliers cannot keep up with demand, leading to a several year delay in the availability of the 787, and Boeing incurring at least \$2 billion in charges to fix supplier issues.

The Boeing story is an important one, because the company did not realize that its suppliers were behind until it was simply too late, frantically sending out hundreds of its own design and manufacturing engineers to try to get on top of the sprawling problems.

The reality of course is that while there are many benefits to outsourcing, there is inevitably a loss of control. While that loss of control does not often lead to the massive problems experienced by Boeing, it can lead a plethora of supply chain issues that in turn reduce or eliminate the advantages expected from the outsourcing strategy.

At the core of this risk is reduced visibility. Many companies lack detailed visibility into operations at their own factories and distribution centers, let alone across a complex, multi-tiered web of outsourced suppliers. Control is directly related to visibility, and visibility is more important than ever in a supply chain world dominated by Lean inventory practices, volatile demand, and a growing focus on risk mitigation.

But even as hub companies pursue greater visibility, the term itself remains a somewhat vague concept. What is visibility, really?

In this report, we define three attributes that together can be used to analyze a given company's level of visibility overall, and that being achieved for an individual supplier. Those are:

- **Timeliness:** How fast is pertinent information available to the hub company after that information is created? Information "latency" is an on-going issue in a real-time supply chain world.
- **Accuracy:** What is the quality of information coming from suppliers? Does it have errors? Can it be trusted for decision-making purposes without additional analysis or confirmations?
- **Robustness:** How much information is available? Are suppliers simply unable to provide some types of information the hub company wants to see, or to provide it only with long delays and/or manual methods even though other information is more readily available electronically?



*"The reality of course is that while there are many benefits to outsourcing, there is inevitably a loss of control. While that loss of control does not often lead to the massive problems experienced by Boeing, it can lead a plethora of supply chain issues that in turn reduce or eliminate the advantages expected from the outsourcing strategy."*

Hub companies of course want to improve their level of data timeliness, accuracy and robustness from suppliers to gain that improved control, but what approaches and technologies are available to make it happen? How can the many barriers to better supplier integration – from the cost of achieving it to technology and resource limitations at suppliers – be overcome? What is the ROI from such investment? These are the key questions.

**One final point:** With an outsourced supply chain, there are sometimes not just data-related visibility issues, but also the inability of some suppliers to effectively execute or digitize key supply chain processes. For example, in doing research for this report, we were surprised to find how many companies are still sending preprinted bar code and other labels for their vendors to apply, because those vendors lack the systems to reliably produce them on their own. Advanced Ship Notice (ASN) creation is another of many such system limitations often encountered at suppliers, especially smaller ones.

How if at all can such supply chain process limitations be overcome?

So there it is: continued pressure and strategies to outsource parts or all of the supply chain, from manufacturing to finishing/packaging to logistics and fulfillment, which leads to major challenges with visibility and making that extended, outsourced supply chain operate as if it were still within the four walls of the enterprise.

How are companies thinking about these issues? What do they see as obstacles and opportunities? What is happening on the technology front to provide new answers to these operational challenges? And perhaps most importantly, have we reached a point in time where a company's need for enhanced supply chain control to achieve the next level of outsourcing benefits combined with Cloud and other newer technology developments may change the dynamic in terms of integrating a diverse supply base?

This report will answer those questions and many more.

## — Benchmark Survey —

The heart of this report is a summary of results from a benchmark survey of *Supply Chain Digest* readers conducted on-line, using emails to promote participation in the April-May 2016 time frame. The research was conducted in partnership with solution provider Ascis, Inc.

In the end, just over 100 valid responses were achieved. As usual with such studies, as the results started coming in for the first few dozen respondents, the summary data did not really change much even as the total responses later passed the 100 mark.

Respondents came from a wide array of industries, with no sector really dominant, though chemicals and

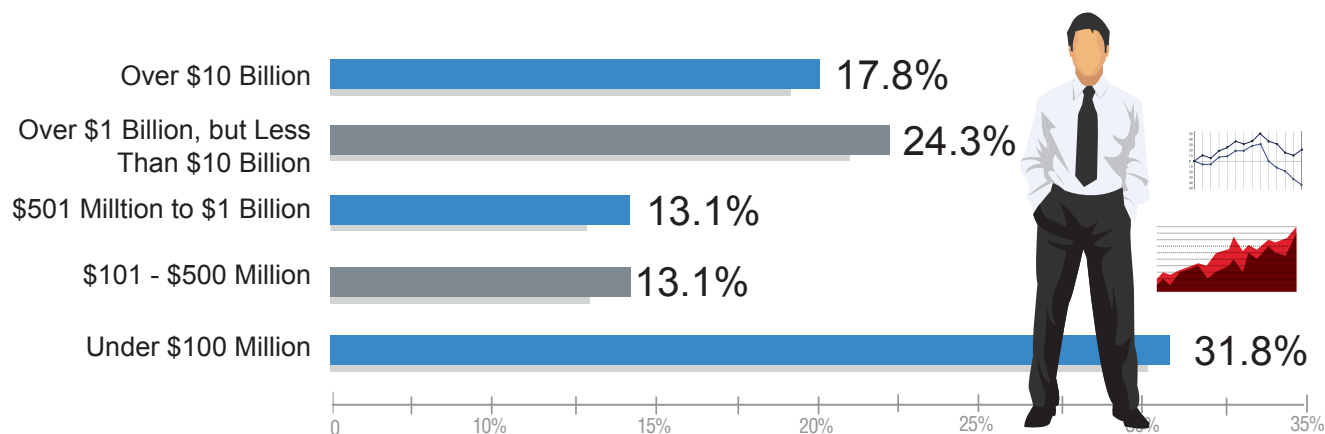
consumer packaged goods respondents led the diverse pack.

In terms of company size, it was also a diverse mix. As shown in the chart below, a combined 42% were large companies of greater than \$1 billion in annual revenue. While 31.8% were smaller companies under \$100 million in sales, we will note that many of the respondents in the smaller and mid-sized revenue brackets were actually divisions of much larger companies but responding to the survey from the vantage of their own business units. So, the survey population in general skewed somewhat large in terms of size.

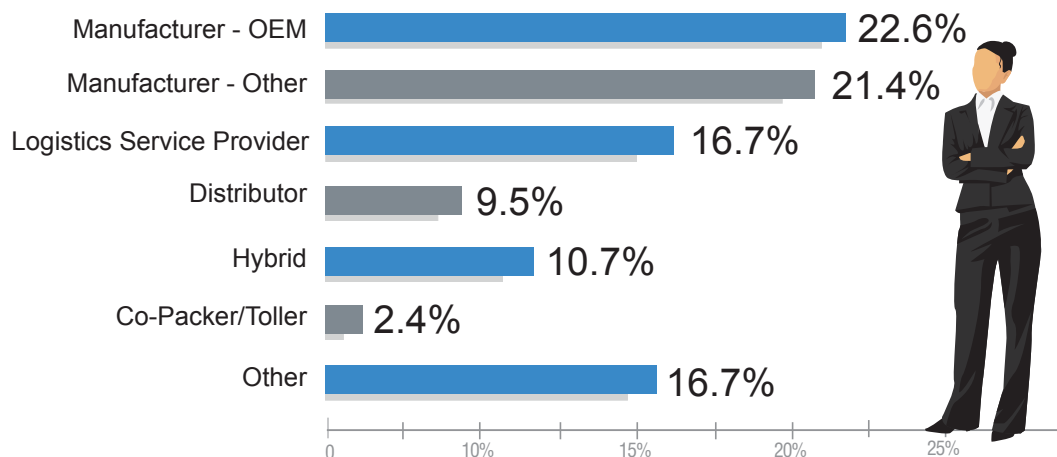
In a couple of cases we found modest differentiation between the respondents based on company size, as noted in the next section, but the differences between larger and smaller companies was not as significant as we had expected.

Respondent companies were from a variety of firms, with 22.6% characterizing themselves as “OEM” manufacturers, and another 21.4% as some other type of manufacturer. Another 10.7% indicated they considered themselves a “hybrid” company, or a combination of two or more of the categories listed.

## Respondents Represented a Broad Range of Company Size, but Skewed Large



## While Manufacturers Dominated the Survey Population



Respondents *varied widely by organizational level*, from senior supply chain executives to managers.

## Survey Results

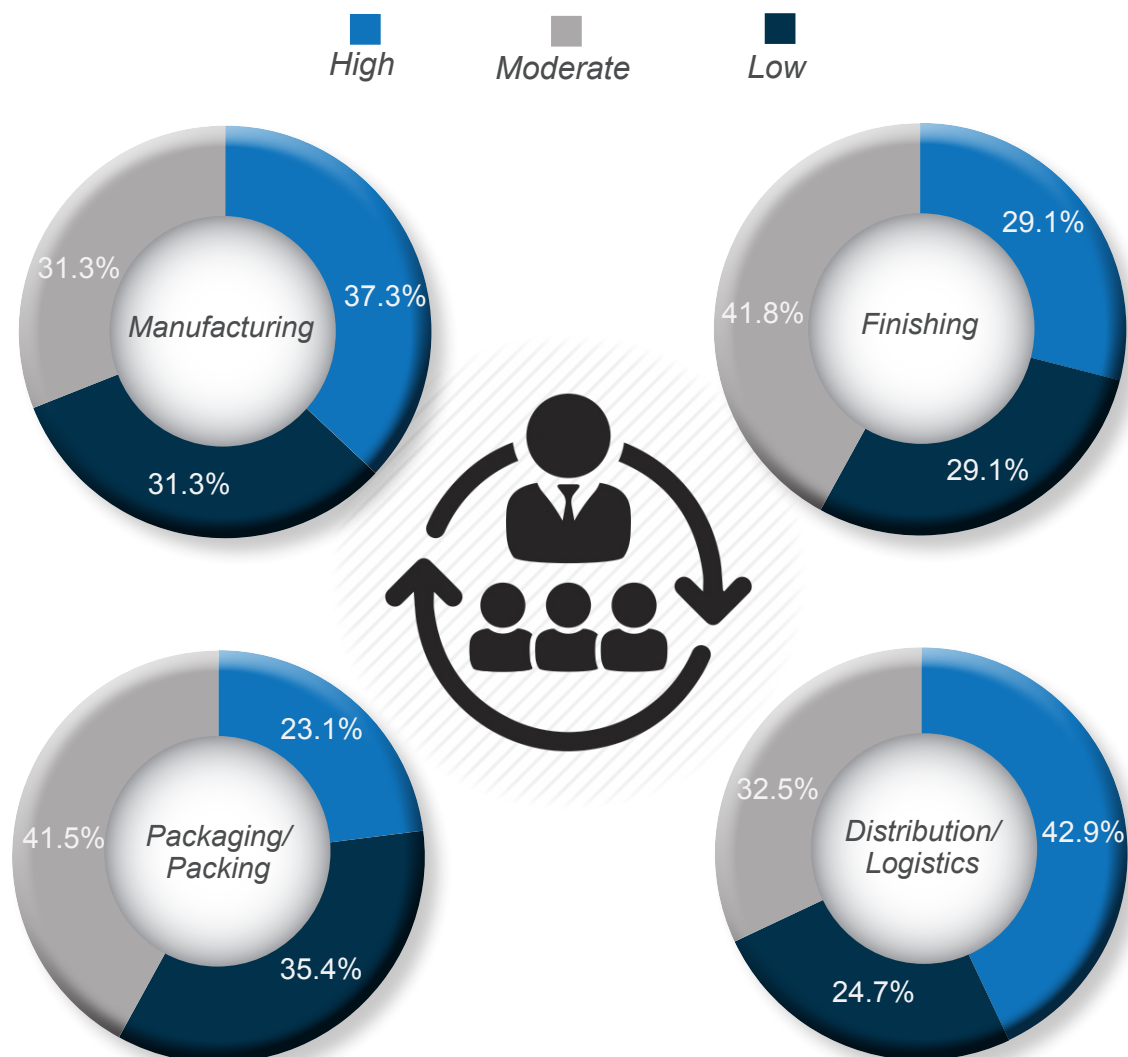
The survey started out by asking respondents to assess their company's level of outsourcing across different supply chain processes.

The results certainly support the assumption that outsourcing has deeply penetrated corporate practices. Across manufacturing, "finishing" processes, and packaging/packing, roughly two-thirds of respondents indicated they had high or moderate levels of outsourcing currently, with only roughly one-third saying they had low levels of outsourcing in these areas, as shown in the charts below.

Not surprisingly to us, the levels of outsourcing in logistics was even higher, with about 43% saying they had high levels of outsourcing in this function, and just 24.7% indicating they had low levels of outsourced logistics.

Many manufacturers do not consider logistics a core competence, and hence have moved to an outsourced model in this area.

Level of Outsourcing by Supply Chain Process



With that backdrop of the current state, we then wanted to understand trends in the level of outsourcing.

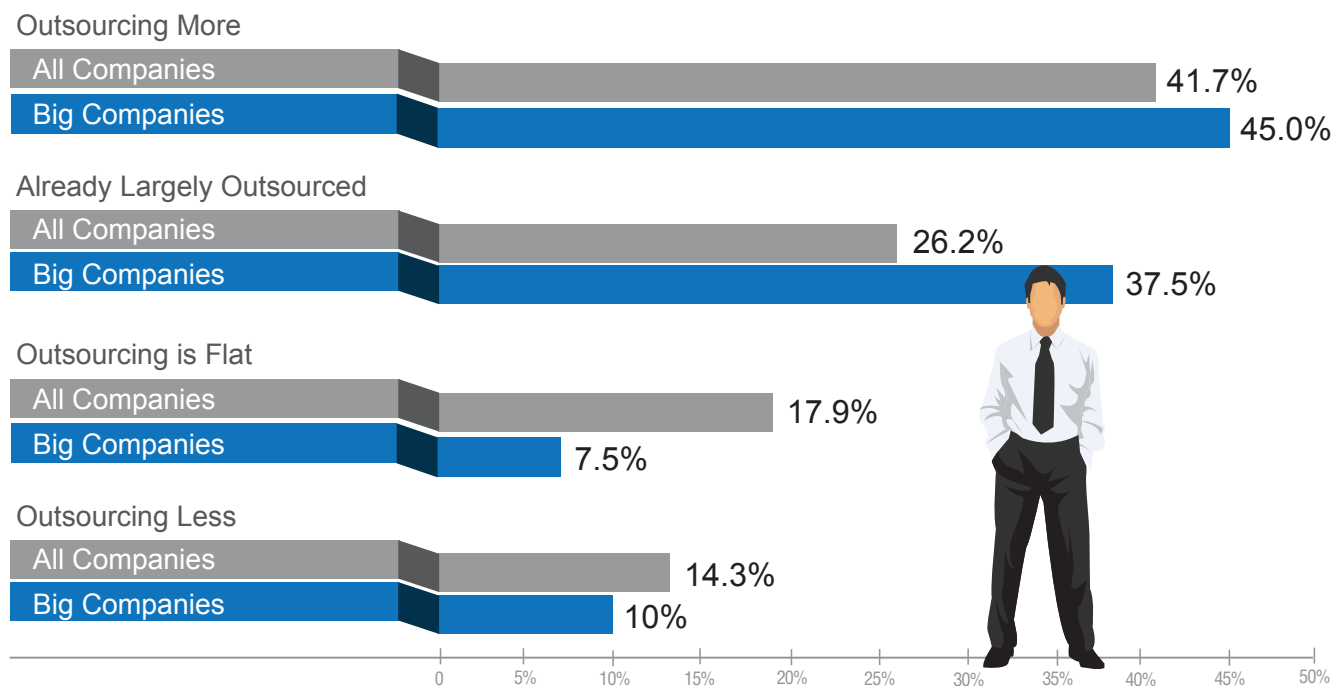
As can be seen in the chart below, 41.7% of respondents indicated their trend is to outsource more to suppliers, with another 26.2% saying they were largely “already there” in terms of a heavy outsourced model. That means about 70% of respondents expect to see growth in outsourcing or have already outsourced a high level of processes.

Just 14.3% said they were doing less outsourcing and/or pulling processes back in-house.

The trend is even more pronounced for large companies, which we defined as those having \$1 billion or greater in annual revenue. Here 45% said they were outsourcing more and another 37.5% said they were largely outsourced already, for a combined 82.5%, with just 10% saying they were outsourcing less.

We are indeed moving to an outsourced supply chain world, if we aren’t already there.

### Level of Outsourcing Expected to Grow



*“Forty-one percent (41.7%) of respondents indicated their trend is to outsource more to suppliers, with another 26.2% saying they were largely “already there” in terms of a heavy outsourced model. That means **about 70% of respondents expect to see growth in outsourcing or have already outsourced a high level of processes.**”*



As noted in the introduction, there are several key points attributed to data available from suppliers: timeliness, accuracy and robustness.

We asked respondents to rate the information they received from suppliers on each dimension on a scale of 1 to 7, with 1 being the least timely, accurate and robust, and a score of 7 the most.

As shown in the chart below, the responses were somewhat mixed. Both information timeliness and robustness were rated on average as coming in just below the mid-point of 4, with scores of 3.8 and 3.7, respectively.

Data accuracy was rated somewhat higher, just above the mid-point with an average score of 4.1. All told, this makes sense to us, that hub companies have

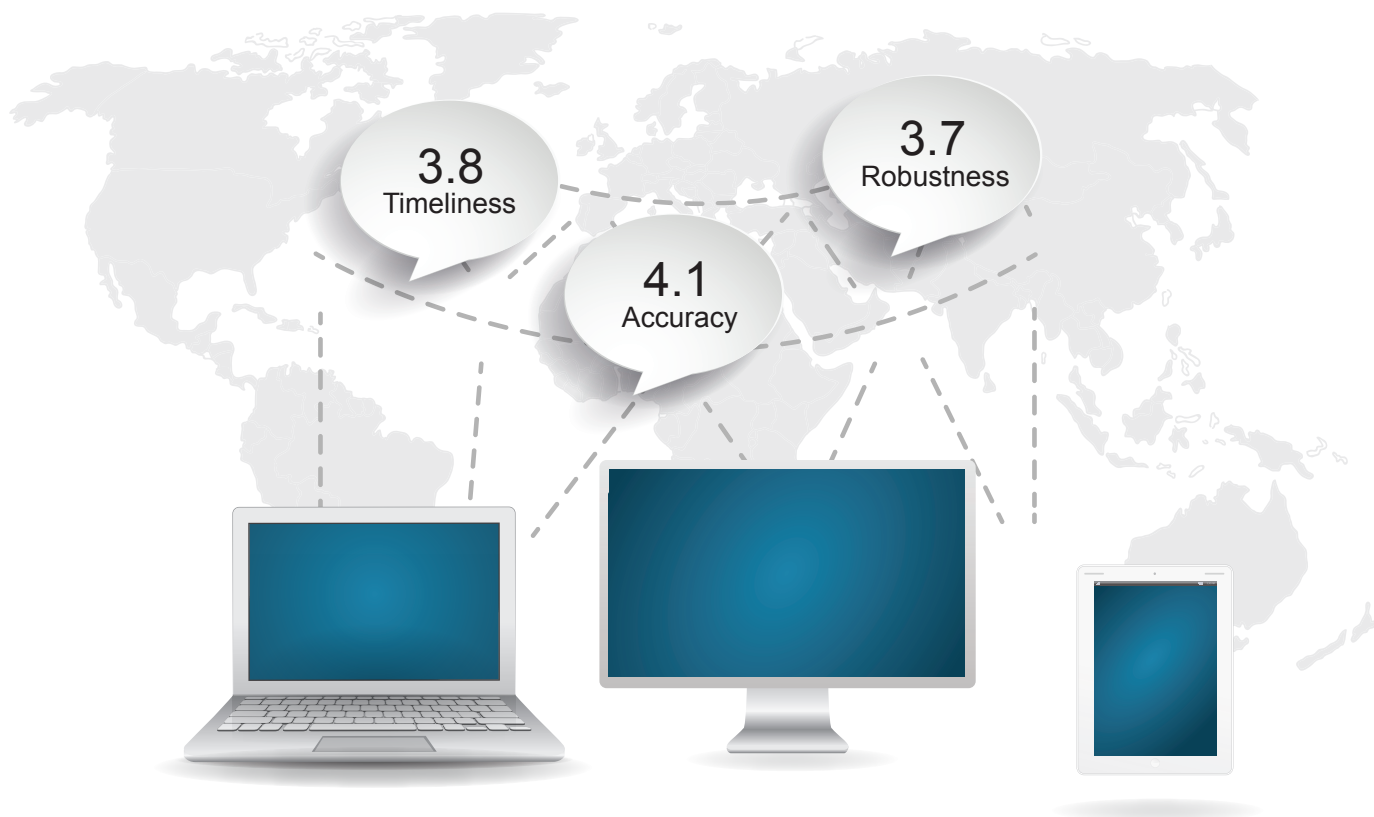
somewhat less issues with the accuracy of the data they get from suppliers than they do with the latency of that data and its completeness/breadth.

We will note that while these scores hover on either side of the mid-point, the average scores to an extent mask some of the dynamics in individual respondents, with many respondents providing low scores for each element, and others scores mostly in the 5-6 range, leading to the averages you see here.

Also, scores tended to be consistent across respondents, meaning the scores were generally low, medium or high across all three attributes for a given respondent. However, the fact that rarely were the responses identical across all three attributes indicates participants were giving thought to their answers.

## Views of Timeliness, Accuracy & Robustness of Data from Suppliers

*(Scale of 1 to 7, with 1 being least and 7 being the most)*



What methods are companies using to communicate with suppliers? Certainly, we are far from a completely electronic world in terms of how manufacturers and others receive information/data from their supply base.

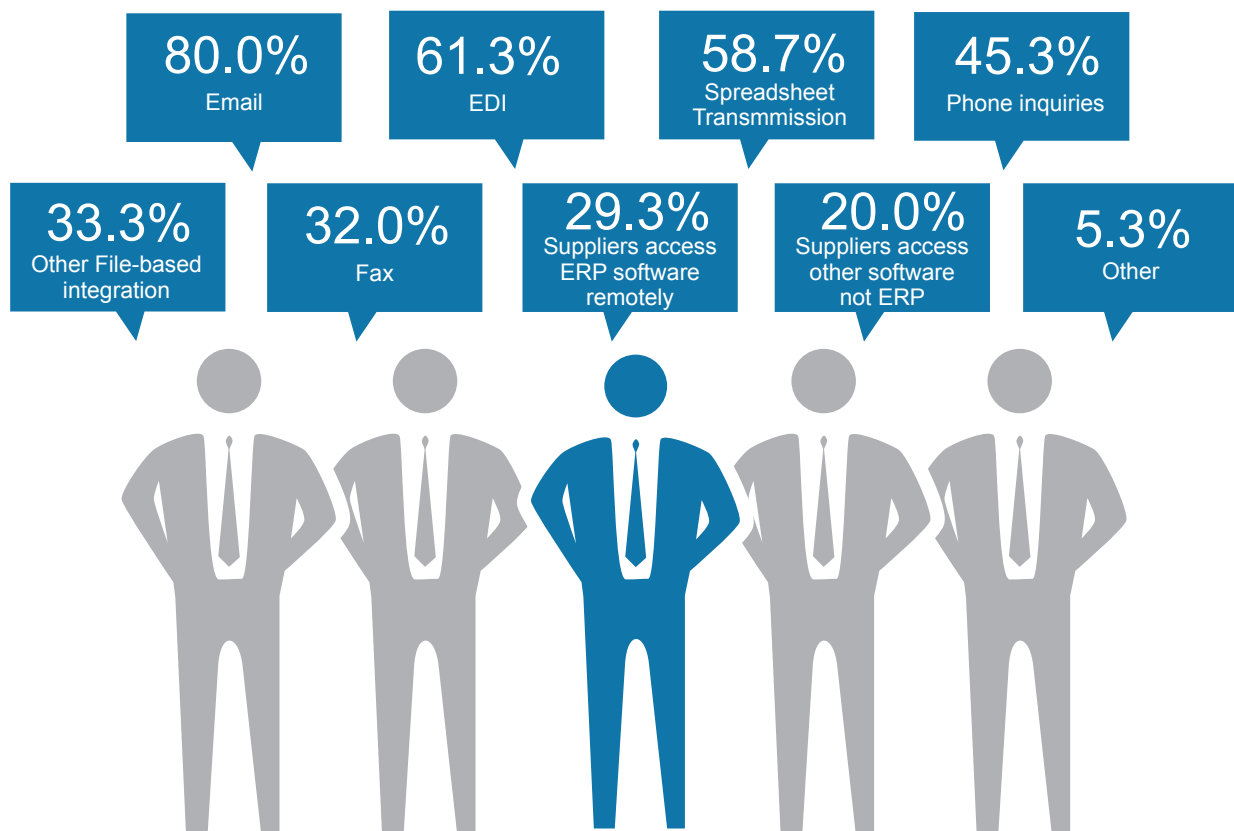
The chart below shows that the top method for suppliers to send supply chain information is email, used by 80% of respondents.

EDI was used by 61% of respondents, but obviously given the other responses, either for only a subset of

suppliers or for only a subset of the information that needs to be communicated (this is a key and often overlooked point).

Spreadsheet transmission was not far behind, in use at 58.7% of respondents. The trusty old fax machine is still in use at 32% of respondents, with about 30% of companies having found a way to allow at least some suppliers direct access their ERP software.

### Companies Use Many Methods to Receive Supply Chain Data from Suppliers (% of Companies Using Each Method)

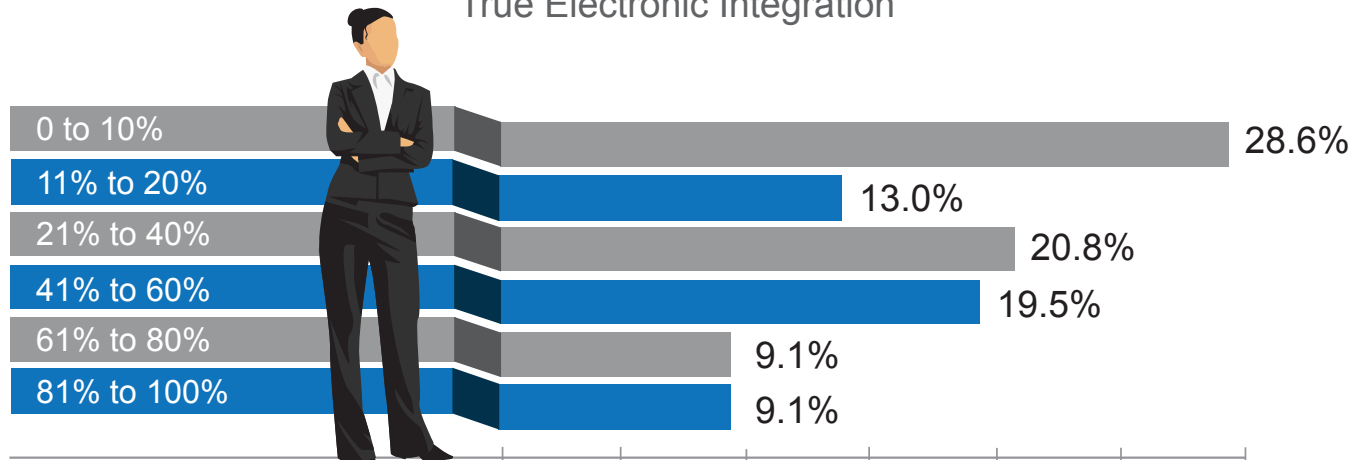


*Given these results, it should not be surprising that companies **have achieved true electronic integration** (which does not include spreadsheet transmission) with a relatively small percentage of their suppliers.*

As shown in the chart below, 9.1% have achieved electronic integration with 80% or more of their suppliers, the same percentage for 61-80% of their supply base.

Meanwhile, 41.6% of companies have achieved true electronic integration with 20% or fewer of their suppliers.

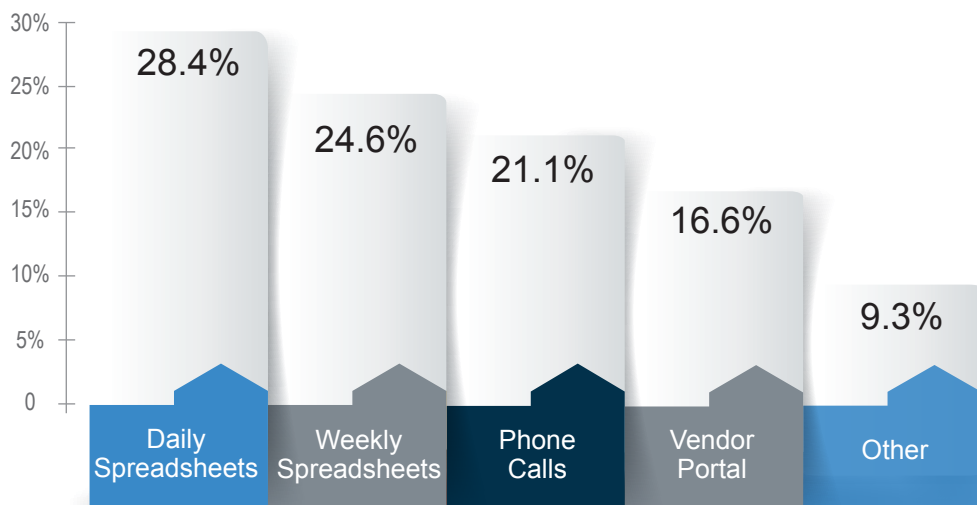
Percent of Suppliers Connected with True Electronic Integration



Finally, rounding out this series of questions, we asked respondents to estimate for those suppliers with which they do not have true electronic integration what their usage was across other methods in terms of order status updates.

The question required respondents to estimate a percentage for each method such that the total added up to 100%, as shown in the graphic below. As can be seen, the most popular method of communication was daily spreadsheet transmission, representing 28.4% of data communications, followed closely by weekly spreadsheet transmission at 24.6%. portal” of one kind or another.

Order Status Communication Methods for Non-Electronically Connected Suppliers



Phone calls certainly haven't gone away, and just 16.6% of such data is coming through a "vendor portal" of one kind or another.

From this last series of data points, it is clear relatively little true electronic integration has been achieved by most companies, and that a variety of manual methods, from spreadsheets sent via email to phone and fax, are still heavily in place in 2016.

Which causes us to question a bit the scores we looked at previously for the perception of the timeliness, accuracy and robustness of data available from suppliers, which while not great, did come in around the mid-point level on our 1 to 7 scale.

Is a spreadsheet transmitted once per week "timely," for example? Different individuals would certainly answer that question differently.

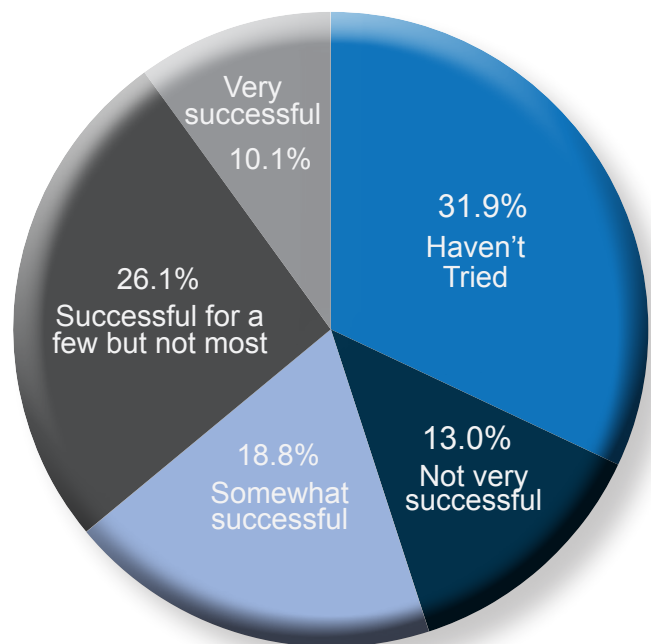
The clear message here to SCDigest is that in general, companies have a long, long way to go to achieve high - let alone near universal - connectivity to their suppliers, even as the trend is towards more supply chain processes being outsourced rather than managed in-house.

One of those choices for electronic integration was to allow suppliers to access a company's own ERP system remotely. How widespread is that practice?

As shown in the chart above on the right, about 32% of companies have not tried that approach – and the track record of the 68% that have is not strong.

Only 10.1% said that approach was "very successful," for example, and interestingly to us more than one-quarter of respondents indicated the technique was successful for some of their suppliers, but not most.

## How Have Efforts to Enable Suppliers to Access Your ERP Software Worked Out?



Why is this the case? There may be some technology issues involved, depending on the ERP system a company has, especially those companies (which is most) that have multiple ERP vendors across their enterprise, or have many "instances" and versions of software even if from a single ERP provider.

Training of suppliers in using the system can often be an issue, a challenge made even harder by turnover in personnel at suppliers.

*"From this last series of data points, it is clear **relatively little true electronic integration has been achieved by most companies**, and that a variety of manual methods, from spreadsheets sent via email to phone and fax, are still heavily in place in 2016."*

Another supply chain integration issue is whether it is worth the time and effort to integrate temporary or seasonal suppliers.

Apparently, for most today the answer to that question is usually No, as just 16.7% attempt such integration frequently. That versus the 30.3% which usually do not pursue such integrations, and another 27.3% that do so only occasionally.

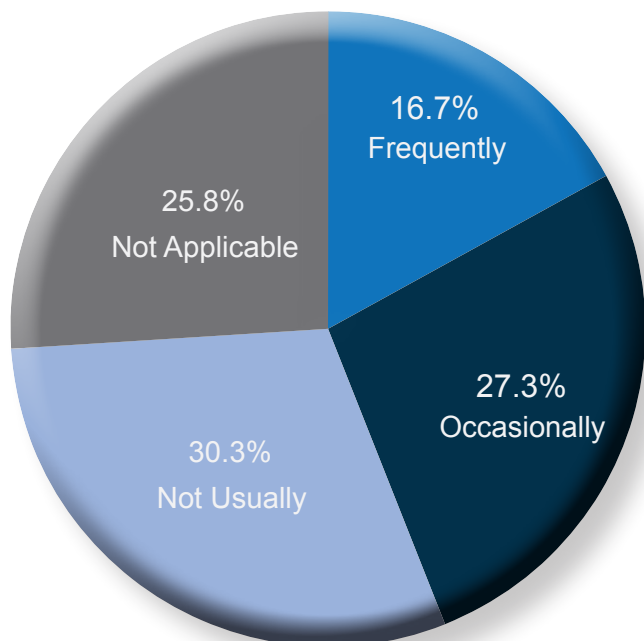
About one quarter of respondents said the question was not applicable, most likely of course because

they do not really use temporary or seasonal suppliers.

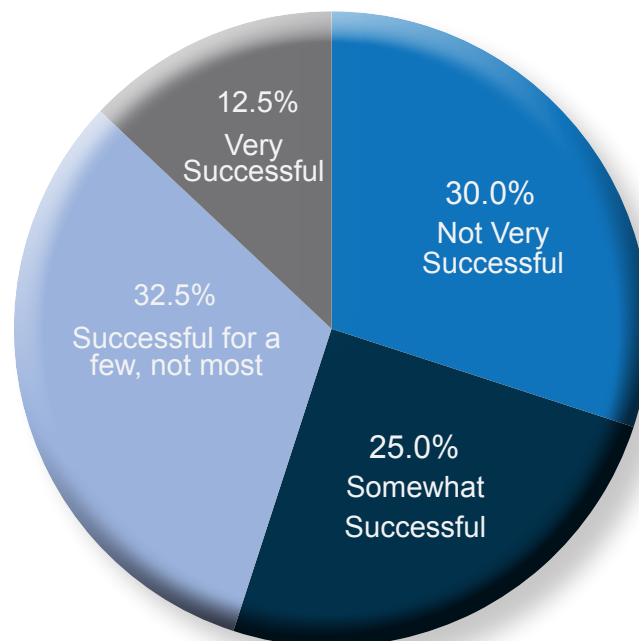
Again here, similar to the technique of trying to enable suppliers to access a company's own ERP software, integration efforts with temporary or seasonal suppliers is rarely very successful.

In fact, as shown in the chart on the right, just 12.5% called such efforts very successful. Again, a solid 32.5% indicate such efforts are successful for a few, not most.

Do You Integrate with Temporary/Seasonal Suppliers?



How Successful Integrating with Temporary/Seasonal Suppliers?



“...similar to the technique of trying to enable suppliers to access a company's own ERP software, *integration efforts with temporary or seasonal suppliers is rarely very successful.*”



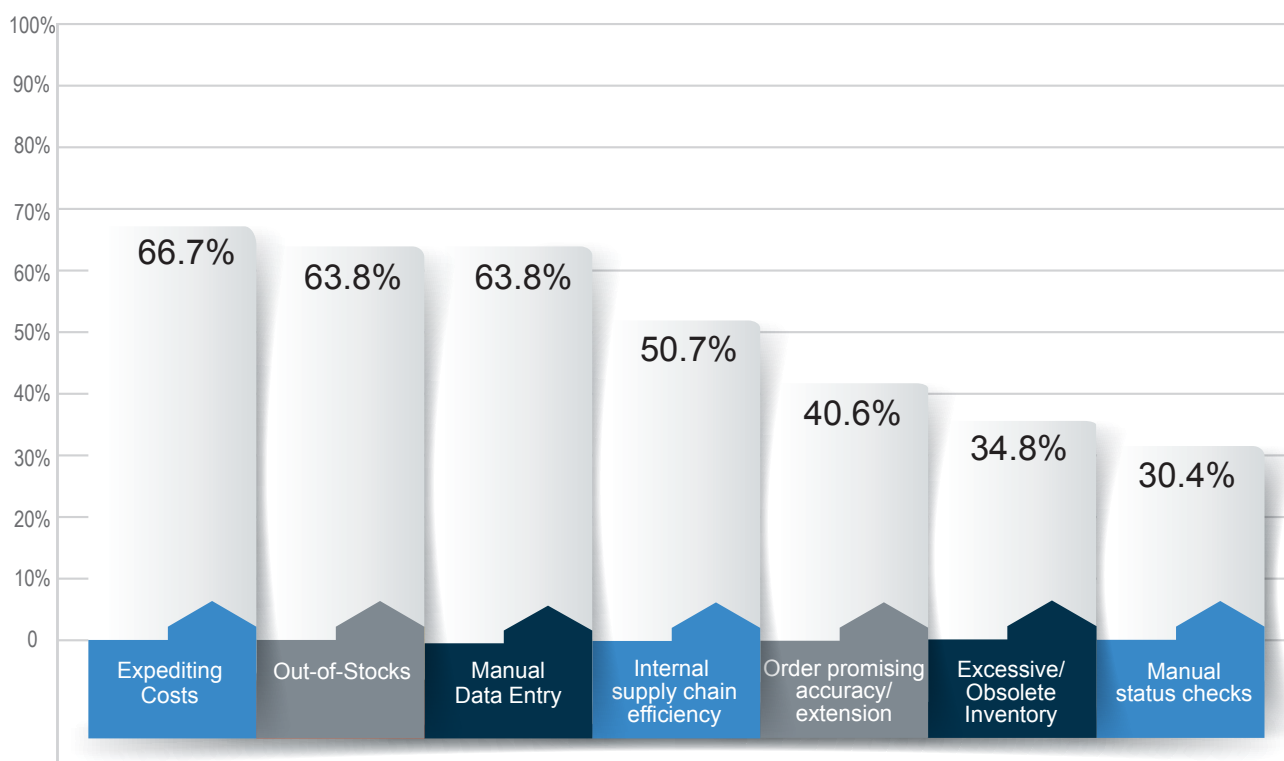
Switching gears again, we wanted to understand what operational and cost-related issues companies encounter from supplier data that is not timely, accurate and/or robust.

As shown in the chart above, expediting costs topped the list, experienced by two-thirds of respondents. That was followed by out-of-stocks (63.8%), manual

data entry (also 63.8%), reduced general supply chain efficiency (50.7%) and issues with order promising (40.6%) to round out the top five issues.

Do these operational challenges, which clearly increase supply chain costs, generate an ROI for investing in improved supplier integration and visibility?

### Issues Regularly Experienced from Supplier with Timely, Accurate or Robust Supplier Data



That's a question each company must answer for itself, but SCDigest believes not enough companies are really capturing these costs in any systematic way. Of course, in some cases, suppliers may simply not be capable of some methods of integration (e.g., EDI).

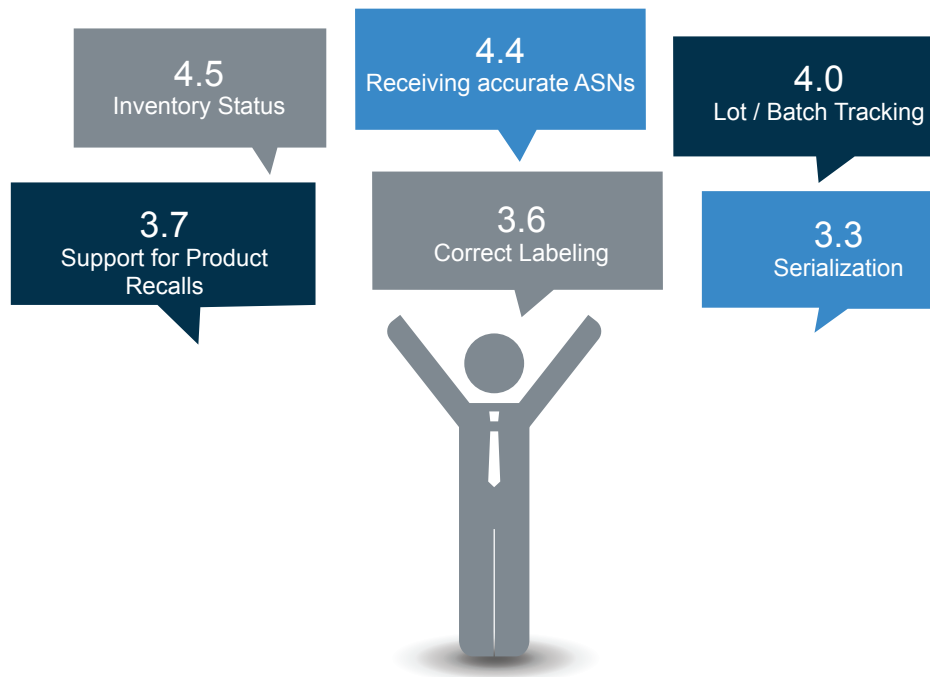
But of course, the other side of the ROI equation is the cost side of the technology/effort to better integrate suppliers. EDI, for example, can be expensive both initially and over time, serving as a real barrier to moving down this path with all but the largest suppliers.

Will new approaches to this challenge, perhaps leveraging the Cloud, change the cost side of the ROI calculation? That is a topic we will explore in more detail later on in this report.

As noted in the introduction, integration with suppliers is sometimes not just about data visibility and timeliness – it can also be about enabling processes at some or all suppliers.

## Supply Chain Process Issues with Suppliers

(Scale of 1 to 7, with 1 being least and 7 the most)



So we asked respondents to score a series of supply chain processes and the level of challenge they have with managing suppliers for each, again on a 1 to 7 scale, with 1 being the least challenge and 7 the most.

As can be seen in the chart above, receiving inventory status was cited as the top challenge, with the top score of 4.5, solidly above the 4.0 mid-point.

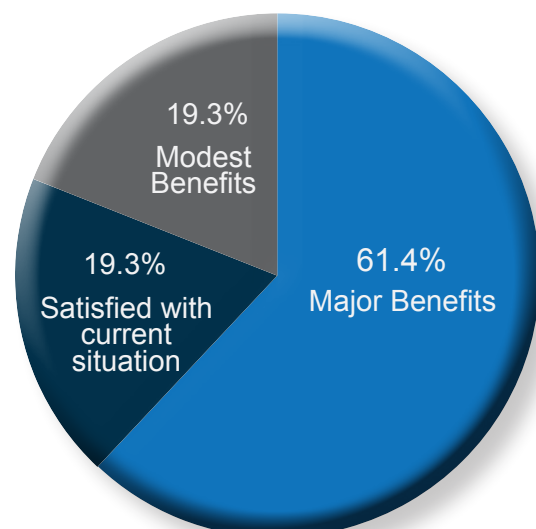
That was followed by receiving accurate advanced ship notices (ASN's), a common challenge for many companies in terms of supplier processes, and then lot/batch tracking.

In general, the scores here were a bit lower than we would have expected, with several below the mid-point. Perhaps this indicates supplier processes themselves aren't so much the issue, but rather it is data communication about these processes. Still, it is clear some smaller suppliers lack capabilities in some process areas, which companies need to find some way to improve/enable.

So, just how big is the prize, relative to better integration with suppliers to improve visibility by enhancing the timeliness, accuracy and robustness of supplier information?

As seen in the chart below, a full 61.4% of respondents believe such improvements would lead to major operational and cost benefits, with another 19.3% saying they believe they would see modest operational improvements. Another 19.3% - clearly the minority - said they were largely currently satisfied with their level of supplier integration and visibility.

## Operational Impact of Improving Timeliness, Accuracy & Robustness of Supplier Information

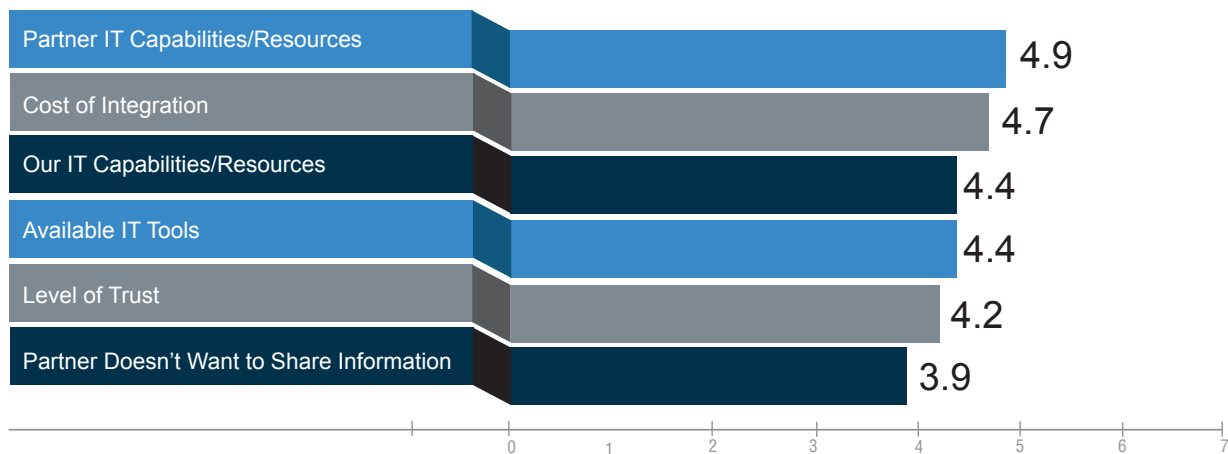


So, if nearly two out of three companies believes major operational and cost improvements can be realized from improving information flow from suppliers, there must be barriers standing in the way of such improvements. We asked a couple of questions around such barriers, just to break up the

choices a bit. As can be seen in the graphic below, in the first set (again with our 1 to 7 scale, with 1 being the least barrier and 7 the highest), the IT capabilities and/or resources of suppliers is ranked as the top barrier, with an average score of 4.9, well above the 4.0 mid-point.

## Perceived Barriers to Improved/Expanded Supplier Integration

(Scale of 1 to 7, with 1 being least and 7 the most)



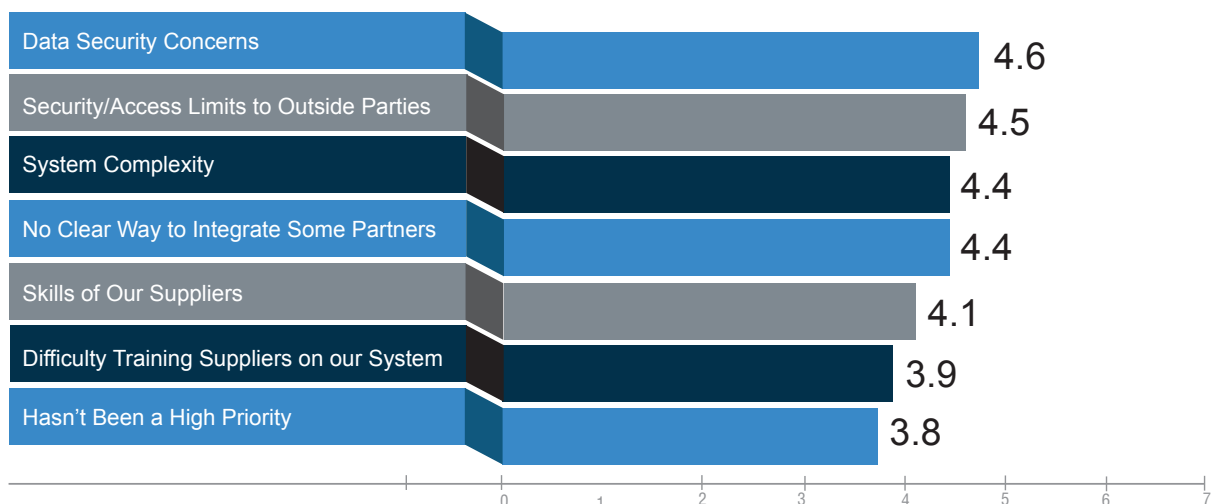
That was followed naturally enough by the cost of supplier integrations, and then the hub company's own IT capabilities and we guess especially resources, all comfortably above the mid-point of 4.0.

In the next set of potential barriers, data security issues rose to the top, with an average score of 4.6, followed similarly with policies that prevent outside suppliers from accessing a hub company's IT systems.

The modest good news is that partners being unwilling to share the data ranked lowest on the list, though at 3.9 was just under the mid-point of the scale.

## Perceived Barriers to Improved/Expanded Supplier Integration - Part 2

(Scale of 1 to 7, with 1 being least and 7 the most)



Again, the reasonably good news is that the lack of this being a high priority is seen as the least barrier, though again just under the mid-point, so it is not a trivial concern.

With that, we now turn to some overall conclusions from all this data

## = Summing Up the Data

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In truth, this survey on supplier integration primarily confirmed what many of us would expect relative to the challenges and opportunities for and from enhancing visibility.

Clearly, as we noted in the beginning of this report, it is an outsourced world, with broad use of outsourcing across four key supply chain process, and 41.7% of respondents indicating their trend is to outsource more to suppliers. Another 26.2% say they were largely “already there” in terms of a heavy outsourced model. By contrast, just 14.3% said they were doing less outsourcing and/or pulling processes back in-house.

Certainly, electronic integration remains a huge issue, with only 18% of companies saying they had achieved true electronic integration (beyond spreadsheet transmission) with more than 60% of their suppliers.

Manual communication methods, including spreadsheets but also email, phone calls, and even fax are still heavily in use.

This has a real cost in terms of operating performance and efficiency, with a high percentage of respondents saying that deficiencies in the timelines, accuracy, and/or robustness of supply chain data from suppliers results in such problems as high expediting costs, out-of-stocks, and manual data entry.

Is this really 2016?

The barriers to changing this status quo are probably familiar but worth repeating. Many companies have tried providing access to the their own ERP systems

to suppliers, but for most that has not worked very well, or been successful only with a small percentage of total suppliers.

Integration costs and a lack of resources on both sides of the equation are still important obstacles, but there is a long laundry list of other important barriers beyond that.

Companies certainly perceive the opportunity for supply chain improvement if they could break through this logjam and achieve more universal connectivity. Visibility provides control and is a key foundation of supply chain agility in a largely outsourced supply chain environment.

In fact, 61.4% of respondents said their companies would see major operational improvements from gaining higher levels of supplier visibility.

So will we be stuck here in this same place for another 10 years, even as outsourcing continues to grow? Perhaps. However, SCDigest believes the stars are in fact aligning to change the status quo through a combination of new technologies, leveraging the Cloud and more flexible options, and hub companies realizing such integration is essential to take their outsourced supply chain strategies to the next level and build on the gains they have already achieved.

In the next section, we'll take a look at the interesting approach to addressing this challenge from a company called Acsis, Inc., including a brief case study in how industrial giant DuPont is now electronically connected to almost 200 of its suppliers.

## Interesting Solution from Acsis, Inc. for Supplier Connectivity

Clearly, with this level of challenge and opportunity, technology vendors have arisen to provide potential answers.

One category of solutions is generally called “B2B integration,” a group that actually includes a large number of vendors offering software that is designed to connect a hub company with its trading partners electronically.

While these B2B solutions certainly can provide help on this front, most are not really designed to operate at the detailed transactional data collection level often required to gain shop floor visibility at suppliers.

However, a company called Acsis, Inc. has developed a very interesting and unique solution that provides much of the capabilities offered by those in the B2B integration space while extending them to meet the specific needs of companies with outsourced supply chains, often with less complexity for users than B2B offerings.

We will also note that in the 1990s and beyond there was a category of technology vendors generally called “data collection system” providers, companies which offered solutions using bar code and other auto ID technologies to capture shop floor data in real-time, and then map that data into the relevant ERP system, whether that was SAP, Oracle, or another platform.

The benefit of these solutions was that they enabled this granular, bar code based data capture, which provided accuracy and timeliness, and then fed the data into ERP-specific templates so that it

could be integrated with much less cost and effort than a company would face trying to achieve this connectivity on its own.

Now imagine that basic solution concept extended to today’s supply chain world, where the data capture and related application needs are not confined to the four walls of a company’s own enterprise. Instead, the solution is deployed across a supplier network, using advanced current technologies and leveraging the power of the Cloud as appropriate, so that the data capture process works as if the operations at external suppliers were really one’s own, from a visibility perspective.

That in essence is what Acsis has developed, providing a powerful and – importantly – very flexible set of tools to integrate a hub company’s supply base.

The Acsis Edge Network product is a platform that offers a variety of integration methods across a secure private network, with that security being an important factor given the risks inherent in sending sensitive supply chain data across public networks.

One of the aspects to the Acsis solution that differentiates it from B2B offerings is the ability to operate at a transactional level – pallet bar code scan by pallet bar code scan, for example.

The Acsis solution is also “bi-directional” in nature, meaning it provides application functionality to the partner company in addition to collecting data. For example, the system can manage printing of bar code labels, manifests and other shipping documents,



*Acsis, Inc. offers a unique solution, providing many of the capabilities offered by those in the B2B integration space and extending them to meet the specific needs of companies with outsourced supply chains. This approach offers a simpler, less complex process for users than B2B offerings.*



compliance related documents and more at a supplier as if the operations were part of a hub company's own plant or distribution center.

Flexibility is a key aspect of the solution, meaning in the end that a given supplier can interact with the system at the level of its own capabilities.

Some suppliers in the network, for example, might primarily rely on the hub company's web portal, powered by the Acsis solution, while others send real-time data directly from their Manufacturing Execution Systems (MES), with lots of alternatives in between including spreadsheets, flat file transfers, EDI messages, e-mail and a host of other data transmission methods. The Acsis solution therefore can be thought of as normalizing the data coming from a diverse supply network, so that it all looks the same to the ERP system.

As a result, the timeliness, accuracy and robustness of supplier data are all enhanced, resulting in the types of operational improvements cited in the survey data that would come from such improvements.

Also importantly, when broadly deployed, the Acsis solution can provide end-to-end traceability across a

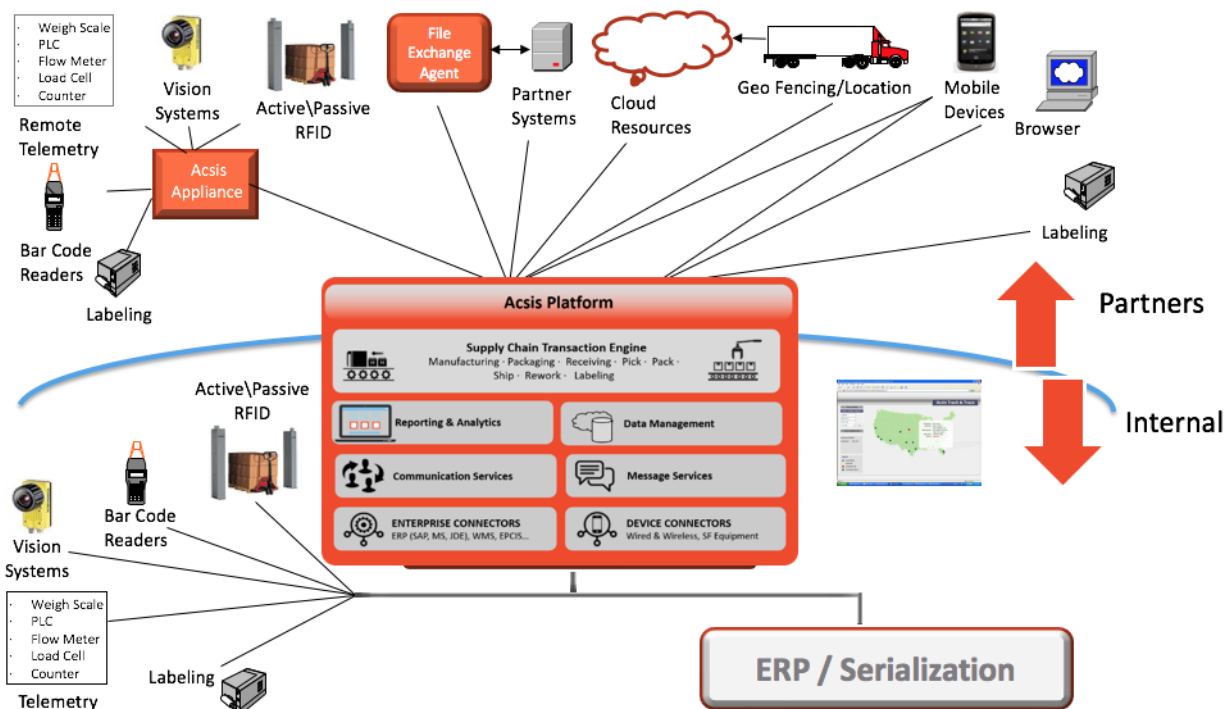
multi-tiered supply chain. That traceability capability is obviously very important to the key industry segments Acsis targets, such as chemicals, food & beverage, and pharmaceuticals.

Acsis also sees much potential in leveraging Internet of Things technology across its platform as part of both the data collection process as well as enabling additional bi-directional capabilities. For example, IoT-based sensors could monitor tank inventories in real-time, triggering automated replenishment when levels reach pre-determined levels, or in an even more sophisticated process, tying the replenishment both to inventory levels as well as coming production schedules.

Chemical giant DuPont is among the companies leveraging the Acsis solution across a broad supplier network (see case study sidebar below) that has brought it much higher levels of visibility and rapid on-boarding of new suppliers.

Acsis offers a well architected, innovative approach to solving the supplier integration challenge, and should be considered as a potential solution for companies that want to improve the visibility and control they have in outsourced supply chains.

## Acsis Edge Network System Architecture



## Dupont Solves Supplier Integration Challenge



*A few years ago, chemical industry giant DuPont faced the type of scenario many large hub companies are encountering: a growing level of outsourcing in its supply chain, combined with a very diverse set of suppliers in terms of technology capabilities, from some with strong EDI support to mom and pops that had very little computer skills, leading to significant data gaps.*

*Data security was also a major concern, with sensitive production data coming to DuPont from suppliers across insecure public networks. According to DuPont IT manager Peter Musser, there were even issues with the use of EDI with the larger suppliers, including overall complexity and high costs from use of EDI network providers. With non-EDI suppliers, DuPont has issues with both data latency and data errors, both of which caused operational challenges.*

*But DuPont found the Acsis solution was a way to significantly improve its approach to supplier integration.*

*For example, DuPont leverages the flexibility of the Acsis system to tailor the integration approach to the sophistication of its trading partners, with direct shop floor MES integration with some larger suppliers to more portal based approaches with smaller firms.*

*Interestingly, Musser says the Acsis solution is becoming the preferred approach even over EDI, given its simplicity of deployment and elimination of EDI network costs. In its safety and protection materials division for example, which produces products such as Kevlar, DuPont uses the Acsis Edge Network to gain visibility into a number of different supplier types, such as third parties that do cutting and sewing of the materials, third party logistics companies, and firms that do sterilization of the materials for some specialized applications.*

*The data collected at the cutting/sewing service providers illustrates how granular the visibility that Dupont can now achieve electronically is, and includes the following data elements:*

- Raw material receipts
- Consumption of raw materials
- Production confirmation
- Finished goods inventories
- Scrap and waste levels

*"All roads now point to Acsis," Musser says. Among the benefits DuPont cites from the Acsis solution are:*

- Elimination of manual processes and data entry orders
- Improved order accuracy
- Instant visibility on order status
- Achieved system security
- Improved customer satisfaction
- Established "instant" on-boarding

*"Now when a supplier had a production issue, we find out about it right away, not at 5 o'clock in the afternoon," Musser says.*

*DuPont has also been able to move staff members who spent all day managing calls and email back and forth with suppliers into more value-added roles now that the Acsis system has delivered electronic integration.*

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## Conclusion

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The lack of integration with and visibility to many suppliers is a major source of cost and inefficiency in the supply chain. This pain is being felt at the same time that the majority of companies are increasing their levels of outsourcing, meaning that the challenges are expanding.

Despite the high percentage of manual or semi-manual integration methods still in wide use, there is reason for optimization.

Together, Cloud-based solutions, and a growing number of hub companies recognizing they must achieve more universal connectivity to operate Lean supply chains and take outsourcing strategies to the next level of benefits attainment, are combining to offer a real path to a more connected supply chain.

Companies really can achieve high levels of visibility to supplier operations and enable them to access specific functionality. As a result, a hub company can operate its supply chain much more like a single integrated system across trading partners, with benefits in terms of cost reduction and improved customer service in many areas.

Acsis, Inc. provides a noteworthy example of this new generation technology, and the success of Dupont in achieving the operational visibility across its suppliers using the Acsis solution, as summarized above, is a powerful proof point of this potential.

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