



# THE FUTURE FOR CLOUD-BASED SUPPLY CHAIN MANAGEMENT SOLUTIONS

A global survey of attitudes and future plans for the adoption of supply chain management solutions in the cloud

Survey conducted by IDG Connect on behalf of Oracle



The Oracle logo, consisting of the word "ORACLE" in a white, bold, sans-serif font, set against a solid red rectangular background.

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# 1 INFOGRAPHIC SUMMARY

This survey of senior managers and directors was conducted in four regions – North America, Europe, the Middle East and Africa (EMEA), Central and South America, and Asia-Pacific – with the aim of discovering attitudes towards and plans for the adoption of cloud-based supply chain management (SCM) solutions.

We focused on three key areas:

1. The criticality of supply chain to their business
2. How to reach their business objectives through supply chain processes
3. The propensity to use the supply chain cloud and reasons for adopting/not adopting

We found that the ball is in the vendors' court: companies are ready to adopt cloud-based SCM processes but need to see concrete evidence of business benefits, and want both full vendor support and end-to-end solutions.

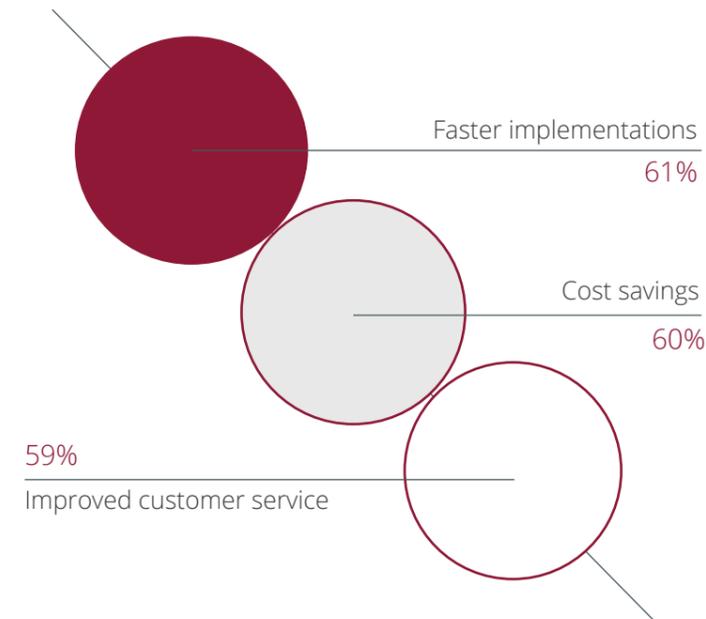
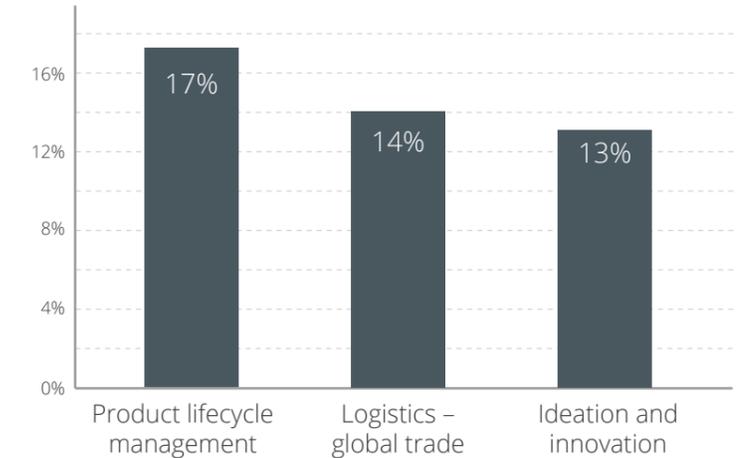
## 1. Top three strategic advantages of supply chain management (SCM)

All respondents clearly see a range of advantages to SCM, though there is some variability in the perceived advantages dependent upon organisation size. For example, in organisations of 25,000 or more employees, customer-centricity was the most popular advantage.



## 2. SCM to grow in next two years

Product lifecycle management is expected to experience the most growth in cloud-based SCM over the next two years, followed by logistics – global trade, and ideation and innovation.

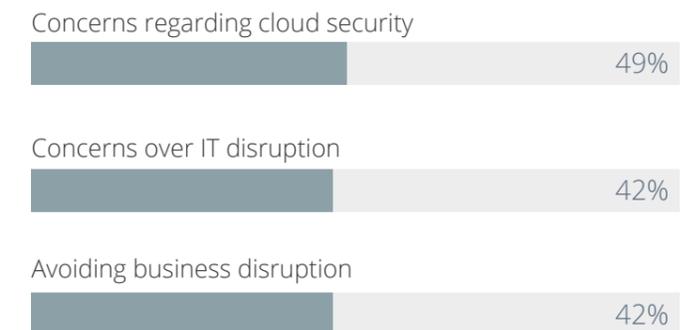


## 3. Cloud-based SCM advantages

Respondents saw several advantages of cloud-based SCM, with all listed advantages receiving significant responses. While not in the top three, security is also seen as a big advantage for cloud-based SCM. Looking at the scope of respondents' SCM processes, improved customer service is the biggest advantage from a domestic-only point of view (25%), cost savings is the biggest advantage regionally (31%), and greater security wins globally (25%). These are effectively the greatest advantages of cloud-based SCM and, arguably, cloud services generally as organisations reap the benefits of agility, cut capital expenditure and have direct two-way communications with customers and partners.

## 4. SCM Challenges

Challenges exist in all stages of all business processes, and SCM is no different. Respondents saw several challenges in adopting cloud-based SCM processes, with concerns regarding cloud security being the biggest challenge, followed fairly closely by concerns over disruption – both IT disruption and business disruption.



# 2 CURRENT APPROACH



Respondents reported that they adopted a range of approaches to supply chain solution investment, but within that there were significant differences by region and by scope. Transformational change to replace existing investments was slightly less preferred (65% versus 70% for complementary add-on functionality and 78% for incremental improvements to existing investments).

We can see that incremental improvements to existing investments is preferred over the other two options, albeit only slightly. Given that 43% of respondents pursue all three listed approaches to supply chain solution investments, there is no clear winner here. The regional breakdown offers a different picture to that of the aggregated one above.

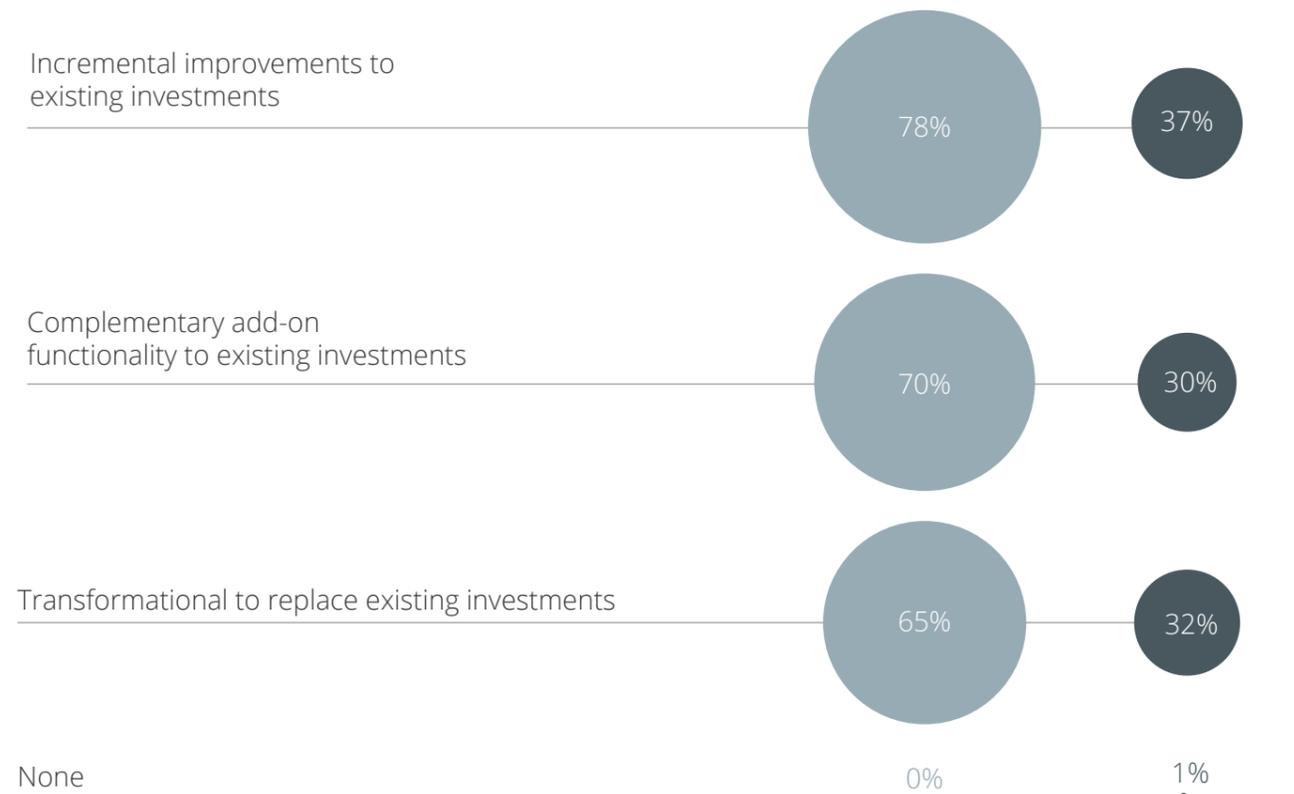
The Asia-Pacific region strongly prefers incremental improvements (90%), compared to the other three regions, responses from which fell between 74% and 79%, clearly showing a more conservative approach.

A more conservative approach is also adopted by all respondents when it comes to non-domestic SCM improvement solutions, with 84% opting for regional incremental SCM improvement solutions and 81% for global improvement solutions, against 67% for domestic-only. That said, respondents selected the other two options in almost equal numbers.

Overall, respondents adopt a conservative approach to replacing SCM solutions, which is a natural posture for so business-critical a process.

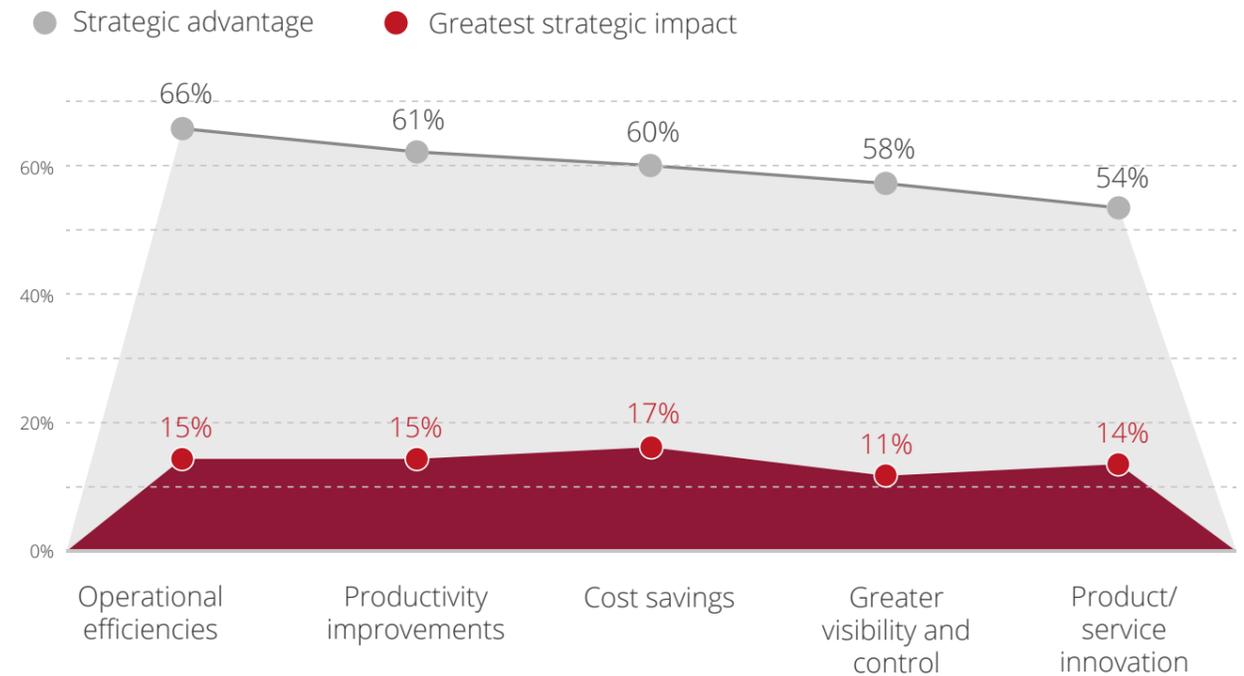
## Current approach to supply chain management

● Current ● Desired



# 3 STRATEGIC ADVANTAGES

Strategic advantages of Supply Chain Management



Respondents clearly see a range of advantages to SCM, with all listed advantages receiving significant responses; 83% of respondents selected three or more advantages. Operational efficiencies was the most popular advantage with 66%, followed by productivity improvements and cost savings (61% and 60% respectively).

These results were fairly consistent across most respondent categories. The main regional variation was Asia-Pacific, where productivity improvements were the most popular advantage (87%).

The main organisational size variation was in organisations of 25,000 or more employees, where customer-centricity (based on expectations/needs) was the most popular advantage (76%). This can be seen as a consequence of larger organisations developing a tendency to become process- rather than customer-driven, yet being aware of the need to counteract this propensity by adopting a specifically customer-centric philosophy.

When asked for the biggest single strategic advantage conferred by SCM, respondents reported that cost savings made the greatest impact (17%), followed by productivity improvements, operational efficiencies (15% each), and product/service innovation (14%). The results were fairly similar across most respondent categories but the biggest regional variations were in Central and South America, where only 3% selected operational efficiencies but where cost savings was the most selected option (19%), and in Asia-Pacific, where productivity improvements received the highest response (23%). These results suggest that high downward cost pressures and high levels of labour intensity are prevalent in these two regions, where emerging economies prevail.

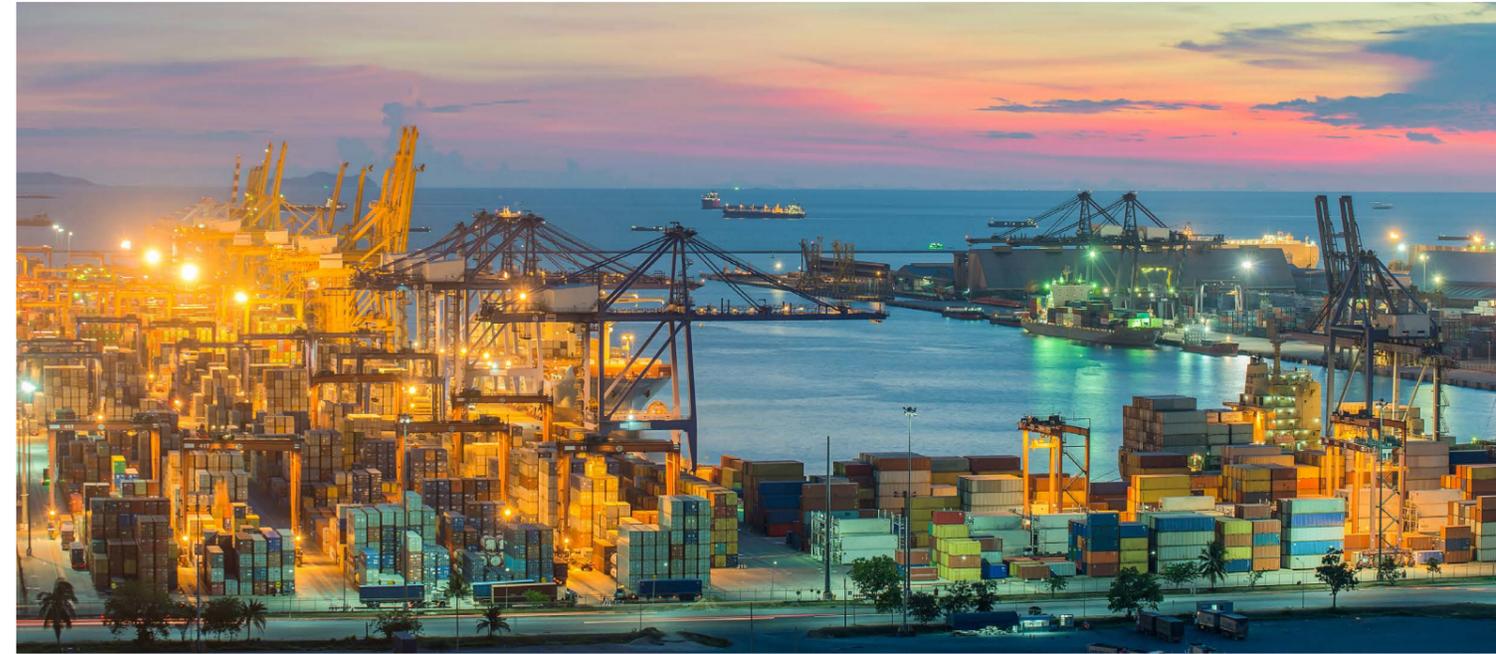
Analysing the responses by scope uncovers the perhaps surprising result that greater visibility and control received the highest relative response (17%) within a domestic SCM scope, while globally the response was just 10%. It might be expected that visibility and control would be harder to achieve – and so more desirable – on a global scale. However, this response is

also conditioned by expectations: it is perceived by many organisations – especially smaller companies whose supply chain operations are more likely to be domestically focused – that greater visibility and control on a global scale is not relevant, and is ignored.

From an organisational size perspective, the stand-out results were that 22% of organisations with 250 to 499 employees perceived operational efficiencies as a strategic advantage of SCM, while 27% of very large organisations - those with 25,000 or more employees - saw the productivity improvements of SCM as offering by far the largest single strategic advantage.

The result from smaller organisations suggests that they are seeing the advantages of SCM as helping them to grow the company by improving product and service innovation. From the large organisation perspective, they are aware of the inefficiencies of long supply chains with many intermediaries across a wide product portfolio, and want to reduce costs and speed up the supply chain.

# 4 SCM PROCESSES IN THE CLOUD



Several supply chain management processes run in the cloud today, with about 75% of organisations deploying three or more SCM processes in the cloud. Order management; logistics – warehousing; and logistics – transportation are the most prevalent SCM processes that reside in the cloud today (46%, 45% and 45% respectively), followed by manufacturing; logistics – global trade; and supply chain planning (41%, 40% and 40% respectively). All these are closely clustered and are within or almost within the survey’s margin for error.

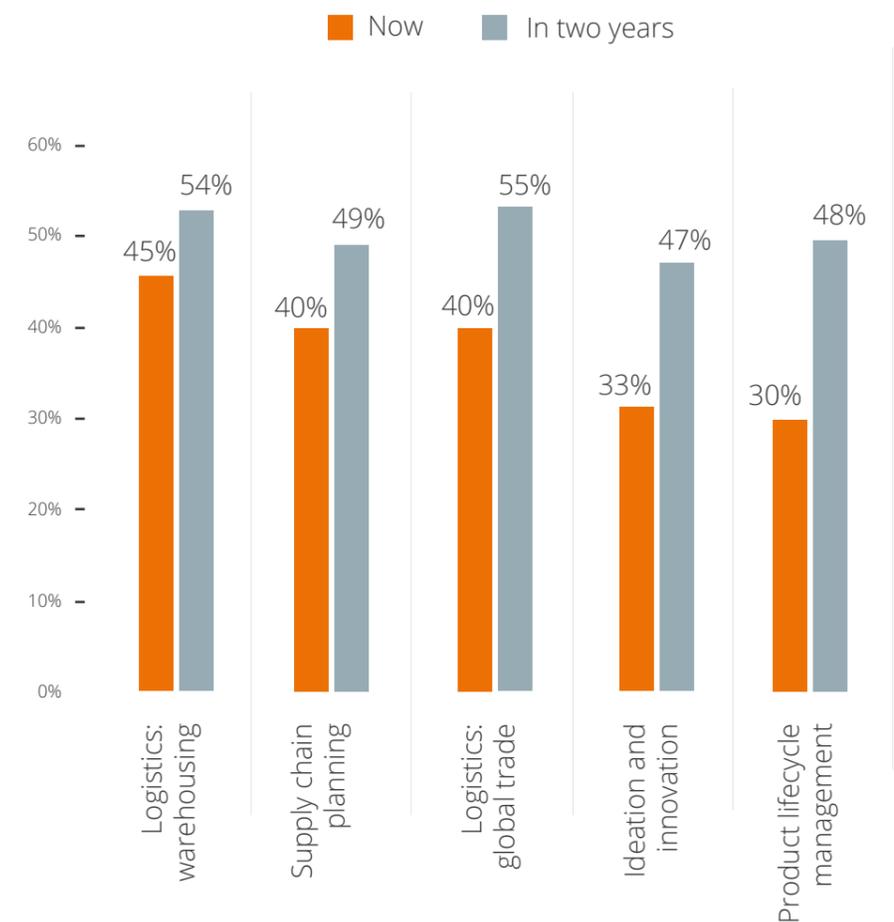
It is interesting to note that transportation and warehousing are relatively recent offerings in the cloud: for many, the cloud is coterminous with the internet, while the more commonly agreed definition of cloud is that of a remotely supplied service, rather than simply remotely supplied connectivity.

With that in mind, it seems more likely that the logistics services cited by respondents – transportation and warehousing – are in fact internet connected rather than being supplied as a service.

This analysis is borne out when looking at options that fewer respondents selected, such as product lifecycle management (30%), and ideation and innovation (33%). Both of these, along with logistics – global trade (40%), score very highly when we look at respondents’ plans for the next two years, compared to their deployment levels today, with growth predicted by respondents of 18%, 14% and 15% respectively. Given that cloud-based SCM solutions are not prevalent today, these supply chain processes seem highly likely to find themselves deployed in the cloud by 2018. Other areas where significant growth is expected over the next two years include fulfilment (9%), supply chain planning (9%) and logistics – warehousing (9%).

The regional picture, however, shows some interesting variations. In North America, logistics – warehousing and supply chain planning both show growth over the next two years of 13%; in EMEA, ideation and innovation will grow most (19%), followed by product lifecycle management (17%) and asset management (16%); and in Asia-Pacific, product lifecycle management shows growth of 30%, with logistics – global trade, logistics – warehousing, and sourcing & procurement all showing growth of 13%. Central and South American respondents have differing priorities, with several cloud-based SCM processes set to shrink over the next two years; the growth areas are product lifecycle management (23%) and order management (10%).

Supply chain management processes residing in the cloud



# 5 CLOUD-BASED SCM ADVANTAGES

With plans by respondents in most regions to deploy SCM processes in the cloud, they were then asked about which advantages they expected from doing so. Respondents saw several advantages of cloud-based SCM, with all listed advantages receiving significant responses (over 43%; 95% selected three or more advantages). The biggest advantages were faster implementations, cost savings, and improved customer service (61%, 60% and 59% respectively).

From a regional point of view, respondents in Central and South America saw the ability to leverage new technologies (e.g. Internet of Things, Industry 4.0) receive the second highest level of responses (68%), and in Asia-Pacific, faster implementations was clearly the most popular advantage (90%).

There were few major differences in results by organisational size, except for the following. In organisations of 500 to 999 employees, more agility in supply chain operations was the most popular advantage (60%); in organisations of 1,000 to 4,999 employees, the ability to

leverage new technologies (e.g. Internet of Things, Industry 4.0) received the highest number of responses (61%); in organisations of 5,000 to 24,999 employees, faster implementations is clearly the most popular advantage (87%); and in organisations of 25,000 or more employees, cost savings followed by improved customer service received high levels of response (78% and 68% respectively).

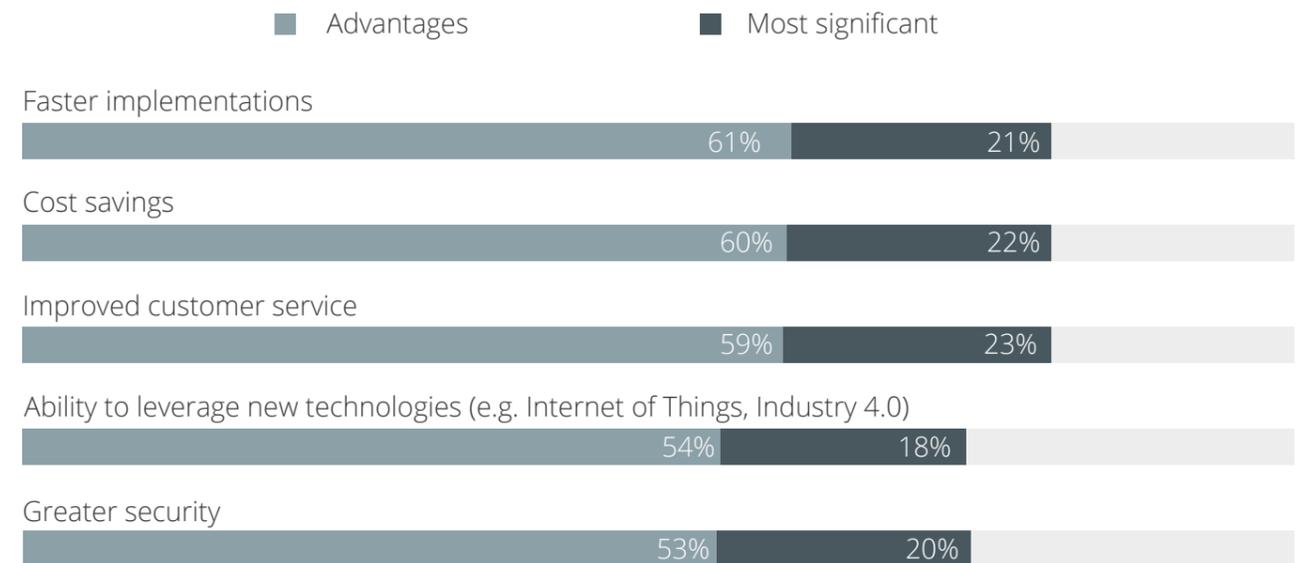
These regional variations are broadly in line with what might be expected of organisations of that size.

Asked about the single most significant advantage, there was no single most popular option, as several options received very similar levels of support: improved customer service, cost savings, faster implementations and greater security (23%, 22%, 21% and 20% respectively). Greater security is generally high in the list of advantages across all breakdowns of the data, especially so for larger companies (26% and 24% respectively for companies with 5,000 to 24,999 employees and 25,000 or more).

By region, however, EMEA respondents selected cost savings as the top option (24%), while in North America, improved customer service was the top option (24%) - both options pointing to high levels of competition. In Central and South America, 39% selected improved customer service, making this option a very clear winner, 13 percentage points clear of the tied, second-placed options of cost savings and greater security (26% each). And in Asia-Pacific, the highest percentage of respondents selected faster implementations as the most popular advantage (40%), also 13 percentage points clear of the second-placed options: cost savings and more agility in supply chain operations (27% each).

Looking at the responses from an SCM scope perspective, improved customer service is the biggest advantage from a domestic-only point of view (25%), while cost savings is the biggest advantage regionally (31%), and greater security wins globally (25%).

## Significant advantages of cloud-based supply chain management



# CLOUD-BASED SCM DISADVANTAGES

# 6

Interestingly, when asked about disadvantages to the use of cloud-based SCM technologies, respondents perceived security as the highest by far (53%). This seems to contradict the results from section 5 (Cloud-Based SCM Advantages), where 53% selected greater security as an advantage of cloud-based SCM solutions. The logical conclusion to draw is that the community of respondents is split, with about half perceiving the cloud offers more security, the other half perceiving it offering less security. It would also seem safe to assume that, driven by

a number of highly publicised security events, poor perceptions of cloud security have resulted in pre-judgement of the level of security offered by cloud-based SCM solutions.

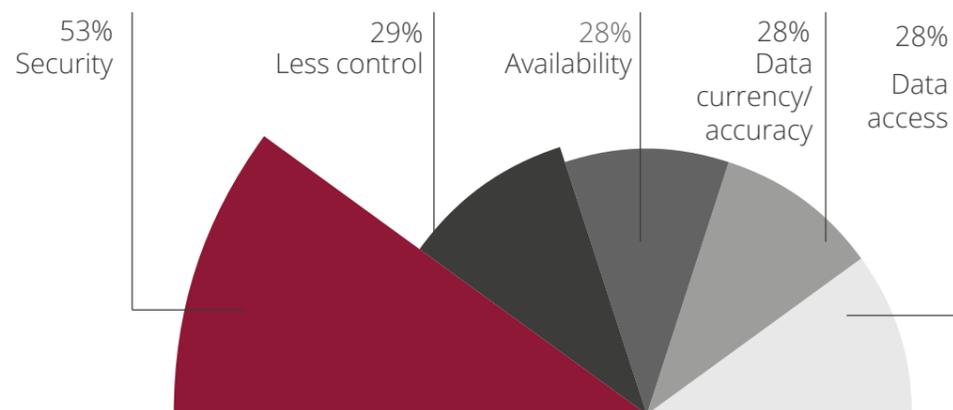
The remainder of the perceived disadvantages all receive a very similar level of support, with 63% selecting two or more disadvantages.

Looking at the regional responses, a number of variations emerge. Security remains a top concern in two of the four regions, but in Asia-

Pacific it is near-equal top (within the margin for error) with data currency/accuracy (57% security, 60% data currency/accuracy). In Central and South America, a similar pattern emerges with security at 48% and availability at 45%. These results clearly indicate issues that are particular to these regions, and suggest wider problems outside the scope of SCM processes.

Other than security, however, most respondents selected few of the disadvantages, with the second-placed disadvantage attracting a response level of only 29%.

Possible disadvantages of using cloud technologies for supply chain applications



# MOTIVATORS FOR CLOUD ADOPTION

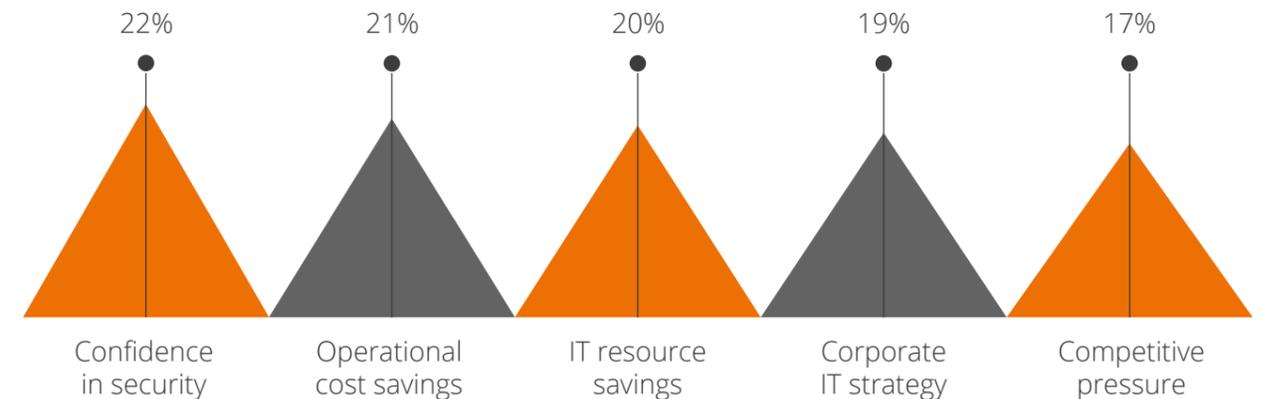
# 7

It can be seen from the responses to this question that the motivations to adopt cloud-based SCM are many but that there is no single significant driver. All listed motivators received significant (and almost equivalent) responses (over 17%) with confidence in security and operational cost savings receiving marginally higher responses (22% and 21% respectively).

With aggregated results fairly consistent across most respondent categories, one key highlight can be found by looking in more detail at SCM scope. So from a regional SCM point of view, IT resource savings received the highest response (24%), above confidence in security (18%).

This validates the results from previous questions, where we can see that security remains top of mind, and that the move to a cloud-based SCM solution will be driven by a variety of motivators, most of which receive similar levels of support across respondent categories.

Motivating factors for adopting cloud-based supply chain applications

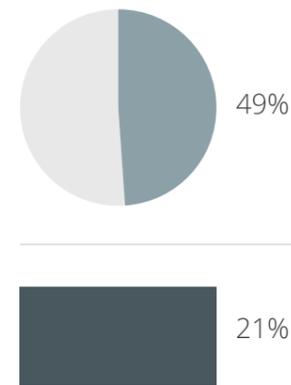


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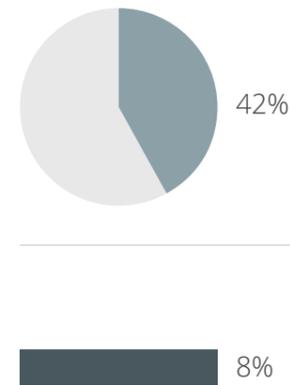
Challenges to adopting cloud-based supply chain applications

● Biggest challenge ■ Most significant

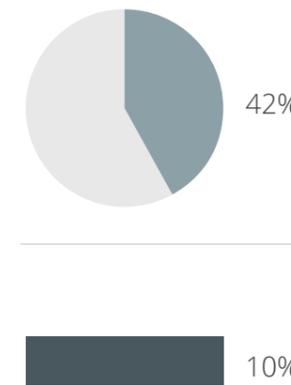
Concerns regarding cloud security



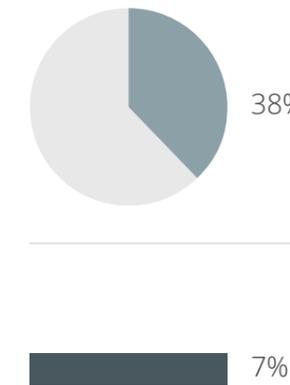
Concerns over IT disruption



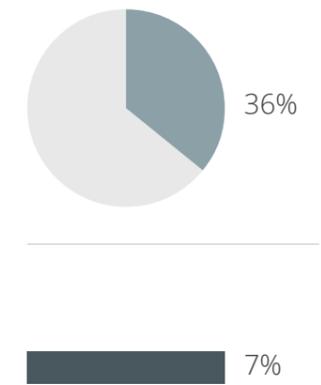
Avoiding business disruption



Lack of sufficient expertise



Shortage of internal skills/ expertise



# ADOPTION CHALLENGES

Challenges exist in all stages of all business processes, and SCM is no different. Respondents saw several challenges in adopting cloud-based SCM processes (84% selected three or more challenges), with concerns regarding cloud security being the biggest challenge (49%), followed fairly closely by concerns over IT disruption and avoiding business disruption (42% each).

The aggregated results were fairly consistent across most respondent categories. Key variations by region were in North America, where avoiding business disruption (51%) was a bigger challenge than concerns regarding cloud security (44%). This demonstrates that NA businesses are more likely to be comfortable with cloud-based applications and services, as experience smoothes away perceived issues around cloud security.

In EMEA concerns regarding security are however the top challenge by some margin (52%) over the next two biggest challenges – concerns over both business and IT disruption (37% each). This is likely, in part at least, to be an artifact of the strong issues in this region around geographically sensitive data and legislative compliance. In the Asia-Pacific region, concerns regarding security and lack of sufficient expertise shared the top spot at 57% each, showing that cloud security perceptions remain an issue along with poor IT skills; the two may in fact be related, as strong IT skills can go some way towards mitigating security issues.

In Central and South America, concerns over IT disruption (48%) and shortage of external skills/expertise (48%) were the biggest challenges when adopting SCM processes in the cloud, followed closely by security (45%) and lack of suitable cloud applications (45%). This also suggests a linkage between the responses: if skill-sets are lacking, everything becomes more of a challenge.

When analysing the data by company size, concerns regarding security remain paramount for all company sizes, but concerns over IT disruption grow with company size: from 33% for organisations with 250 to 499 employees, to 51% for those with more than 25,000 employees. For companies in the next size bracket down, concerns over security and IT disruption are both at 50%. This demonstrates the growing criticality of IT continuity and its importance to the supply chain, as companies grow larger and increasingly deploy SCM processes.

When asked about the most significant single challenge, the picture is similar to when multiple responses were requested: security concerns are by far the most significant challenge to adopting supply chain processes in the cloud (21%), with business disruption a distant second (10%).

Across the regions, the picture is similar, except in Asia-Pacific, where a lack of suitable cloud applications attracts the second biggest response (17%). In Central and South America, security concerns (16%) were followed closely by shortage of external skills/expertise (13%).

# 9

## NEW CAPABILITIES

Digging deeper into the motivations for the adoption of SCM in the cloud, respondents were asked what capabilities would provide the greatest incentive to move to cloud-based SCM. Respondents saw several capabilities as major incentives (95% selected three or more capabilities). The most popular were visibility, metering and monitoring; integration with next-generation technologies; and resource usage and optimisation (56%, 55% and 52% respectively), followed by capacity management and planning, and ability to manage outsourced activities also (50% each).

Greater visibility and monitoring granularity have been high on IT departments' wish-lists for a considerable time, so there is perhaps little surprise that this item reached the top of the list. However, it was followed very closely behind by a desire for integration with next-generation technologies, so it is clear that businesses are seeing the need to move to the next level of visibility in their customers' activities, as well as wanting to increase and enhance communication channels with customers and partners within the supply chain.

Integration with next-generation technologies as an incentive was especially strong for medium-sized companies – those with between 1,000 and 4,999 employees – 70% of whose respondents selected this option. The desire for greater visibility increased with size of company: it reached only 38% for companies between 250 to 499 employees, but 74% of respondents in organisations of 5,000 to 24,999 employees and 62% of those in organisations of over 25,000 employees. Respondents from the largest companies also selected equal top (62%) the ability to manage outsourced activities (e.g. manufacturing, transportation).

We focused in on the single most important incentive to move to cloud-based SCM, and the responses were illuminating. Analysing the responses on a regional basis finds the incentives provided by next-generation technology capabilities equal top in North America at 26% alongside ongoing operations management (27%), visibility, metering and monitoring (26%) and ability to manage outsourced activities (25%). (Note that these small percentage differences are well within the margin for error and can be presumed to be equal.)

In EMEA, the picture is somewhat different, with integration with next-generation technologies sharing the top spot with capacity management and planning (28% each), while in both Central & South America and Asia-Pacific regions, next-generation technology integration is less important (23% and 27% respectively) compared to collaboration on product design and innovation (32% and 37% respectively). This demonstrates clear cultural differences in the way that business is conducted between the various regions.



Incentives for moving to a cloud-based SCM

● New capabilities ● Most important

Ability to manage outsourced activities (e.g. manufacturing, transportation)

50% | 24%

Visibility, metering and monitoring

56% | 24%

Capacity management and planning

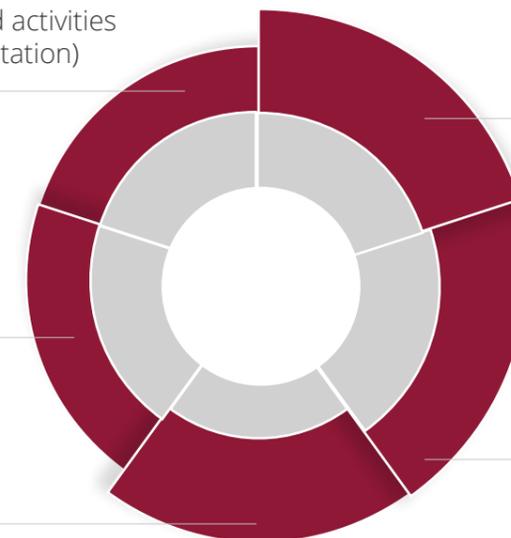
50% | 23%

Integration with next-generation technologies (e.g. Internet of things, social, mobile)

55% | 27%

Resource usage and optimisation

52% | 22%



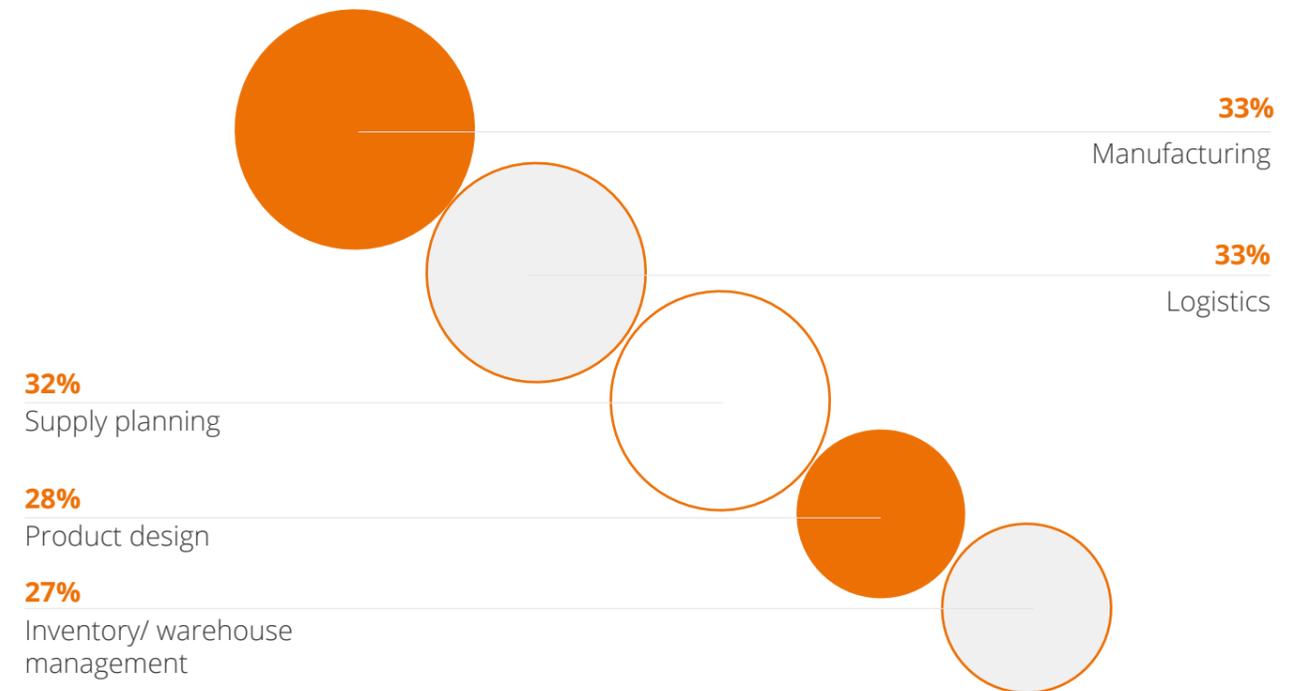


Looking at the most difficult areas by function, respondents said that almost all areas presented challenges. The highest percentage of respondents saw manufacturing, logistics, and supply planning as the most difficult areas (33%, 33% and 32% respectively).

The aggregated results were fairly consistent across many respondent categories, with key highlights/variations being Central and South America, where logistics, supply planning, and innovation management received significantly more responses than other options (42%, 45%, and 39% respectively).

In Asia-Pacific, half the respondents found manufacturing to be the most difficult area (50%). This result could be accounted for by the preponderance of globalised manufacturing industries in this region, especially electronics industries whose supply chains are likely to be long and involve rare materials. It might also be influenced by the difficulty of automating manufacturing in an area where labour costs tend to be low, which disadvantages automation from a cost-effectiveness perspective.

### The 5 most challenging areas to move to the cloud



EMEA respondents also reported difficulties with moving manufacturing to the cloud (38%) but not to such a high degree, followed by logistics (31%), while in North America, logistics and supply planning were the key areas (36% and 35% respectively).

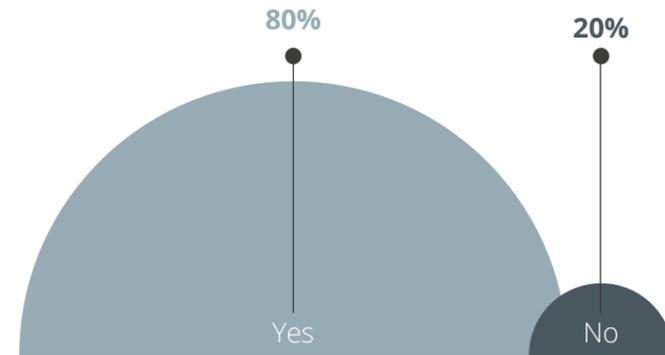
Overall, the different regional responses are likely to be accounted for by the various geographical, cultural and infrastructure variances in these regions, such as the availability of skilled workforces, high-speed connectivity, and preponderance of industrial sectors within each region.

Looked at by company size, the picture changes. Organisations of 250 to 499 employees say overwhelmingly that logistics is the most difficult area to move to the cloud (47%) while very large organisations of 25,000 employees or more cite supply planning and inventory/warehouse management (46% and 38% respectively). These results reflect the different sizes and scopes of their SCM operations. The responses also validate the replies from section 3 (Strategic Advantages), where the biggest strategic advantage from SCM found by the smallest organisations is operational efficiencies (such as logistics) while the largest organisations cite customer-centricity, which means streamlining internal processes (such as warehousing and supply planning) to allow greater focus on the customer.

# 10 CHALLENGE AREAS

# 11

Do you feel vendors need to provide better justification for adopting supply chain cloud solutions?



## JUSTIFICATION REQUIRED?

Vendor support is crucial to a successful move into cloud-based SCM solutions, involving as it does a range of issues as we have seen from earlier sections. So it is clear that a significant majority of respondents feel vendors need to improve efforts in providing justification for the adoption of supply chain cloud solutions (80%). There is very little variation when analysing the results by region, company size and scope, except in Asia-Pacific where 100% of respondents feel vendors need to provide better justification to adopt supply chain cloud solutions.

When analysed by reporting area, a small variance is evident, with only 76% of respondents from business functions other than IT feeling that vendors need to provide better justification to adopt supply chain cloud solutions. In contrast, those within IT agree very slightly more than the aggregate (81%), so this strongly suggests that IT reports are closer to the action and so will perceive more directly the benefit of vendor support.

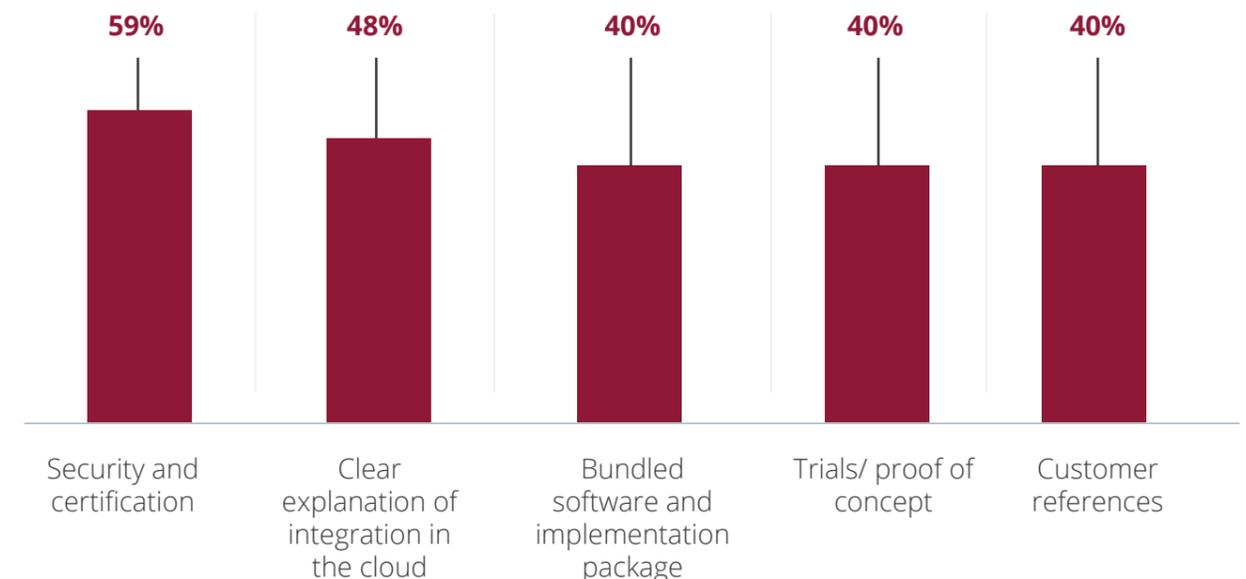
## JUSTIFICATION AREAS

# 12

Moving to the discussion of how vendors can help to justify adoption of cloud-based, end-to-end supply chain management, all justification areas received significant responses. Respondents saw several ways as 95% selected two or more ways, and 87% selected two to four ways. Security and certification followed by clear explanation of integration in the cloud received the highest responses (59% and 48% respectively).

Regional results varied little from the aggregate, although in Asia-Pacific, 67% selected security and certification, with the second highest justification selected as bundled software and implementation package (57%).

Methods for vendors to justify adoption of cloud-based, end-to-end supply chain management



# 13 END-TO-END SCM ADVANTAGES

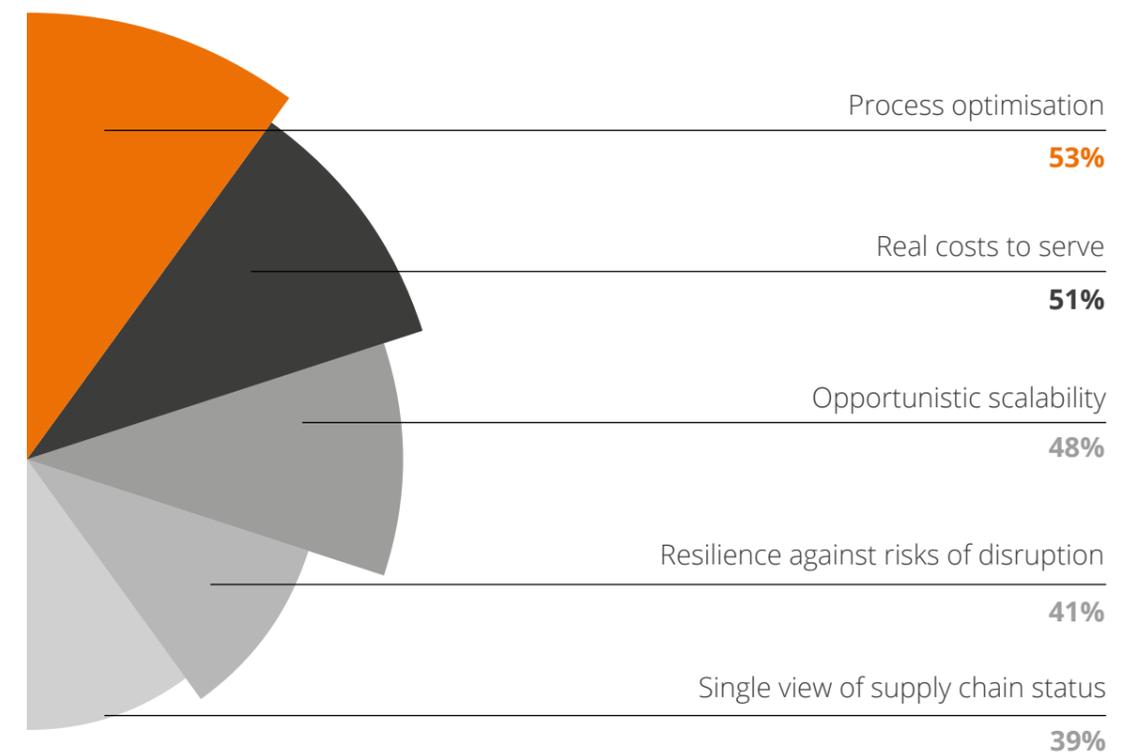


The best solution from many end-users' perspectives is for vendors to deliver an end-to-end, integrated SCM system that offers a range of functions and benefits. This clear conclusion is drawn from the fact that all listed advantages received significant responses (94% selected two or more advantages; 84% selected two to four advantages). Process optimisation, followed by real costs to serve received the highest response (53% and 51% respectively), and opportunistic scalability received the next highest response (48%).

Regionally, Central and South America selected process optimisation in significantly higher numbers than the aggregate (65%). In Asia-Pacific, the proportion selecting process optimisation was bigger still at 70%, although in this region, the top option was opportunistic scalability (77%), with the third spot occupied by single view of supply chain status (63%) – a significantly higher proportion than any other region.

Looked at by company size, the larger the company, the higher the proportion opting for process optimisation as the top advantage of a cloud-based, end-to-end SCM solution: 47% of respondents from the smallest companies selected this option, while 65% of those from the largest companies selected this option. This picture was similar (but not identical) for the second and third most popular advantages: real costs to serve (a range of 42% to 51%) and opportunistic scalability (a range of 29% to 59%).

Advantages of an end-to-end SCM solution



# 14 CONCLUSIONS

With this survey, we aimed to discover attitudes towards, and plans for the adoption of, cloud-based supply chain management solutions on a global basis by focusing on the criticality of supply chain management (SCM) to the business; how SCM helps with attaining business objectives; the reasons why cloud-based SCM is adopted or not adopted; and what is expected of SCM vendors.

## Here are the eight key take-aways:

- Respondents want to move towards cloud-based, end-to-end SCM solutions, seeing a wide range of strategic advantages
- New technology is a key motivator to adopt a cloud-based SCM solution, with incentives including visibility, metering and monitoring, and integration with next-generation technologies
- Operational efficiency is a key advantage of supply chain management solutions, along with customer-centricity and innovation
- Many SCM processes already run in the cloud, including product lifecycle management, global trade logistics, and ideation and innovation
- Challenges to the adoption of cloud-based SCM remain, including security and operational disruption, although these are not seen as insurmountable
- In terms of outcomes, companies want an end-to-end, integrated SCM solution that offers a wide range of functions
- Vendor support for cloud-based SCM is crucial, although vendors need to do more to justify its adoption, especially with respect to security, certification and integration
- Although companies are ready to adopt cloud-based SCM solutions, they need to be convinced, particularly over business benefits and full vendor support

