



# Application Landscape

## Report 2014



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Report 2014



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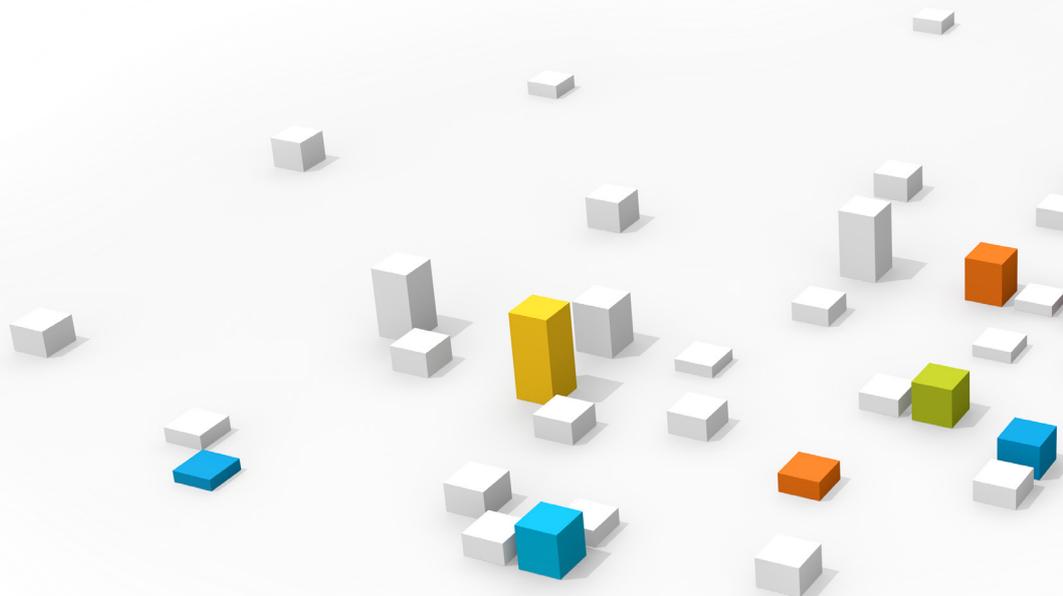
# Preface



Welcome to the 2014 Application Landscape Report. In this, our second edition, our aim is to help companies achieve a better grasp of the current state of application landscapes and a deeper understanding of the modernization trends, both continuing and emerging, which will shape them in the months and years to come.

IT investments must support business priorities and criticality. If any business transformation program is to be successful, it requires enhanced, mutual insight between business and IT as a crucial success factor. The starting point is a thorough assessment of the present state.

The size and weight of today's application landscapes are reaching unmanageable levels and present major challenges to CIOs. This report elucidates these challenges and the strategies being used to deal with them. As authors, we use the report to complement and validate what our subject matter experts already know from working with clients in their respective markets. The research findings help inform our strategic direction as we develop new services and continue to support our clients in their application modernization initiatives. We hope that this report will serve to inform your own application portfolio management decisions and maybe challenge some of your current thinking.



The findings of our report are based on an online survey conducted in 12 languages with over 1,100 CIOs and top-level IT decision-makers in companies of various sizes from a wide range of industries. With a global emphasis, the report covers 16 countries, with 73% of respondents from developed economies (Europe, USA and Australia) and 27% from fast-developing countries (China, India, Brazil). The results of this survey were supplemented with insights from in-depth interviews conducted with business CIOs and top IT executives across geographies and sectors.

In addition, we included data points for this report gathered from the extensive data repository of the Wide-angle Application Rationalization Program Center of Excellence (WARP CoE). This repository is a database of key application metrics collected over four years of the CoE's experience in IT strategy and transformation exercises, spread across sectors and geographies, and comprises data for more than 30,000 applications analyzed.

We would like to express our gratitude to those individuals and organizations that dedicated their time to participating in the survey and enhancing the richness of this report.

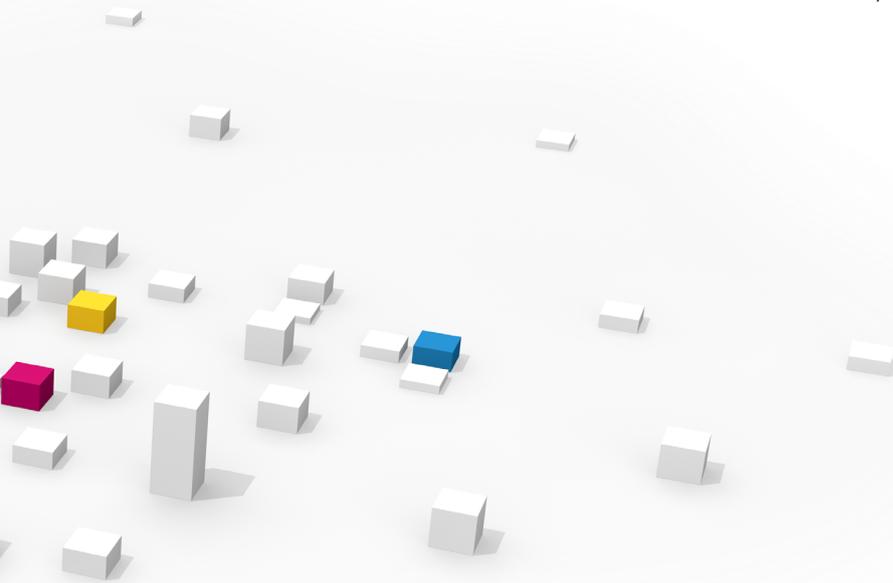
If you would like to see how the state of the application landscape in your organization compares to the research sample on some of the main findings, we have developed a self-service benchmarking tool for you to use.

Similarly, if you would like to see a more comprehensive benchmark for your organization or would like to compare a specific data sub-set, please contact your Capgemini account manager, who will be able to arrange that for you.

We hope you enjoy reading the research, analysis and commentary contained in this year's report and encourage you to share your thoughts and feedback with us, as we prepare for the next installment.

**Aruna Jayanthi**

*Group Executive Committee Member*



# Executive Summary

In the ideal world of a CIO, the application landscape would be a precise reflection of the objectives and governance of an organization's business. In reality, there is always a gap between the needs and ambition of an organization and the extent to which the application portfolio can address these. Keeping the gap as narrow as possible may sound simple enough, but it is a huge task that requires long-term strategic thinking and planning supported by effective execution.

In the 2011 edition of the Application Landscape Report, we found that the majority of CIOs clearly felt the pressure of maintaining and supporting the existing legacy application landscape absorbed too much of the available IT budget and turned out difficult, if not downright risky, to manage. Despite their worries – and clear recognition of the need for action – many CIOs indicated that they found it difficult to actually start rationalizing their portfolio. The impediments of complexity, cost constraints and the inability to define a convincing business case were simply too big to take on.

But times are changing. The weight of application landscapes is reaching critical mass; disruptive technologies have emerged. It is no longer a question of “whether” to rationalize, but rather “when” and “how” to do it. In the current edition of our report, we surveyed over 1,100 CIOs and top-level IT decision-makers to benefit from their insights.

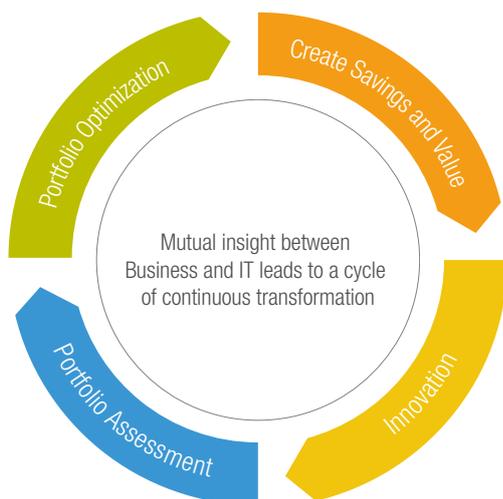
These insights led us to five key findings:

- IT, more than ever, plays a strategic role for Business in both conventional ways, such as cost reduction, and innovative ways
- Healthy understanding between Business and IT organizations is critical for both optimal performance and improvement of the application landscape
- Reducing complexity and increasing flexibility in the IT environment is a key imperative for the CIO
- CIOs are inclined toward adopting more extreme application rationalization measures to increase IT's value to Business
- Disruptive technologies are considered crucial to creating new business value



Organizations widely embrace the concept of Digital Transformation, appreciating that significant growth and profitability improvements can only be achieved by infusing change from end to end with technology. We believe that this is one of the most important drivers behind the fact that the majority of organizations expect to spend more – or even significantly more – on IT in the forthcoming years.

As a consequence, the gap between corporate ambitions and the state of the application landscape is now felt more than ever: it is no longer “just” a matter of cost and manageability, it is the indispensable role of **technology as a crucial enabler** for innovation, renewal and business expansion that now takes center stage.



In this context, the alignment between Business and IT is a top priority. Although on average CIOs seem surprisingly satisfied with their business peers' level of understanding of the IT landscape, our in-depth interviews show that it is often difficult to make joint decisions about painful, impactful topics such as application rationalization and complexity reduction. We have found that, with a **better understanding** of the application portfolio by Business, it is not only easier to simplify the IT landscape but also to redirect the resulting savings towards high-value, innovative initiatives.

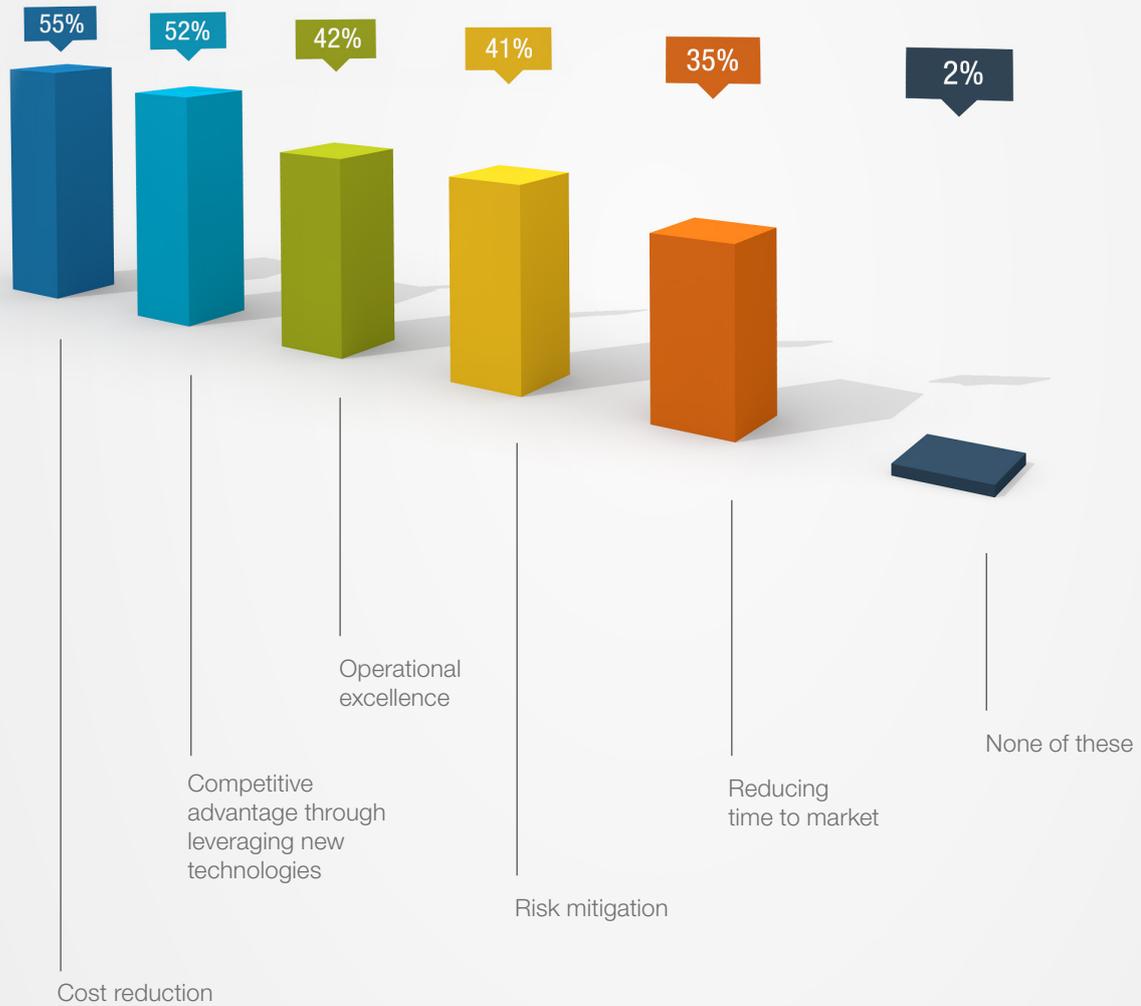
With the typical application landscape not significantly changed in the past few years – as inhibitors to rationalization are still being felt and organizations indicate to having an excess of applications – more **radical scenarios** need to be considered. Cleaning up the existing baseline is especially important now that both Business and IT sides of organizations quickly want to deploy the next generation of solutions that leverage Mobility, Social, Big Data and Cloud.

We recommend taking a fresh look at the application landscape as a whole, applying industrialization and standardization to radically rationalize the foundation. Only then, innovation and renewal can be built into the application lifecycle, continuously delivering the next generation of high-value applications to Business. Alternative rationalization strategies also need to be considered: we have identified newly preferred strategies that on one hand address opportunistic, short-term needs but also more radical strategies that aim for daring, impactful changes.

The first crucial step, however, should be to improve **mutual understanding**: both factual insights and engaging storylines will help to create the forward-looking, collaborative atmosphere between Business and IT that is needed to fuel real Digital Transformation.

## Our Recommendations

- Systematically use facts and metrics to improve understanding between Business and IT
- Industrialize and standardize
- Consider more radical rationalization scenarios
- Leverage the next generation of solutions
- Embed innovation in the application lifecycle



Which of these strategic business priorities is IT expected to have the most impact on?

Figure 1.0

## 01

# Innovation and Digital Transformation are Essential

**In addition to the traditional role that IT plays in supporting Business, increasingly it is being looked to as a source of business innovation.**

Although very few organizations nowadays could imagine their daily operations without technology, the link between the cost spent on IT and the value it brings to Business is not always apparent. The value IT brings is not always easy to see, and even more difficult to agree upon. What's more, there is a distinction between the traditional, almost "classical" role of IT in reducing the costs and risks of doing business and the more proactive, driving role of being more competitive and being able to release new products and services quicker to market. The research shows both roles to be of nearly equal importance to today's CIOs.

Not surprisingly, more than half of the respondents indicate that the main expected impact of IT on Business is reducing costs. Operational Excellence also scores highly, reflecting the traditional role IT plays in improving business productivity. Another traditional function of IT, risk mitigation, is also mentioned by close to half of the respondents. This may refer to such risks as technology obsolescence, business continuity and systems development lifecycle.

“

*...we could save a lot of time and resources, increase reliability, and improve data analysis capability by modernizing our applications.”*

*CIO – USA Public Sector*



“

*Complex IT landscapes lengthen the time to market not only in the Private Sector, but also in the Public Sector. IT is often on the critical path to deploy new legislation.”*

*CIO – Public Sector, Netherlands*

## IT for growth, profitability and innovation

In addition to these traditional roles, some newer priorities ranked highly. Creating competitive advantage through leveraging new technologies, for example, is mentioned by more than half of the respondents. When added to the high score that improving operational excellence received (which, according to our recent Digital Transformation research is sometimes a neglected change area) and reducing time to market for new products and services, it becomes clear that IT is right in the spotlight when it comes to growth, increased profitability and innovation.\*

These considerations hold true for both public and private sectors. While time to market, for example, may sound like a predominantly Private Sector topic, it is clearly on the agenda of Public Sector organizations too. Public Sector interviewees reported that the speed at which new legislation can be deployed is mainly determined by how quickly the supporting IT solutions can be developed. In some cases, even the content of the legislation itself is influenced by what IT can or cannot deliver in time.

The role of IT regarding growth, profitability and innovation is also illustrated by what the respondents indicate as the most important strategic IT goals for their company – or to put it simply: what keeps the CIO awake at night.

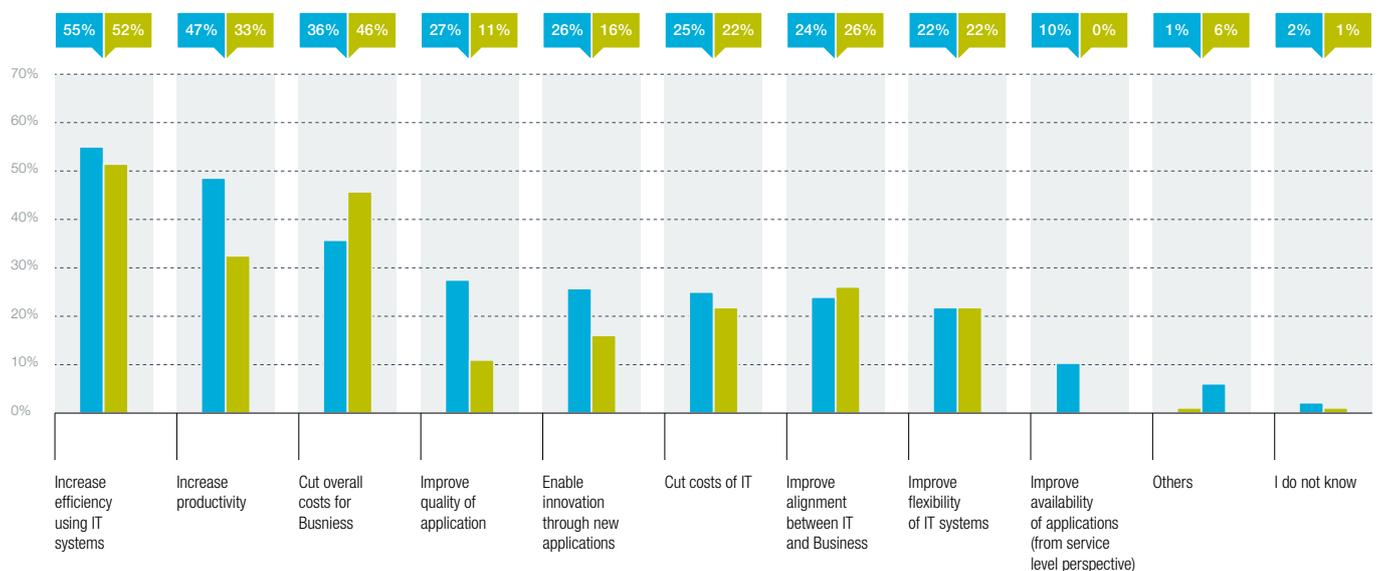
“Improve efficiency using IT systems” tops the list and “Increase productivity” has moved up to the second biggest concern. While containing the overall cost of IT remains an important objective, we also see, compared to the previous edition, a substantial increase in importance for “Enable innovation through applications” and “Improve quality of applications.”

Capgemini’s recent client experiences back this up: there appears to be a revival in in-house application development taking place – at least pertaining to certain solutions – perhaps spurred by dissatisfaction with expensive package upgrades, the need to take advantage of more digital technologies and the popularity of agile, development approaches.

Improving mutual understanding between Business and IT is still an important topic to CIOs. This is understandable given two facts. The first is the strategic role that IT plays in Digital Transformation; and the second is the way that the consumerization of IT has brought technology much closer to Business than ever before. For the 2014 edition of the Application Landscape Report, we have dedicated a separate chapter to exploring how Business/IT alignment is currently perceived. This will also establish a baseline so that progress can continue to be tracked in the future.

### 1.1 What are the three most strategic IT goals of the company?

2014 2011

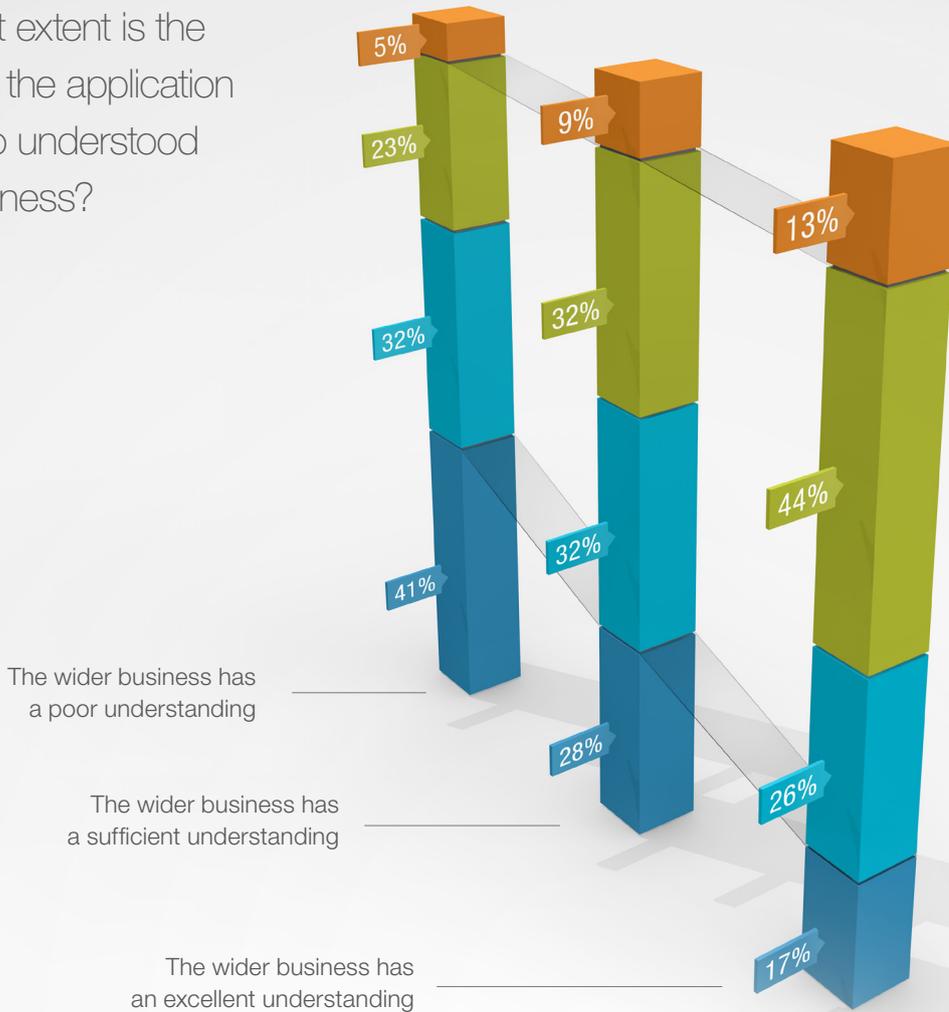


\* The “Front Line” of Digital Transformation - MIT Sloan Management Review and Capgemini Consulting  
 For more information see: <http://www.capgemini-consulting.com/digital-transformation>

What proportion of the total savings made from application rationalization is directly utilized for funding business transformation?

- More than 65%
- 36–65%
- 21–35%
- 0–20%

To what extent is the state of the application portfolio understood by Business?



The higher the level of understanding, the more savings from rationalization is utilized for business transformation.

Figure 2.0

## 02

# Understanding between Business and IT Improves the Application Landscape

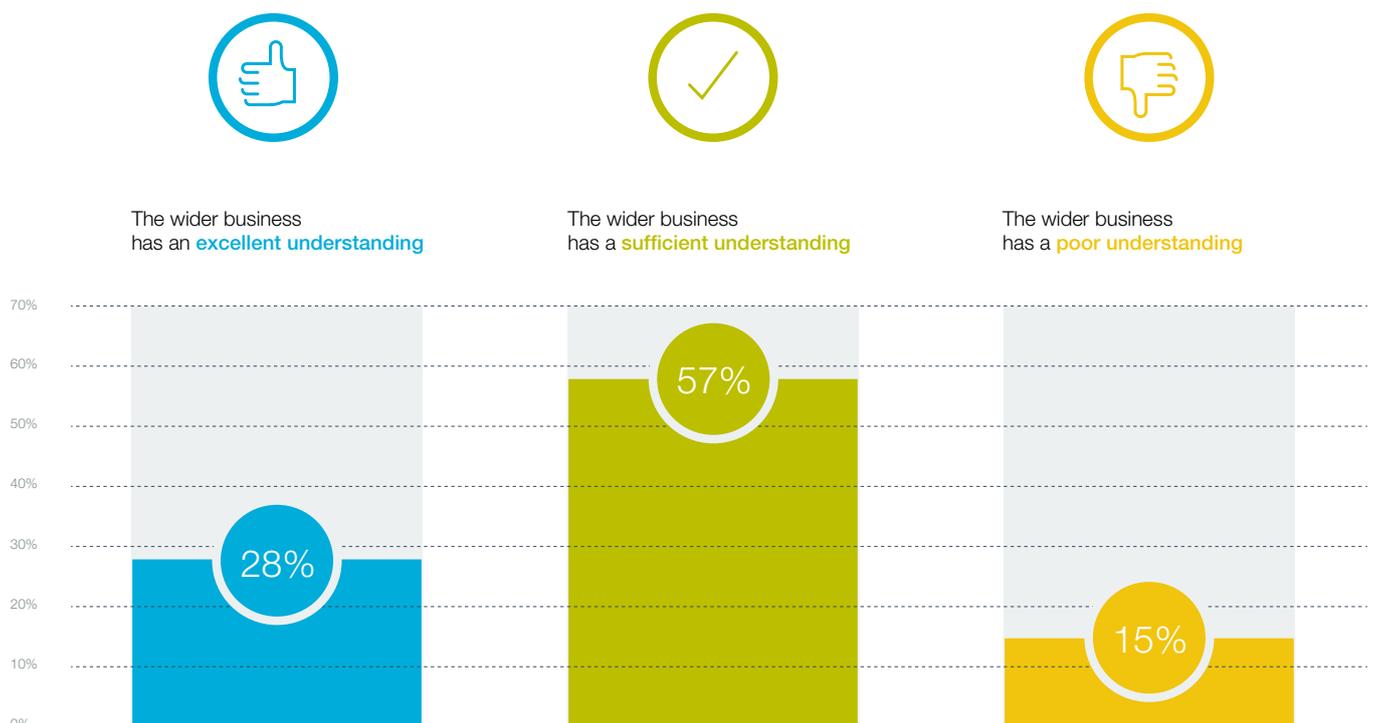
**A healthy, mutual understanding between Business and IT does not guarantee transformation, but transformation cannot occur without it.**

The significant amount of emphasis placed on the business impact of IT – combined with the phenomenon of “consumerization” that has made the Business side of organizations much better aware of technological possibilities – makes it interesting to see how the alignment between Business and IT nowadays is perceived.

First of all, it is necessary to understand to what extent Business understands the current state of the application landscape, as this is a key factor for successful transformation.

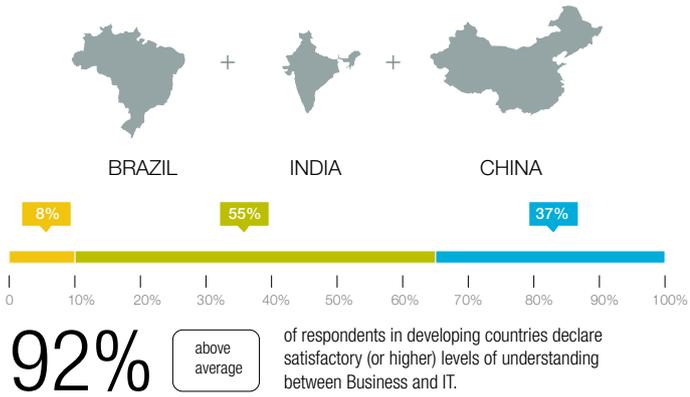
At first glance, the situation seems quite satisfactory. A remarkable 85% of the respondents feel that the application portfolio is sufficiently understood by Business, with more than a quarter even classifying the level of understanding as “excellent.” There are significant differences though, depending on both the region and the sector an organization is in.

## 2.1 To what extent is the state of the application portfolio understood by Business?



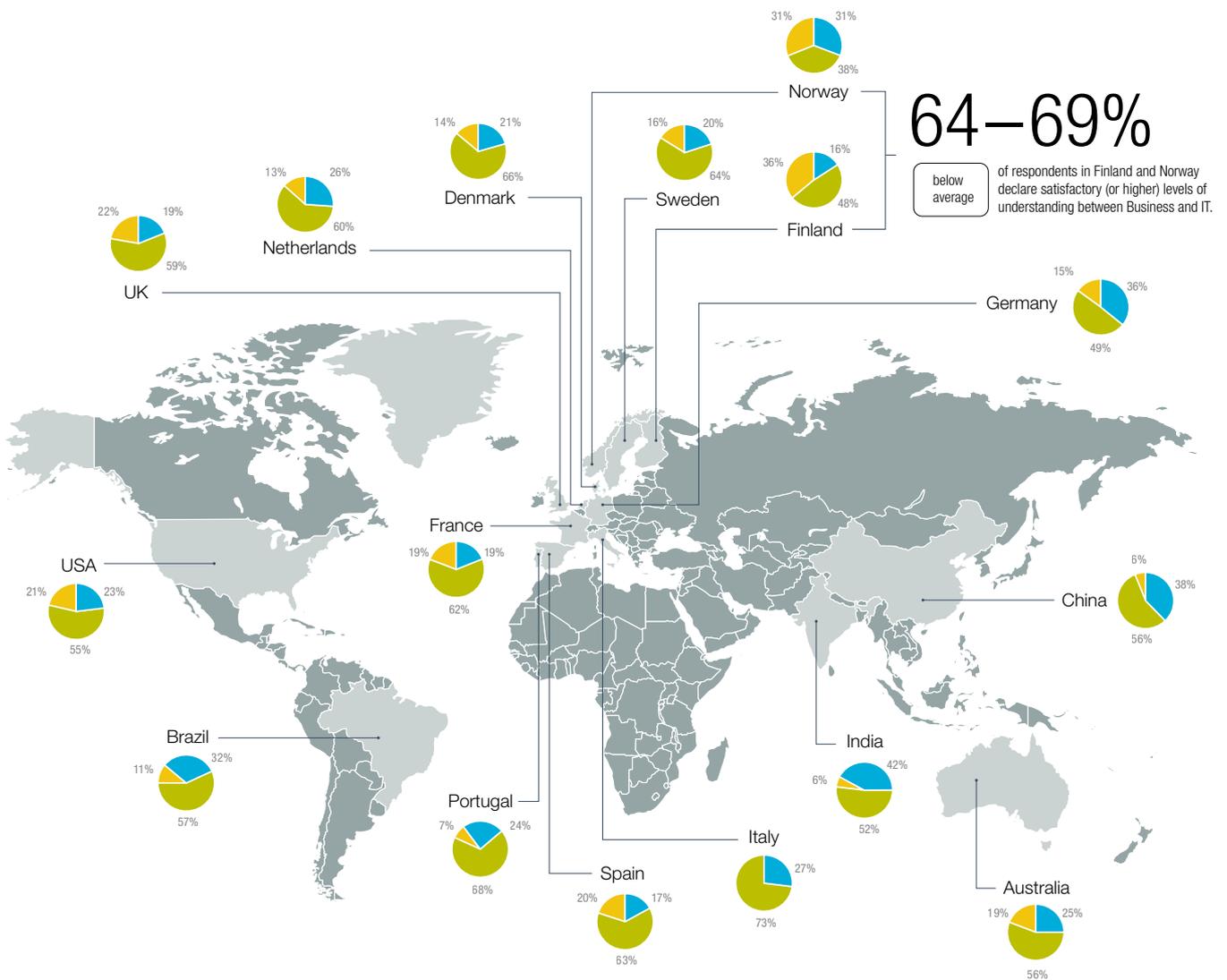
2.2 To what extent is the state of the application portfolio understood by Business? – By geography

■ The wider business has a poor understanding  
■ The wider business has a sufficient understanding  
■ The wider business has an excellent understanding

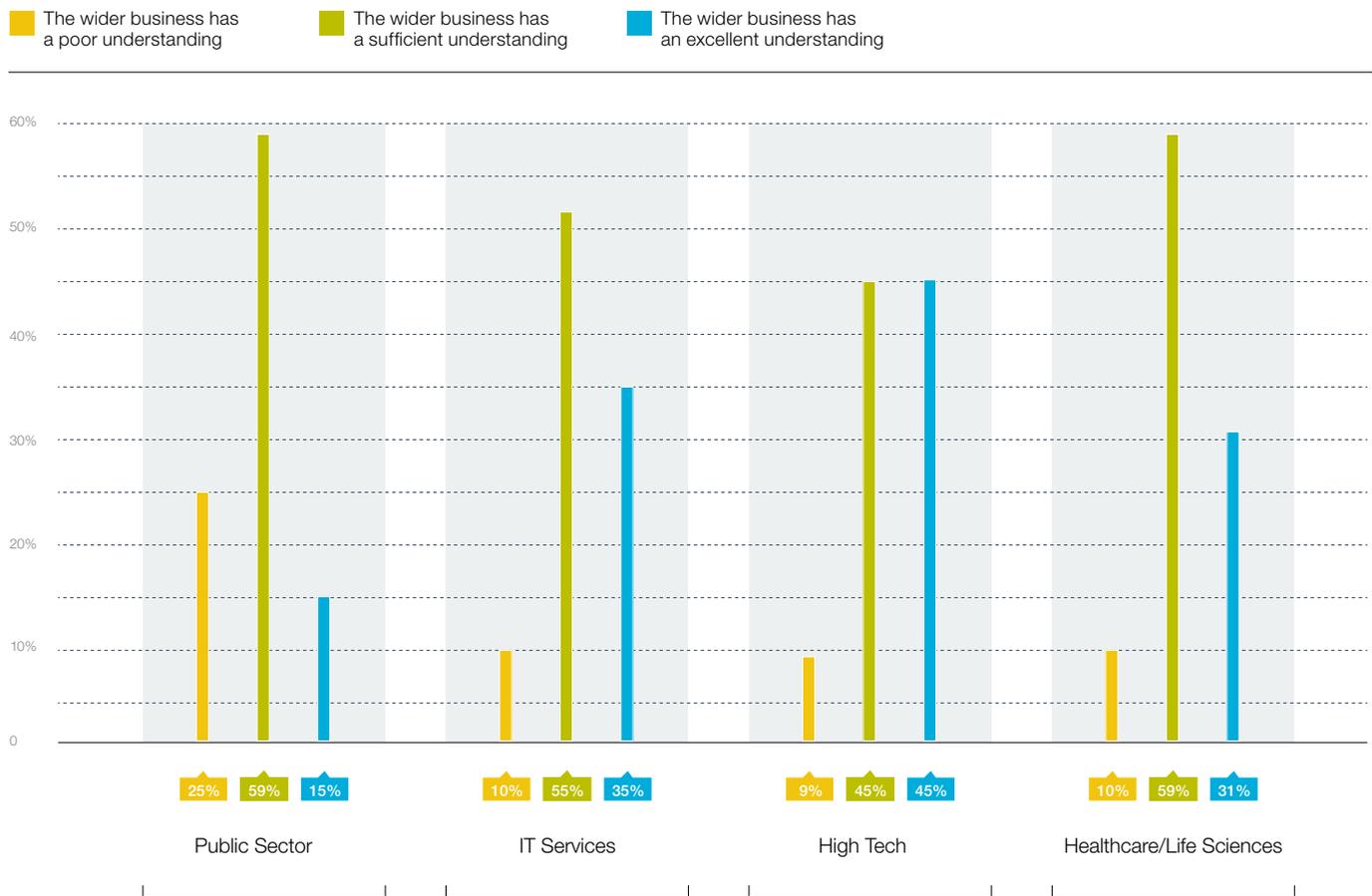


Even just a quick look at developing countries – notably Brazil, India and China – shows that the level of satisfactory understanding is rated significantly higher there (92%). On the other hand, in quite a few countries that are supposed to have more “mature” IT landscapes – for example in most of the Nordic countries, the US and the UK – the score is below average. This is likely to be an indication of the fact that the more established (and probably more complex) the applications portfolio is, the more difficult it is for Business to really understand its current state.

**92%** above average of respondents in developing countries declare satisfactory (or higher) levels of understanding between Business and IT.



## 2.3 To what extent is the state of the application portfolio understood by Business? – By sector



In the same way, it seems that the application portfolio is less understood in the Public Sector, which usually has a long legacy of IT solutions in a very distributed context. Satisfaction is highest in IT services, High Tech and Healthcare. This could be because all of them are arguably simpler – or at least more focused – in terms of the IT support needed, or, in the case of IT and High Tech, there is naturally a better understanding of technology.

### Alignment and new application development

Our research shows that when Business understands the application portfolio, IT is more likely to initiate new application development.

It is no surprise that the IT side gets more opportunities to create new solutions on their own initiative within organizations that have a better mutual understanding. If the level of alignment is lower, Business seems to take the initiative much more, taking control of both the portfolio and the budget.

There is a clear trend that IT is becoming more involved in initiating new application development. In this survey, three times as many CIOs stated that they were involved in initiating 35–65% of application developments than in 2011. However, for Cloud services, Business seems to be taking the lead. Another piece of research Capgemini recently conducted shows that for Cloud-related projects Business already leads by almost 50%: simply a result of the obvious, direct business value that is expected from Cloud solutions, combined with the ease of procuring them and the lower emphasis on technology, which is such an obvious quality of the Cloud.\*

\* Business Cloud – The State Of Play Shifts Rapidly. Capgemini research report 2012.

## Understanding crucial for change

(see figure 2.0)

If there is one key insight from the previous edition of the Application Landscape Report, it is that CIOs have difficulty initiating application rationalization projects, even if everyone agreed the necessity was high. There were many reasons mentioned for this, but particularly striking was the inability to define a business case – both in terms of cost savings and other benefits – together with the Business.

Mutual understanding may be the key to improvement. Not only is it easier to actually start the application rationalization process, but our research clearly shows that with better understanding, the resulting funds are also directly injected again into business transformation efforts, creating more value and more innovation from IT. In other words: the value balance of an applications portfolio (“keeping the lights on” versus “transformational business/IT”) improves as a result of a better mutual understanding of the application landscape.

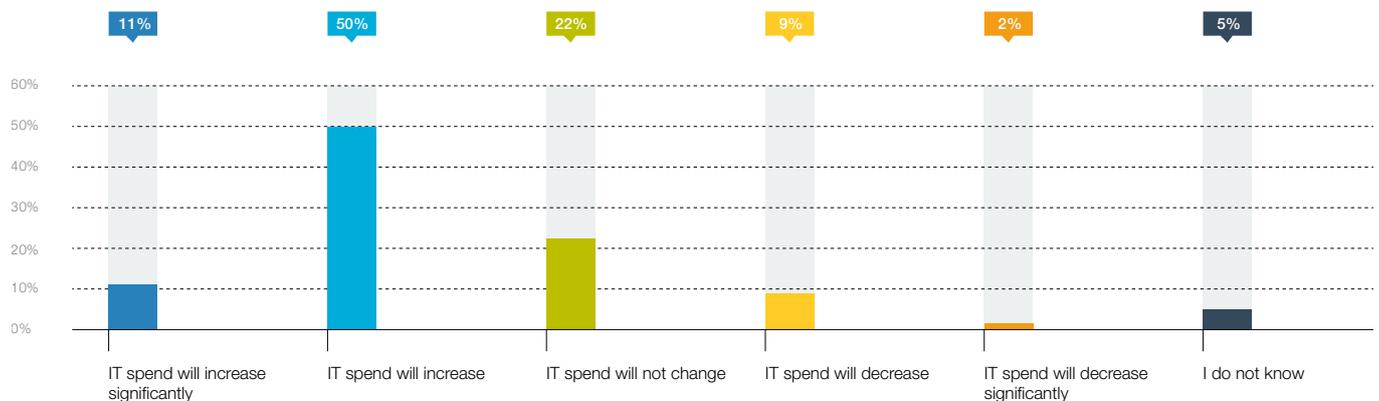
Self-funding rationalization or support initiatives are becoming more popular, especially in Europe where budgets stall. For one major UK organization, a self-funded rationalization program has realized savings of £175 million per annum. Using a small amount of seed-corn funding, they identified sufficient quick wins to fund major modernization initiatives, switching off 65 applications, decommissioning 1,954 servers, and merging major systems to reduce complexity and overheads.



*Our business is rapidly changing and it's fair to say that our application landscape – both in terms of its complexity and its lack of flexibility – is now more an inhibitor to innovation than a driver of it.”*

*COO/CIO – Internet Provider  
Western Europe*

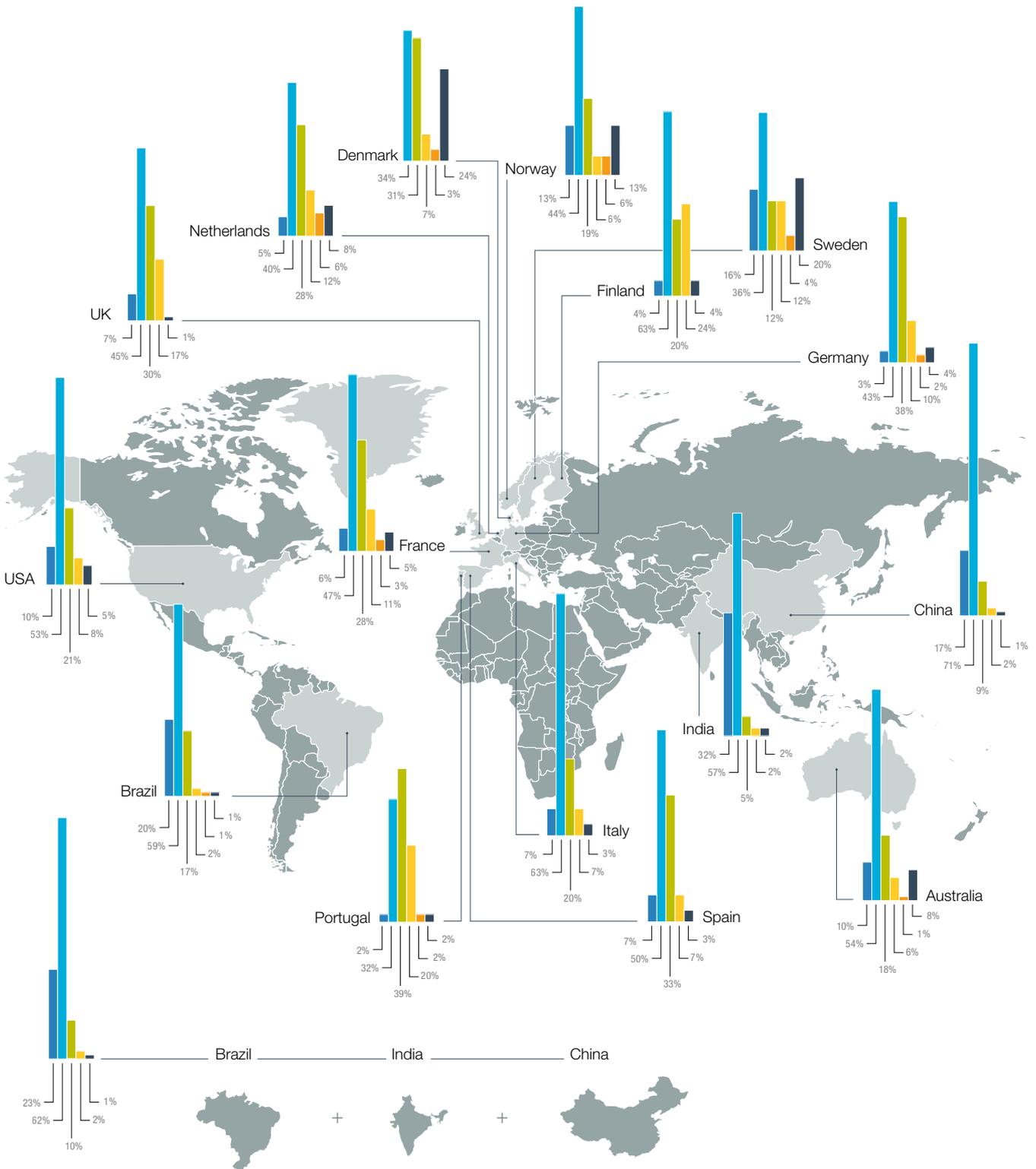
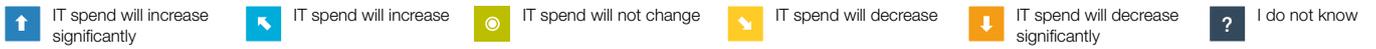
### 2.4 How do you think the total IT spend within Business will change over the next five years?



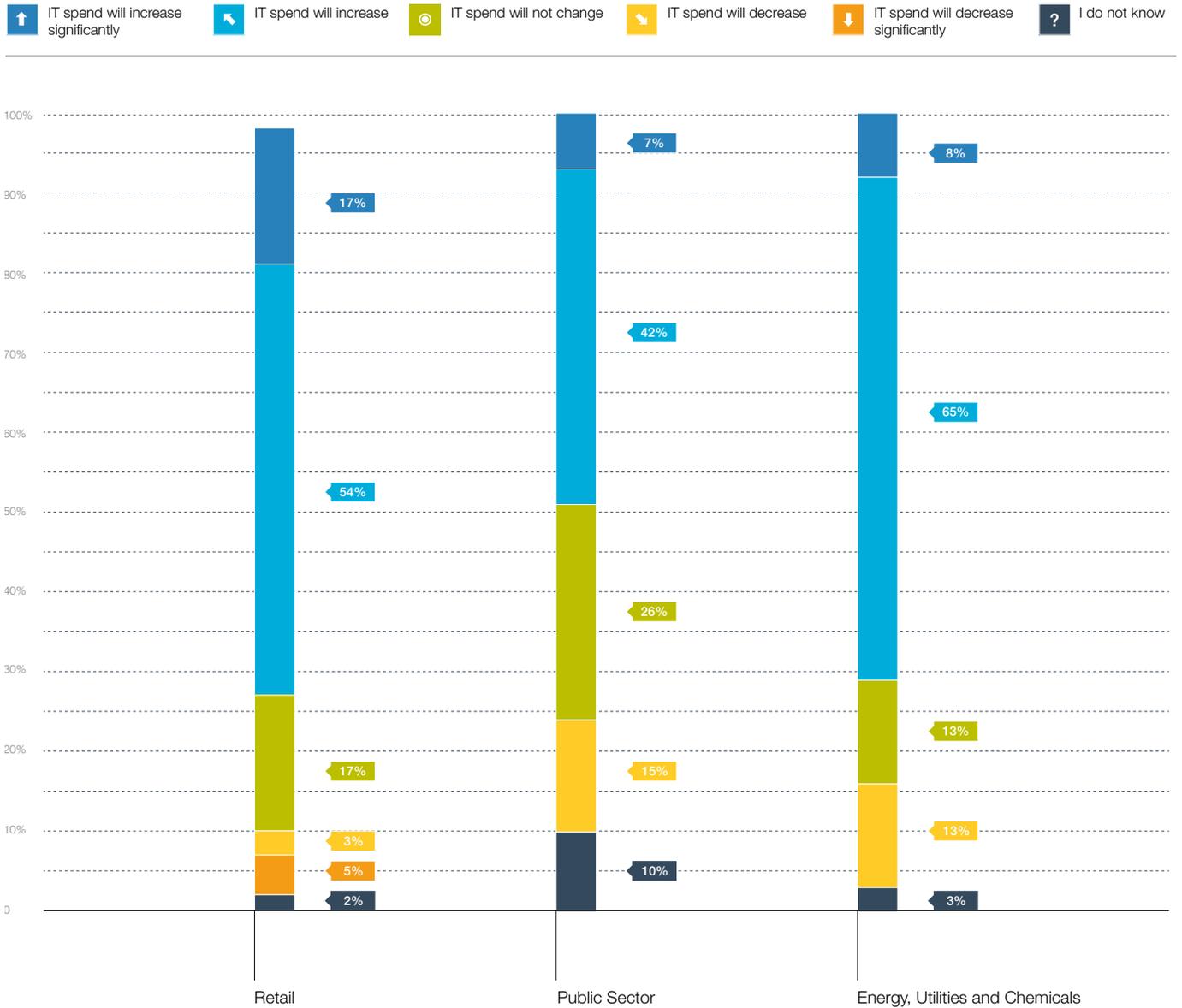
Organizations seem to be more certain than in the recent past of the value of IT for their business. This is convincingly illustrated by the fact that a majority of respondents expect IT spending to increase over the next five years, with only 10% believing that a decrease will occur.

Again, quickly developing regions, such as India, China and Brazil, even expect a sharper increase in IT spending and only in certain “incumbent” business regions – such as a number of European countries – a sizable number of respondents predict a decrease.

2.5 How do you think the total IT spend within Business will change over the next five years? – By geography



2.6 How do you think the total IT spend within Business will change over the next five years? – By sector



In terms of sectors, Energy and Utilities is the place where the expectations are most positive about an increase in IT spend. This is indicative of an industry that is changing quickly and is obviously benefiting from new advances in technology (e.g., “Smart Energy”). The same definitely applies to the Retail Sector, where the quest for the new customer experience – and a highly

optimized, demand-driven supply chain – is driven by innovative technology. Less optimistic are the respondents in the Public Sector, where the economic downturn still puts substantial pressure on IT budgets.

## Portfolio framework or methodology needed

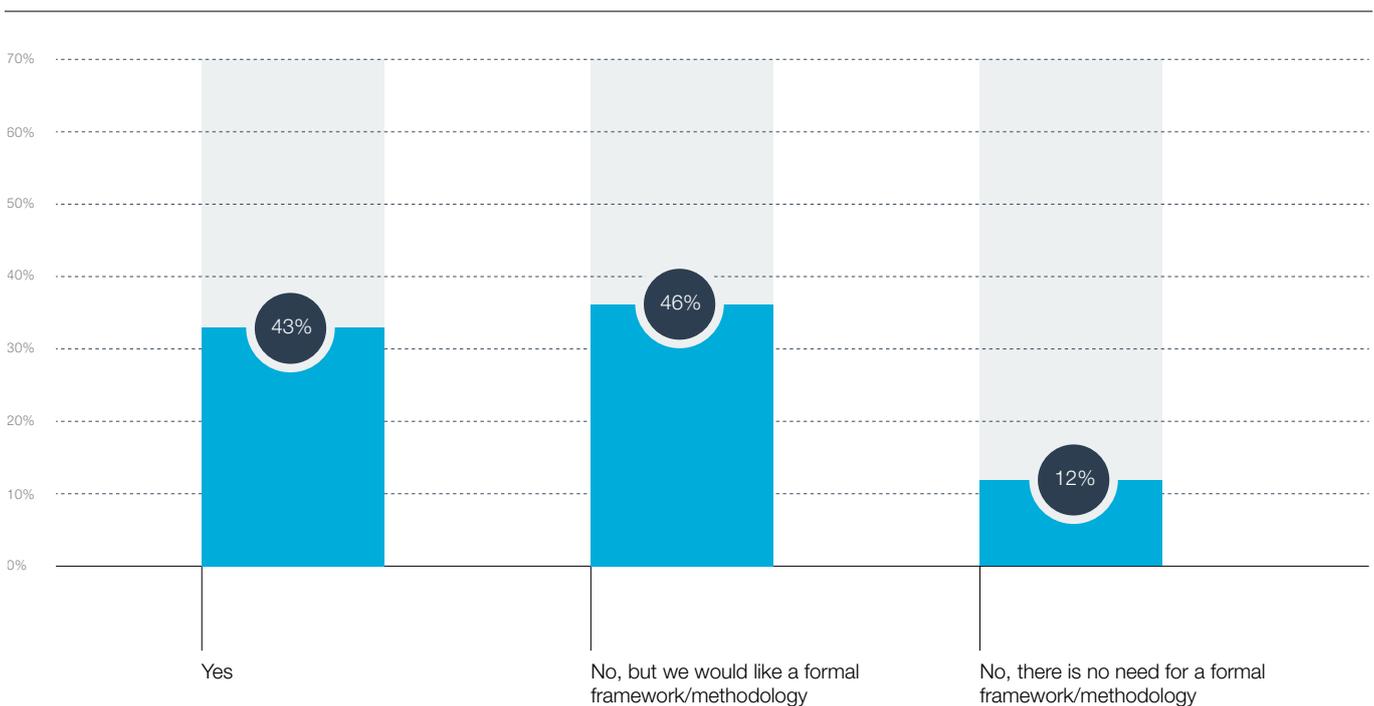
A better understanding of the application portfolio by the Business (and IT) side would clearly be served by the use of a formalized framework or methodology that helps the organization to map business objectives to the IT portfolio, analyze the mix and monitor improvement. However, although nearly half of the organizations interviewed claim to use such tools, a greater number do not use them yet but indicate that they would like to start.

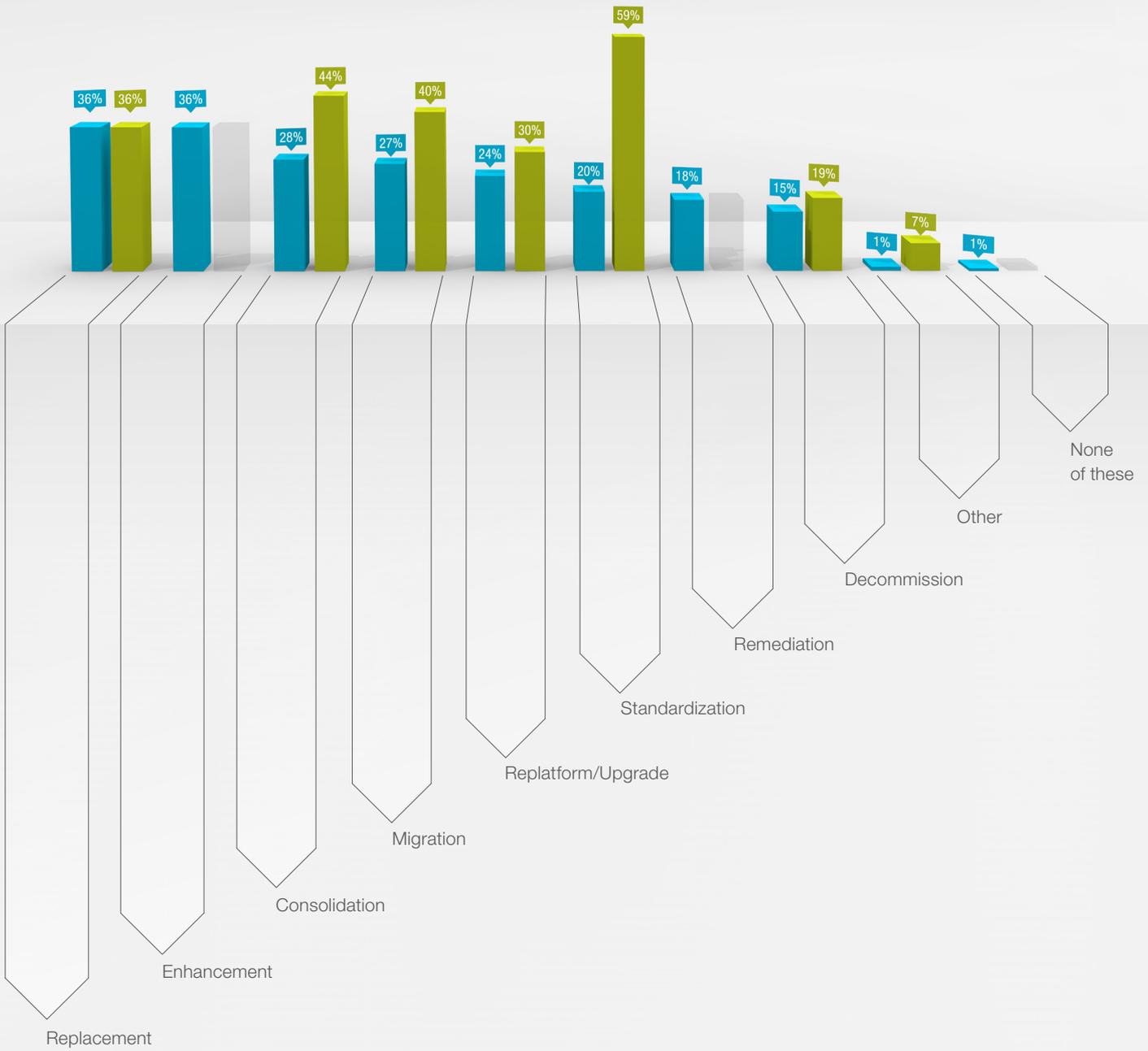
All in all, there appears to be a positive outlook for IT-driven business transformation projects in the forthcoming years. However, a better shared understanding of the application landscape by Business and IT is pivotal in terms of both rationalizing existing legacy systems and initiating new, innovative activities. Business outcome-driven dashboards are a way to enhance mutual insight between Business and IT.

In order to increase that understanding, we have again dedicated a major piece of our research to mapping the current state of the application landscape. We have also compared the results with those from the 2011 Application Landscape Report. These points are what the next chapter will cover.

“  
However, a better shared understanding of the application landscape by Business and IT is pivotal in terms of both rationalizing existing legacy systems and initiating new, innovative activities.”

### 2.7 Do you have a framework/methodology to assist in continuously evolving your application portfolio to meet business objectives?





Which strategies do you use for application portfolio modernization?

Figure 3.0

## 03

# The 2014 Application Landscape Needs to Move

**As the issue of complexity in the IT environment continues to plague CIOs, they are increasingly likely to consider extreme rationalization methods.**

According to Abraham Maslow's pyramid of needs, a person's basic needs must be met first. Only after these are taken care of, can a person establish a foundation for development.

In terms of IT, data security may be thought of as being the base of the pyramid; 61% of CIOs see data security as one of their three greatest operational challenges. This is the biggest issue that "keeps CIOs awake at night."

Though security indeed is a basic hygiene factor that must be dealt with before all other issues, it appears that recent, worldwide revelations around data privacy and data sovereignty have reinforced this sentiment. This issue will only be felt more in

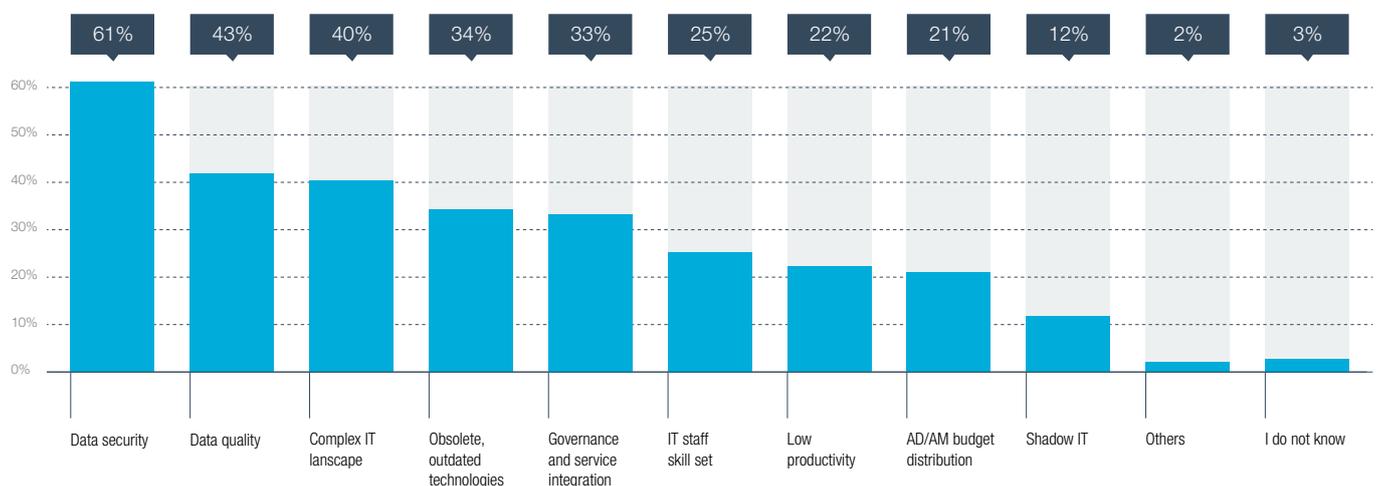
forthcoming years, as advances in Mobility, Social, Cloud and the "Internet Of Things" will further stipulate the need for data security.

With organizations vitally depending on the right information to make operational decisions, it should also come as no surprise that data quality ranks number two on the list.

But it is immediately followed by the complexity of the IT landscape, mentioned by 40% of the respondents in their top 3, together with 34% mentioning obsolete and outdated technologies as a key worry.

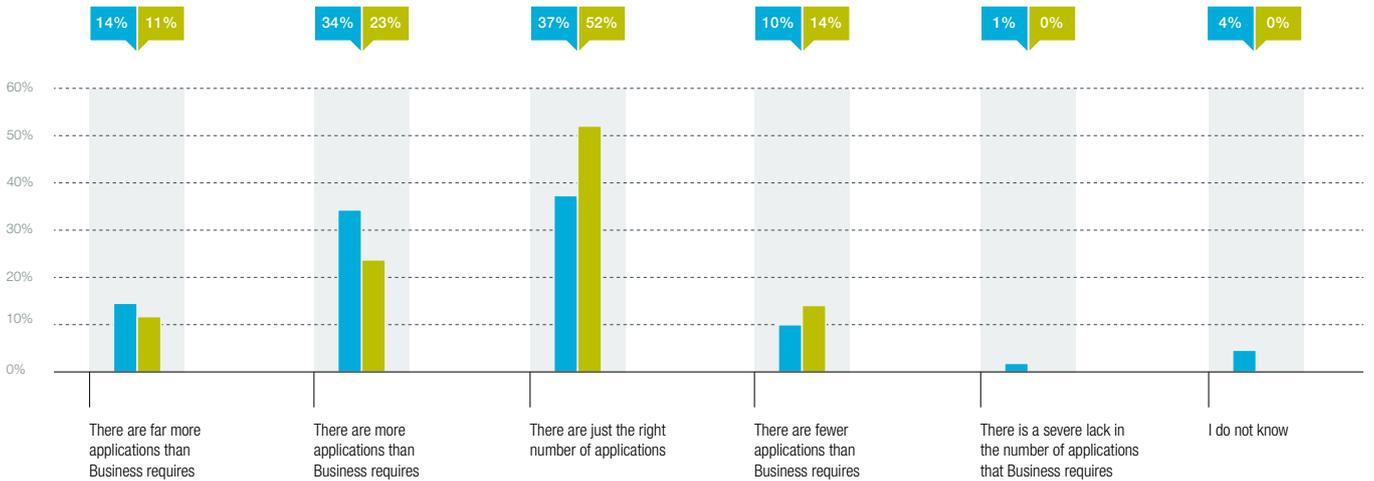
Additionally, "Shadow IT" was identified in several personal interviews as an emerging issue – especially with the new generation of SaaS solutions that are easy to try, buy and implement – but does not yet rank among the key challenges for CIOs at this time.

## 3.1 What are the three most important operational challenges for the company CIO?



3.2 How appropriate do you feel the number of applications you have across the company is?

2014 2011



An excess of applications

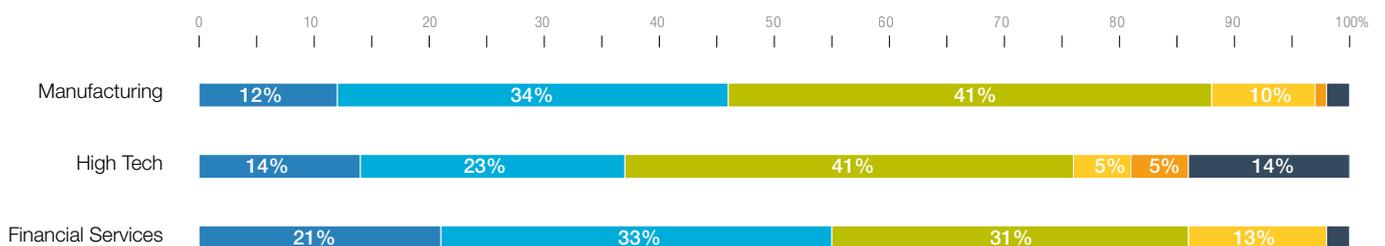
Zooming further in on the complexity of the application landscape (a major area of interest in this report, after all), it should first of all be noted that nearly half of all respondents find that there are more applications in the portfolio than Business actually requires, up significantly since the last report, when the figure was at only about one-third.

Apparently, despite all intentions and efforts, few organizations have already managed to retire or consolidate applications; the load of legacy only has become heavier, rather than lighter. Also, the rising number of SaaS solutions that are directly purchased by Business Units rather than the IT department, may add to this situation.

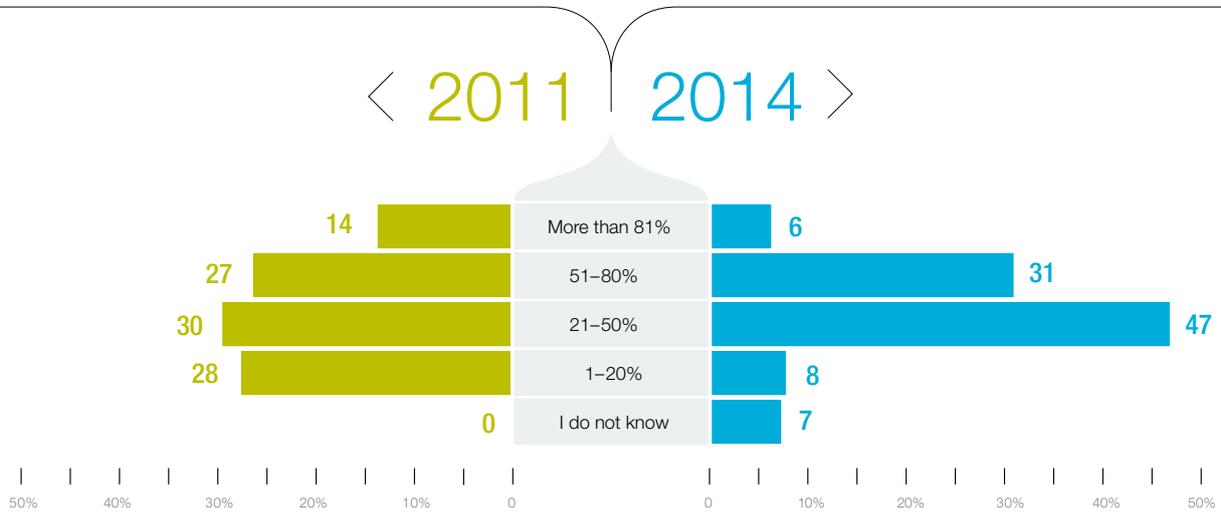
Financial Services – traditionally a sector in which many applications have been custom-built and mergers and acquisitions further complicate the portfolio – ranks among the sectors that have most room for improvement. Sectors such as High Tech and Manufacturing on the other hand have always focused on the use of highly standardized, package-based software, and as a result they feel the burden of an excess of applications much less.

Having said that, clearly a larger number of applications are deemed mission critical to Business compared to the previous report. This indicates at least an improvement in the overall value mix of the portfolio. It might also illustrate that the latest additions to the portfolio have created a higher value perception.

3.3 How appropriate do you feel the number of applications you have across the company is? – By sector



3.4 What percentage of your company's applications are considered mission critical?

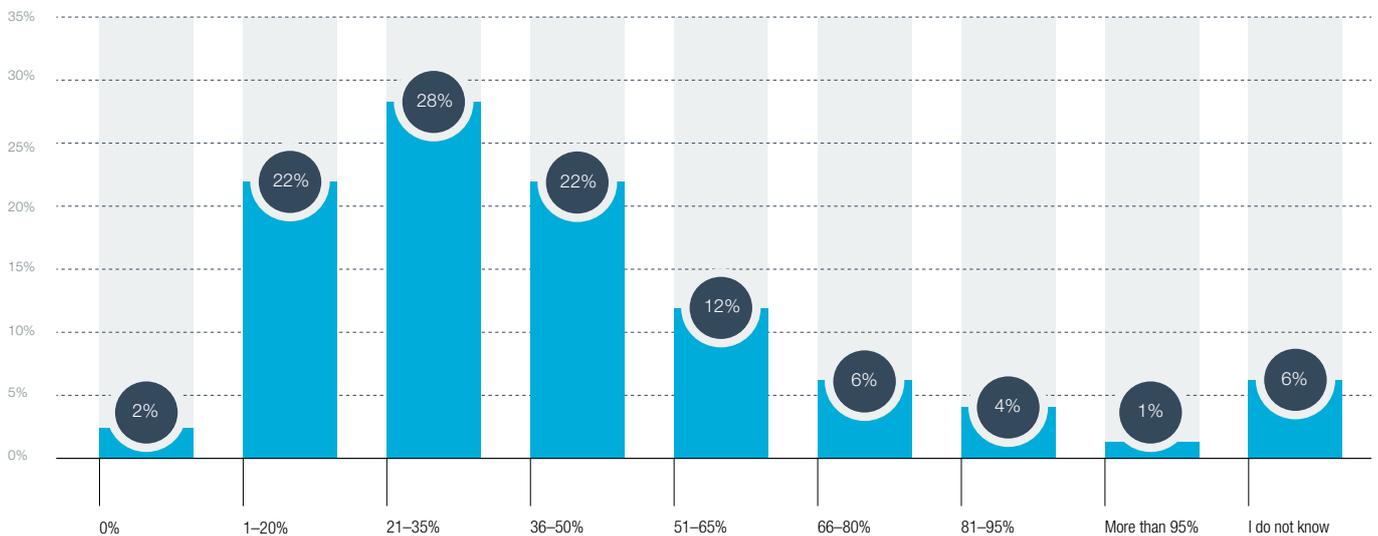


Ready for consolidation

Of course, having too many applications often also means that multiple applications provide similar, overlapping functionality. This can typically be the result of mergers and acquisitions but also of decentralized Business Units that have chosen to implement their own solutions as they feel the central applications do not provide them with the flexibility or differentiating edge that they are looking for.

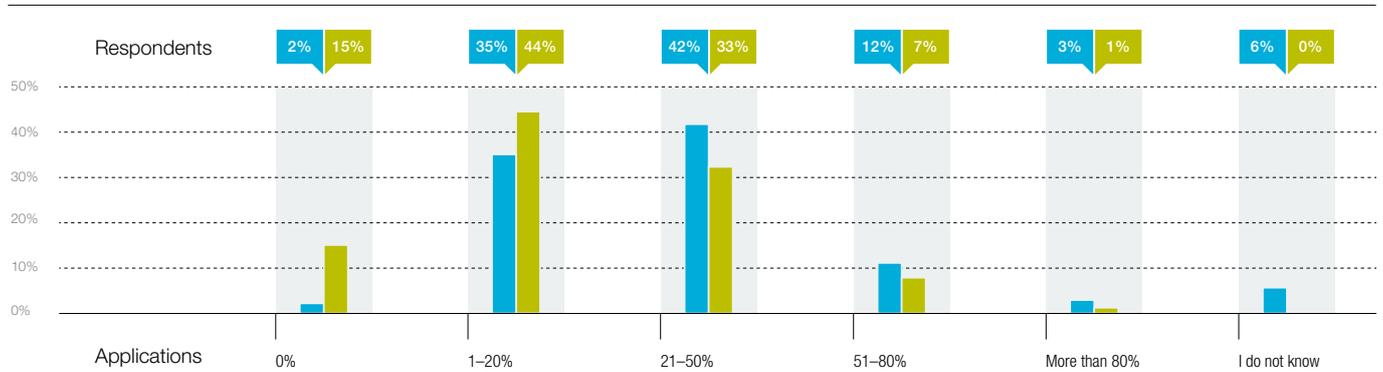
Whatever the reason, 70% of the respondents believe that at least one-fifth of their applications could be consolidated by eliminating redundant functionality.

3.5 What percentage of your company's applications do you believe share similar functionalities, and therefore could be consolidated?



3.6 What percentage of your company's current applications do you believe could be retired, or replaced by a new application?

2014 2011



### Retirement or replacement more relevant than ever

On top of that, the need for consolidation, replacement or retirement of applications – a major theme in our previous report – is more urgent than ever. There has been a steep increase in the number of respondents who indicate that at least 20% of their current applications actually could be replaced or retired. As concluded earlier, there is still hesitation within organizations to actually act on this insight, and only improved, shared understanding of the applications portfolio can help to make real next steps.\*

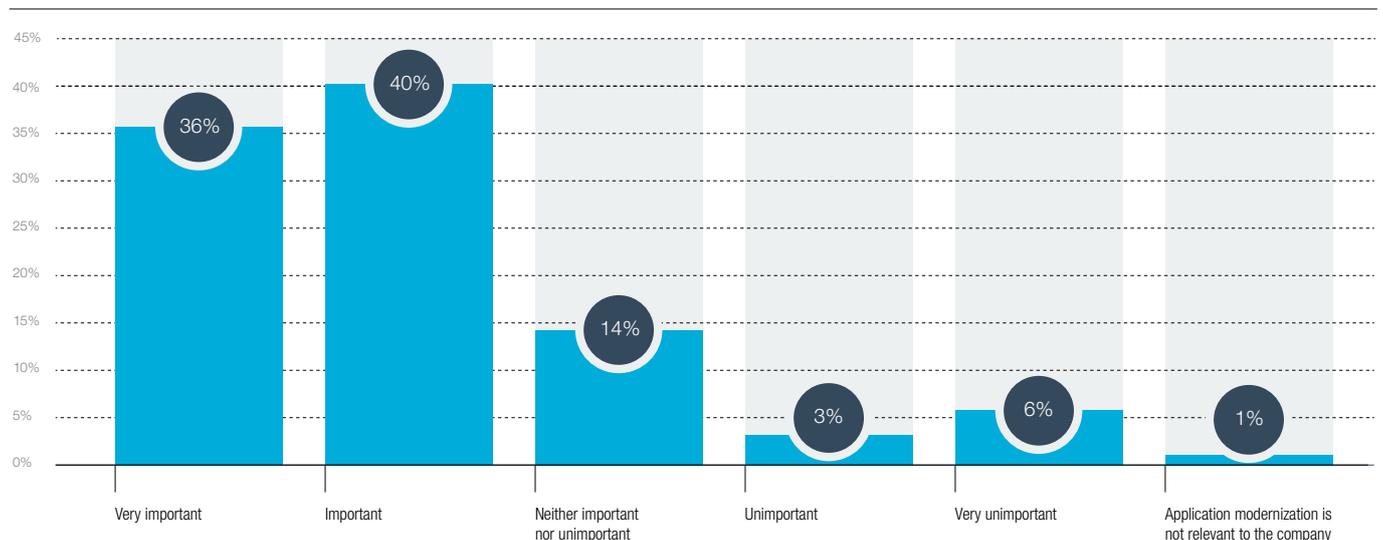
Although “rip and replace” scenarios – typically in which custom-built applications are completely replaced by standardized, package-based solutions – are still often seen

as impactful and risky with high business impact, more organizations seem to be considering rigid measures such as these. Experience shows it is key to avoid mapping an excess of detailed requirements – likely to reflect the functionality of the old system – to the package solutions considered. Instead, the industry best practices that packages usually contain should be validated against much more coarse-grained value scenarios that could work for the organization. Only then, should potential changes and/or risks be assessed.\*\*

### Modernization is a must

By now, we should not be surprised to learn that a staggering 76% of respondents find modernization of the application landscape instrumental to the business objectives of the organization.

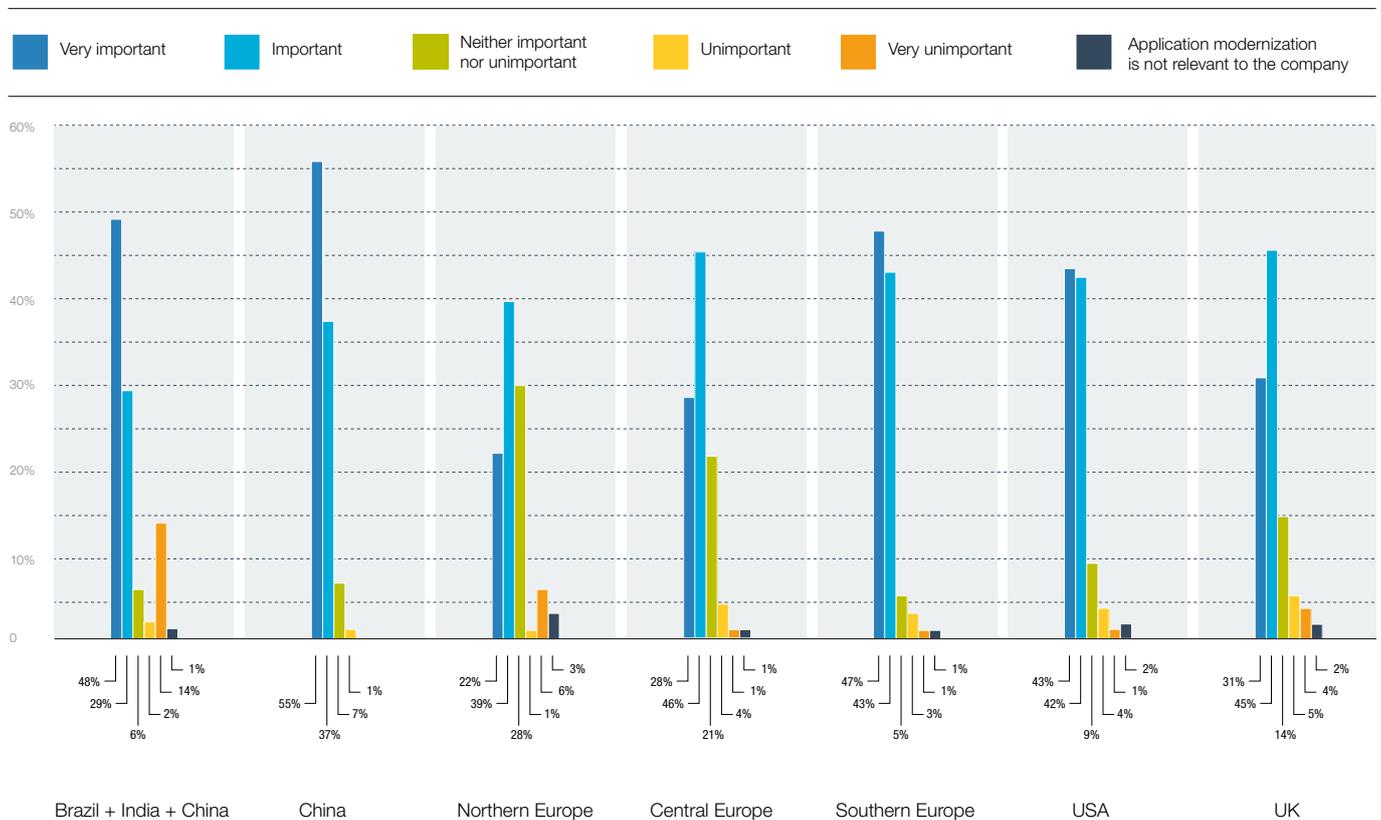
3.7 How important is application modernization to your company's business objectives?



\* For more information see: [www.capgemini.com/resources/application-retirement-analysis-framework](http://www.capgemini.com/resources/application-retirement-analysis-framework)

\*\* More about this on Capgemini's CTO blog on [capgemini.com](http://capgemini.com). Search for *No Requirements* and *Vanilla Tastes Good*.

### 3.8 How important is application modernization to your company's business objectives? – By geography



Zooming in on this from a regional perspective, it can be seen that some of the most “established” countries in terms of IT – notably Southern Europe and the US – are heavily entertaining the idea of application modernization, albeit possibly for different reasons. But also – interestingly enough – an emerging business country such as China shows a strong preference for these activities. On the other side of the spectrum, some Northern Europe countries – although organizations there certainly recognize the lack of balance in their portfolios – seem to assign less priority to the topic.

### Shift in rationalization strategies

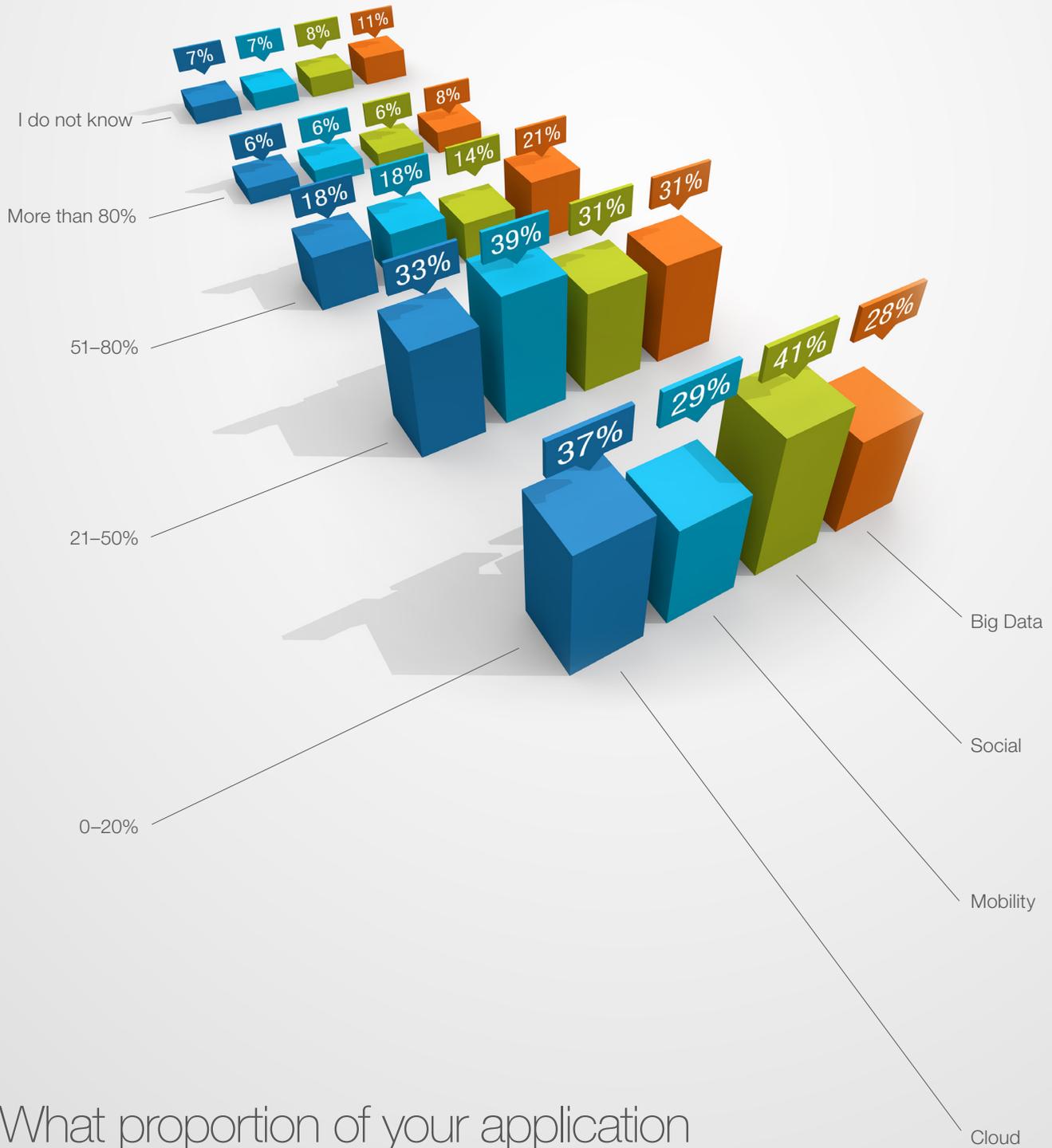
(see figure 3.0)

As part of the survey, organizations were asked – just like in the previous report – what their preferred modernization and rationalization strategies are, once they have decided to take on the existing application landscape. We saw some interesting shifts: where the top answer in the 2011 report resolved around standardization and consolidation of applications, we are now seeing a tendency towards enhancement of existing applications (for example by adding a Mobile front-end or a Cloud-based API) or – alternatively – fully replacing them.

Though the first strategy is a pragmatic, relatively low-risk one that delivers quick results without massive change, it's radical in the sense that it moves the focus away from rebuilding core applications to the outer layers of the application estate. The second strategy is much more radical though, and is likely to be ignited by impatience of the Business, frustration by earlier rationalization attempts and the availability of a new generation of relatively low-cost, easy-to-implement Cloud-based solutions (SaaS).

In short, the issue of application landscape complexity is still very much alive on the CIO's agenda. Although some progress has been made in the value mix of the typical application portfolio, there is still plenty of room for further rationalization and renewal.

In both pragmatic and radical rationalization strategies, there is a prominent place for next-generation technologies in areas such as Social, Mobility, Big Data and Cloud. In order to further explore what the disruptive impact of these technologies is on the application landscape, we have dedicated a separate part of our survey to this.



What proportion of your application landscape utilizes each of the disruptive technologies?

Figure 4.0

## 04

# New Technology Provides Disruptive Drivers to Application Landscape Innovation

**The significant positive impact that Social, Mobile, Big Data and Cloud have already had on key business drivers will continue to grow.**

After the foundation of the Maslow pyramid has been sufficiently established, the quintessential challenge of any CIO is to create value for Business. Enter the next generation of technology drivers – and the fuel for Digital Transformation – often categorized with the acronym SMAC: Social, Mobility, Analytics and Cloud. And although the advances in Big Data are about much more than “just” analytics, this generally sums up where organizations find their inspiration for innovative projects that deliver direct value to Business.

Of particular interest in this research was to what extent these SMAC drivers already influence the application landscape. Also, given the fact that Business enthusiastically and quickly embraces SMAC technologies, we wanted to know if this helped – or even forced – CIOs to more radically rationalize their existing application portfolio.

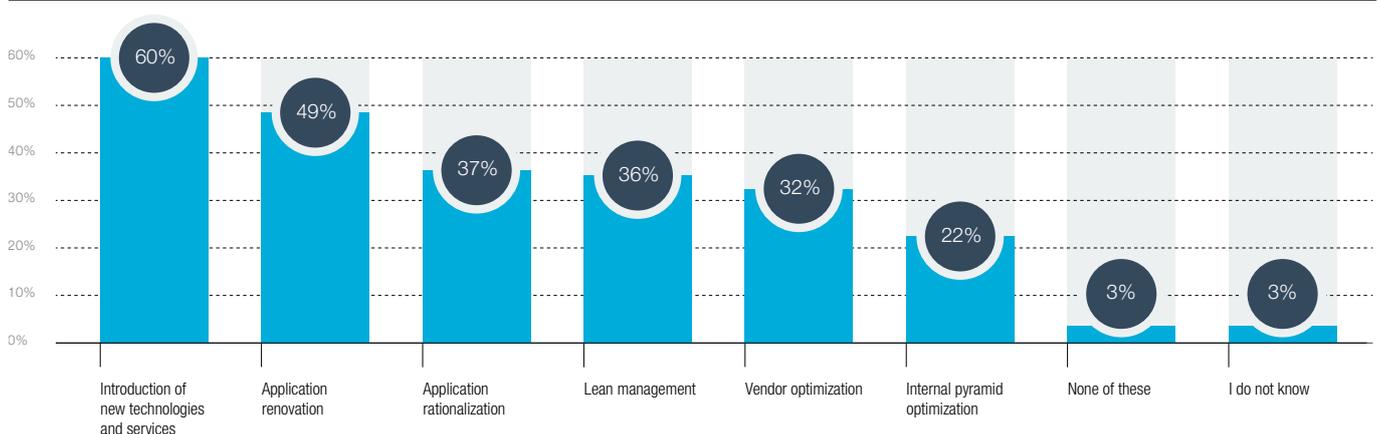
“

*To add value, we can benefit from the agility of the Cloud, utilizing domain knowledge to provide Cloud-based services.”*

*CIO – Public Sector, UK*

Thus, interviewees were asked first of all about the strategies they follow to create value for Business. For 60%, “Introduction of new technologies and services” topped the list, easily outranking “Application renovation” and “Application rationalization.” So indeed, the SMAC wave should have an important place on the CIO’s radar screen.

## 4.1 Which strategies have you used to increase IT’s value to Business?



4.2 Which disruptive technologies/concepts have you already leveraged in your landscape?



Degree of deployment

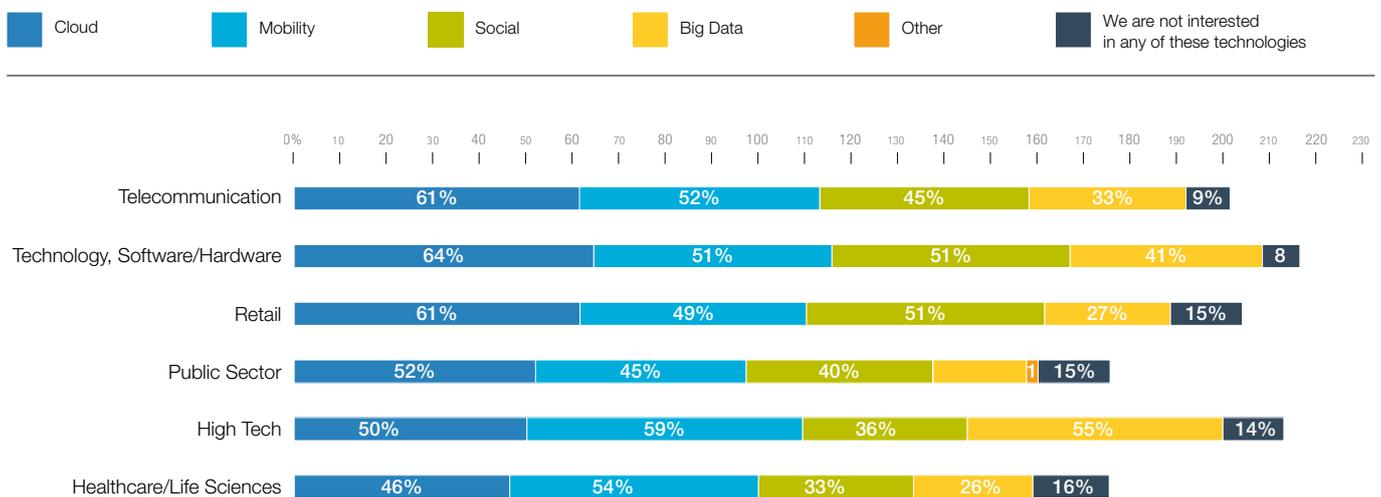
(see figure 4.0)

Looking at the extent to which these technologies already have been deployed within organizations, we find that at this time Cloud is most popular with more than half of all respondents mentioning it, very closely trailed by Mobility. Social technologies follow at some distance and the list is closed by Big Data. It is assumed that the respondents perceived “Big Data” here in the sense of relatively new technologies such as Hadoop and in-memory databases, as Business Intelligence and Analytics are established values within many organizations.

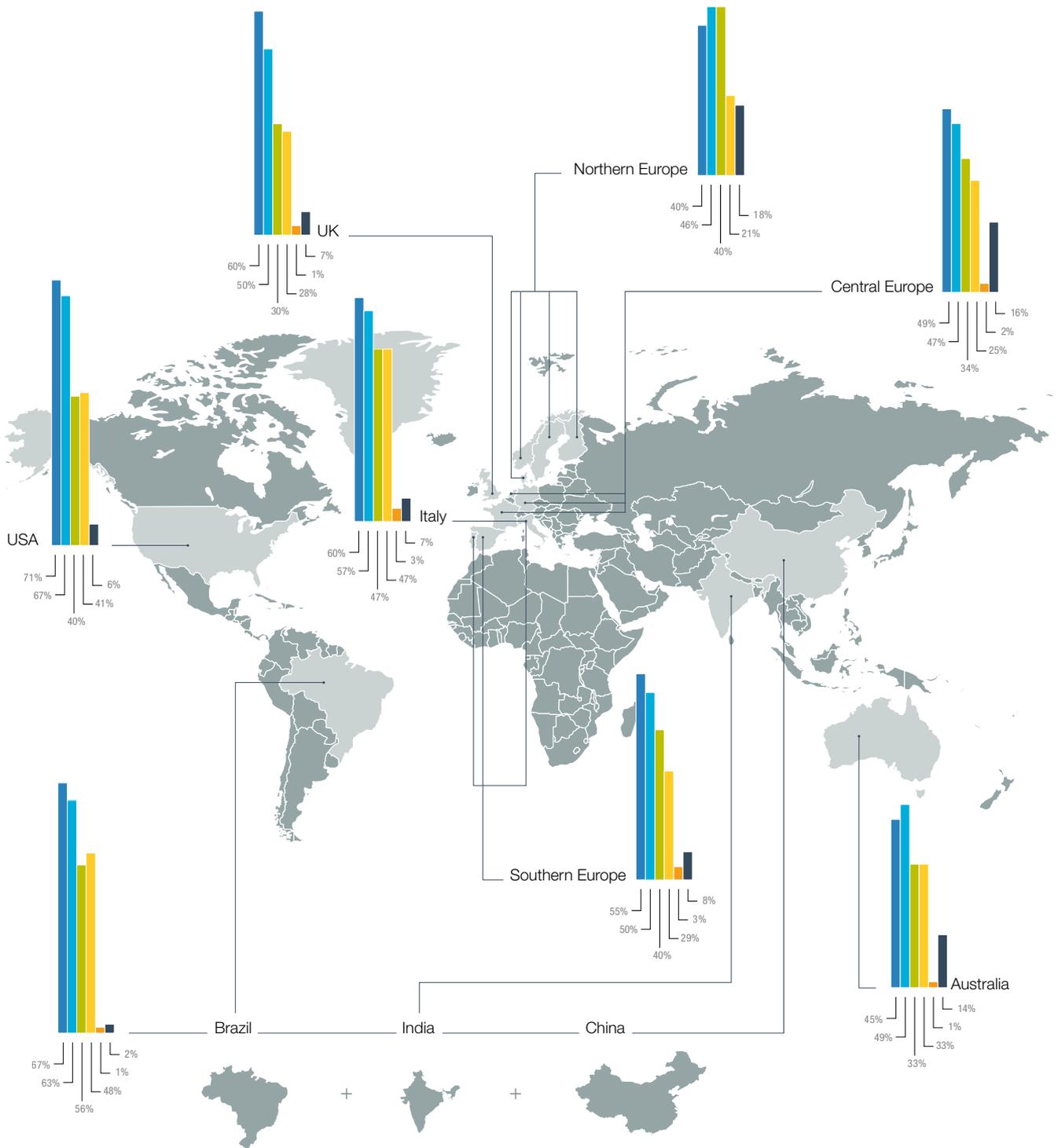
Looking at the geographical spread, we see yet again that the regions with a “developing” economy – India, China, Brazil – are more eager to pick up new technologies than some of the more “established” regions; Italy making for an interesting exception here.

In terms of sectors, Public, Healthcare and Life Sciences (the latter traditionally not an early adaptor in the first place) seem to be lagging behind a bit, with the usual suspects of High Tech, Telecommunication, Software and Hardware, and also Retail leading the way.

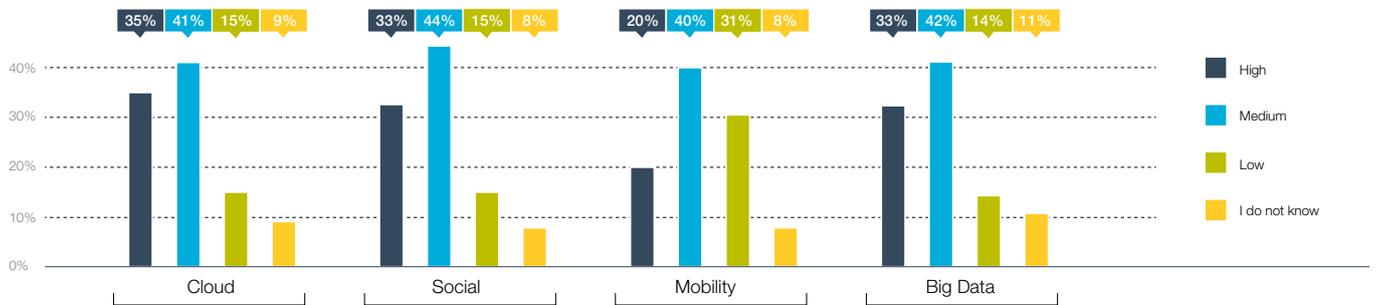
4.3 Which disruptive technologies/concepts have you already leveraged in your landscape? - By sector



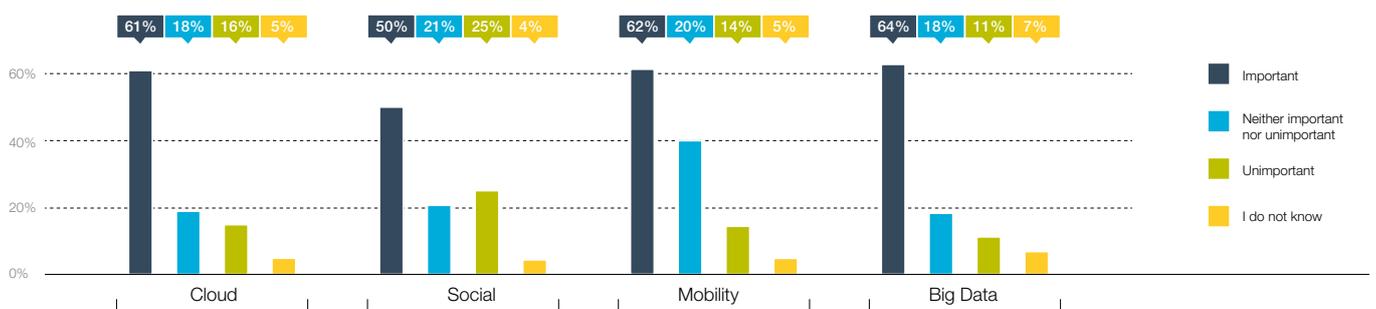
4.4 Which disruptive technologies/concepts have you already leveraged in your landscape? – By geography



4.5 What impact do the disruptive technologies have on delivering business value?



4.6 How important do you rate the disruptive technologies for the business driver of reducing risk?



When asking about the relative position of SMAC-based solutions in the overall application landscape, we get a fragmented picture, ranging from anything between absolutely nothing to a whopping 95%. However, on average we find that Social solutions have the lowest stake in today’s application portfolios. Cloud and Mobility mainly occupy the “21–35%” space whereas Big Data is even more present.

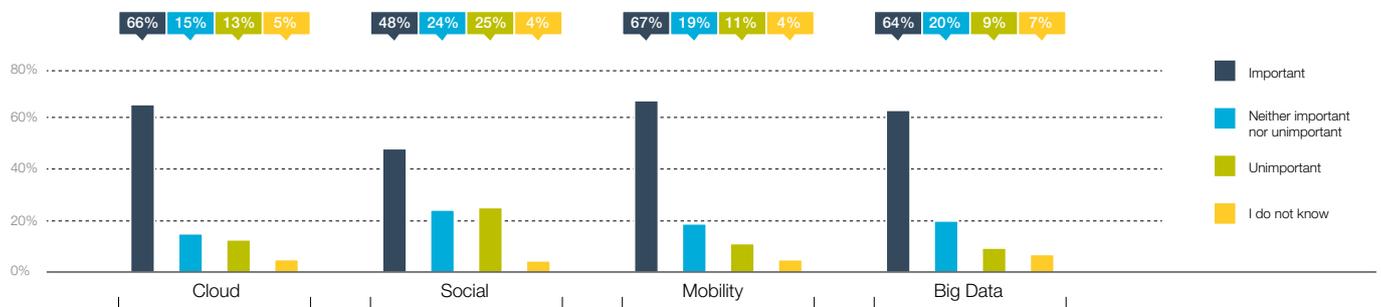
### Ranking the business impact of SMAC

Then, when we finally zoom in on the actual business impact of SMAC technologies, a convincing three-quarters of the respondents believe that the four technology areas have a medium or even high impact on delivering value to Business. Cloud computing is perceived as the technology area that delivers the overall highest value. Mobility – probably because it does not fit well into every sector’s objectives – is perceived the lowest overall. Sectors like Energy & Utilities, Manufacturing and the Public sector indicate lower business value delivered by Mobility, whereas Retail, Consumer Products, Healthcare and Technology, score highly on the same parameter.

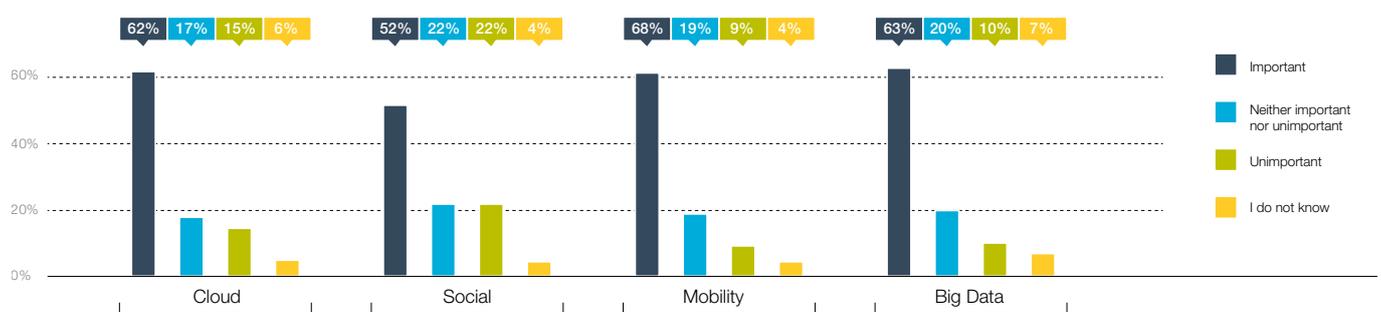
### Reducing risk

Much, of course, depends on the actual qualities that organizations aim to achieve in order to create more business value. As we found out earlier, reducing risk still ranks very high on many management agendas. According to our respondents, both Cloud and Big Data are particularly relevant to this area. This makes sense because Cloud – when applied well – releases organizations from having to deal with complex, risky infrastructures and applications themselves. Also, the analytical and predictive capabilities of Big Data can help organizations considerably to mitigate operational risks or make business decisions more quickly.

#### 4.7 How important do you rate the disruptive technologies for the business driver of reducing cost?



#### 4.8 How important do you rate the disruptive technologies for the business driver of reducing time to market?



### Cutting cost

There are many ways to use technology for cutting the cost of Business, and this is reflected in the variety of answers respondents gave for the impact of SMAC technologies on this area. The highest number of respondents identified Cloud as “very important.” This is a confirmation of earlier research, showing that cost-cutting is by far the highest perceived benefit of Cloud at this time. However, Mobility and Big Data are not far behind, as their applications have almost unlimited potential to further drive down the cost of doing business. Social technologies still lag behind in our analysis, even though there are already some impressive examples of the use of social networks to reduce cost, for example in customer (self-) service and co-creation.

### Reducing time to market

When the basics of risk reduction and cutting cost have been addressed sufficiently, organizations turn their attention towards business agility, notably the ability to reduce the time to market of new products and services. The very last thing we asked interviewees was as to the extent that SMAC technologies help them to achieve this desirable, business-winning quality. Mobility turns out to be the favorite technology area here, as it is often associated with “fast” customer channels, simple and highly

focused apps and a lifecycle that typically does not shy away from frequent updates and improvements. But Cloud ranks high here too, with its elastic scalability and easy deployment characteristics. Social gets a slightly “better press” in this but still – consistently – trails the list of favorite technology areas.

In summary, SMAC technologies are quickly entering the mainstream IT landscape – headed by Cloud and trailed by social technologies – and they provide clear benefits in business agility areas such as reducing time to market, but just as much (or actually, even more) in the foundational areas of reducing risk and cutting cost.

When asked personally during selected in-depth discussions, many interviewees confirmed that the pressure, particularly from Business, is mounting to quickly internalize more SMAC technologies, as the business case for applying them is now more solid and obvious. However, the state of the current application landscape often does not allow for such acceleration, both from cost and architectural perspectives. Therefore, it is likely that CIOs will turn to alternative rationalization strategies: some of them very pragmatic and short-term oriented (e.g., extending existing applications with Cloud and Mobility), others much more radical than before (e.g., ripping and replacing existing applications by standardized SaaS solutions).



# 05

## Application Rationalization in Action: the Experience of the WARP Center of Excellence

Since we published the first Application Landscape Report in 2011, Capgemini has gained a wealth of experience in application rationalization.

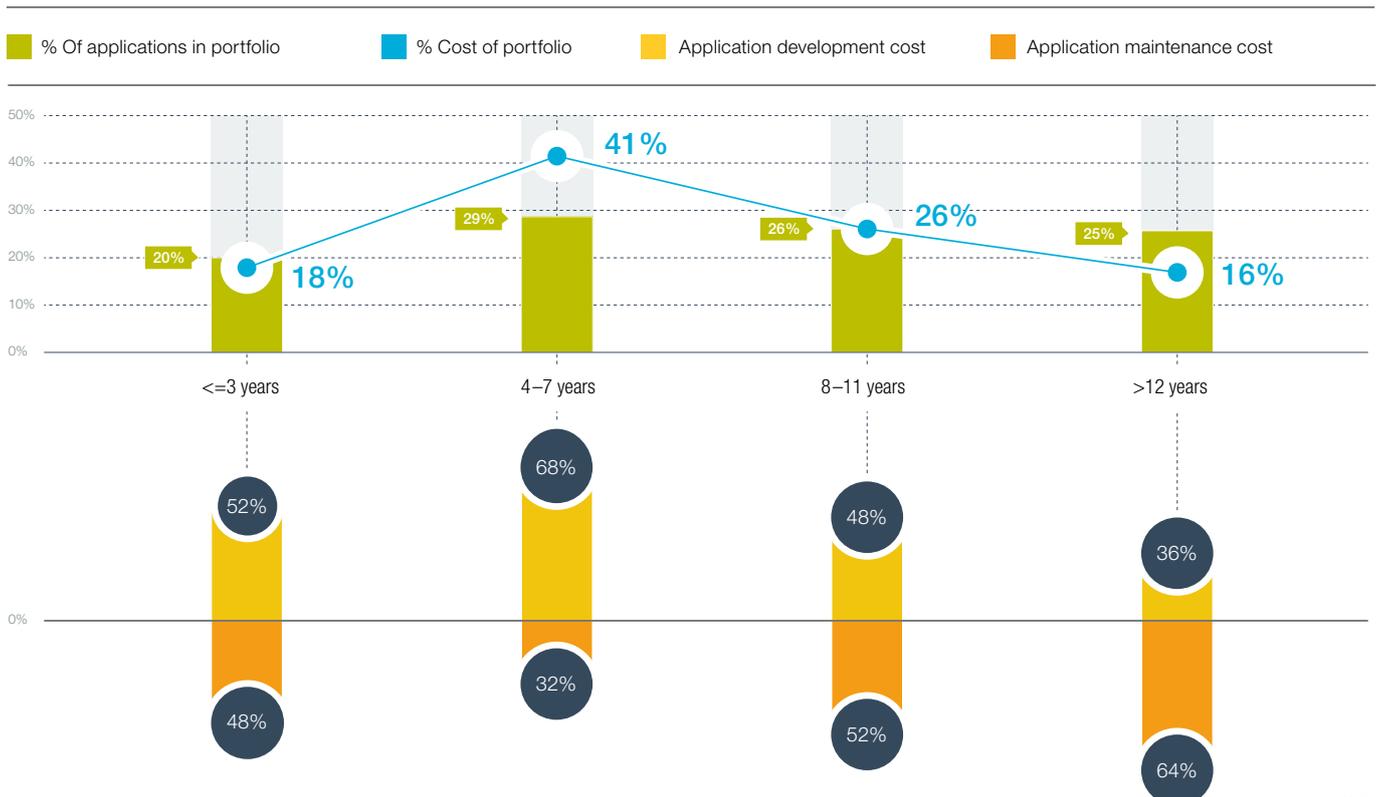
More than 150 organizations from a variety of sectors across the globe have rationalized more than 30,000 applications with the help of the Wide-angle Application Rationalization Program (WARP).

The WARP Center of Excellence (CoE) has played a key role in these activities. With its dedicated focus on application landscape

rationalization and specialized capabilities in IT strategy and transformation, the WARP CoE assists clients with a structured approach towards assessing their IT application portfolios and provides the initial key steps to identify opportunities for rationalization and modernization in the landscape.

In the process, the CoE has collected a wealth of metrics providing crucial insights into various aspects of IT organizations worldwide today – challenges faced, cost structures seen and trends in IT strategies, to name a few. By grouping applications according to their time since launch within the landscape, an interesting picture emerges of the typical investment and cost strategies adopted by organizations today.

### 5.1 Trends in application cost spread across IT portfolios



When applications are initially deployed into the landscape, equal priority tends to be given to investing in both their maintenance and further development. Once they are better established and aligned with business operations, their functional scope tends to be enhanced, resulting in a spike in development costs. Applications in this group are seen to be most productive, and are accompanied by correspondingly high costs.

Beyond this phase, the focus increasingly shifts away from further development of the applications. Run and remediation measures are given priority here, while functional enhancement takes a backseat. In the case of these more mature applications, initiatives like standardization, migration and upgrade of obsolete technologies assume higher significance. In more extreme cases, discussions on replacement strategies, either in terms of more modern front-ends, virtualization initiatives or entire overhauls, take place here.\*

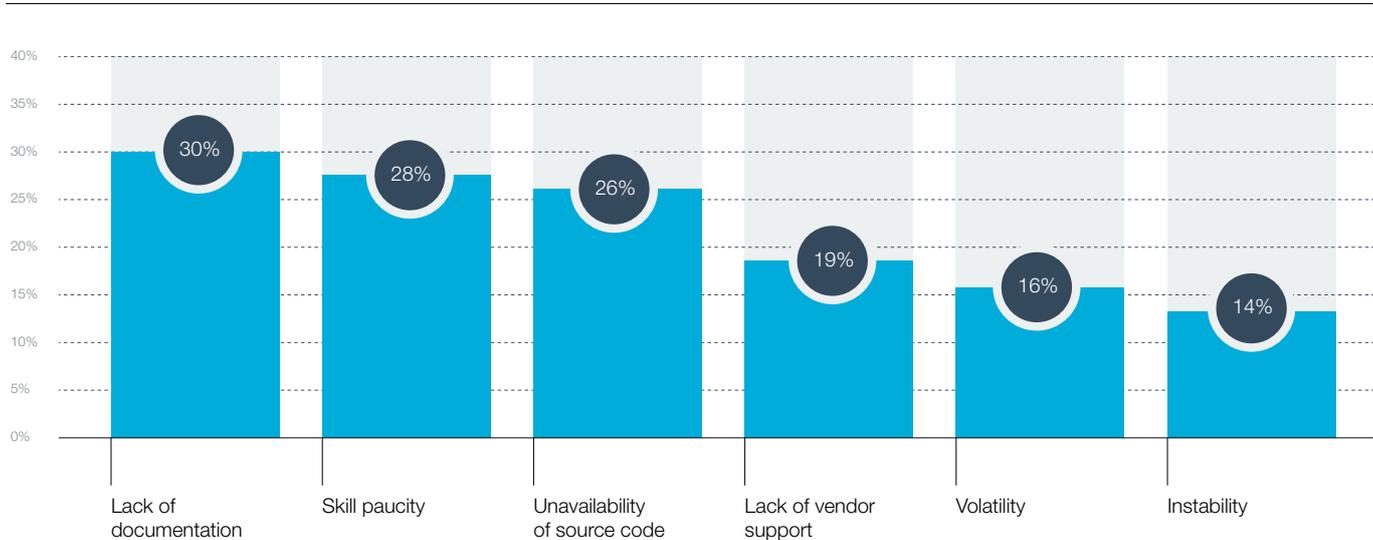
This increasing proportion of application maintenance (AM) costs is used to deal with a variety of challenges that are faced in the application landscape. The WARP CoE’s experience with handling typical IT landscape problems yields key insights on what these challenges or IT landscape risks are.\*\*

Availability of up-to-date and accurate documentation for an application is seen as a vexing problem in the application landscape with close to one-third of applications exhibiting this risk. This threat is pronounced in the case of legacy applications

“  
*A regular, focused approach for IT portfolio assessment provides key insights on the enterprise-wide architecture and its alignment with business strategy.*”  
 Director  
 Australian Professional Services

that have gone through multiple updates over the years. When present in conjunction with skill paucity, the risk is heightened since this indicates that there is insufficient knowledge about the working of the application either in documented form, or in the presence of knowledgeable staff.

✔ 5.2 Key challenges faced by IT landscapes



\* For more information see: <http://www.capgemini.com/resources/application-portfolio-cost-reduction-strategies>  
 \*\* For more information see: <http://www.capgemini.com/resources/assessment-model-for-application-risk-and-mitigation-recommendations>

One-fourth of custom applications suffer from lack of access to source code. This is seen in such situations where multiple updates from various sources have occurred, for example, or when software development was effected without proper governance processes. This can have a serious impact when it comes to the need for future functional enhancements or maintaining efficient operations. In these situations, organizations have been forced to replace entire applications due to the unavailability of source code.

Some applications have a lot of their information placed in the hands of external vendors, for both development and maintenance. In these situations, it is essential that the portfolio is constantly monitored to ensure that the applications are kept in good health, and their quality and maintainability can be improved.

Instability is a function of the errors and bugs that the application faces in the course of its normal functioning, while volatility is a measure of how often the functionality of the application changes. Both these factors are present in around 15% of the applications, and result in additional effort and resources being expended on the application. A root cause analysis is recommended as the first step towards resolving these challenges.

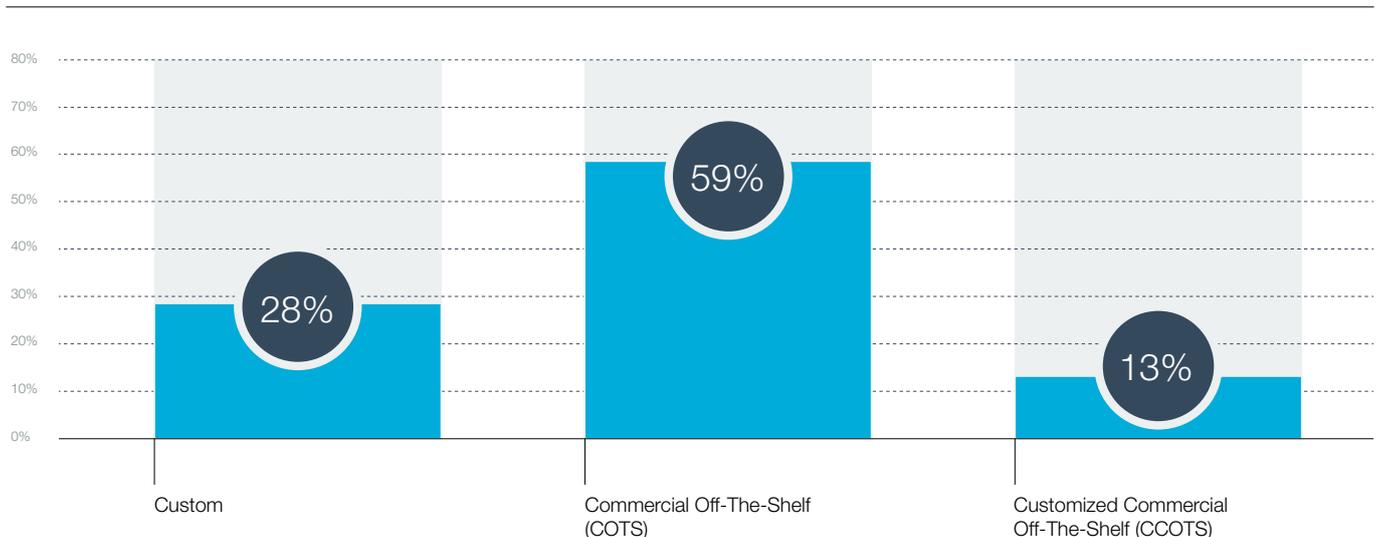
A large number of the problems cited above can also be tackled by adopting a focused, enterprise-wide approach towards greater deployment of standardized, package-based solutions. However, based on the WARP CoE's experience, close to 30% of a typical application landscape still consists of custom, bespoke applications.

“

*...it is essential that the relationship with the vendor is constantly monitored to ensure that the application is kept in good health.”*

As detailed earlier, in spite of the inherent advantages of adopting packaged applications as a strategic initiative, it does not necessarily pay to follow a blind replacement of custom with packaged applications on a whole-scale basis. Instead, opportunities should be explored to cater to specific business functionalities in more effective ways (for example through BPM and Mobile front-ends), and to adopt new service models such as Cloud, while implementing packaged solutions.

### 5.3 Typical application landscape profile by nature of application (custom/packaged)



# Recommendations

## **The application landscape always needs to be on the move, reflecting the current needs and objectives of the organization while they continuously evolve.**

Based on the findings of our survey, the in-depth interviews we had with IT leaders and our experiences with improving application landscapes, we recommend that ongoing analysis, building a mutual understanding with Business and a focus on rationalization will result in tangible steps towards a healthier, better aligned application landscape.

### **Industrialize and standardize first**

We recommend taking a fresh look at the application landscape as a whole, applying industrialization and standardization even more rigidly to rationalize its foundation. Look for opportunities to mutualize resources, improve documentation, refactor software, consolidate overlapping applications, eliminate redundant applications, replace aging and high-risk technologies, get rid of excessive customization and to improve development and application management productivity.

Only then, innovation and renewal can be built into the application lifecycle, continuously delivering the next generation of high-value applications to Business.

## **Consider more radical rationalization scenarios**

For some, though, industrialization and standardization may no longer be sufficient as the pent-up demand for the next generation of applications by Business increases considerably and the pace of application landscape renewal proves to be too low.

Alternative rationalization strategies need to be considered in that case. In this report, we have identified newly preferred strategies that on one hand address opportunistic, short-term needs (e.g., extending existing applications with web and Mobile front-ends, using APIs and platform technologies) but also more radical strategies that aim for daring, impactful changes (e.g., “ripping and replacing” legacy custom or ERP applications by highly standardized SaaS solutions). In the latter case, though, the transformative impact on the organization, its processes, its governance and its people should not be underestimated, the benefits can be considerable.



## Leverage the next generation of solutions

Because the mounting need for application rationalization is partially driven by the availability of Social, Mobility, Big Data and Cloud solutions, this next generation of solutions can be used to add new impulses to the application landscape. As the perceived business value of these solutions is often high, more compelling business cases can be made for the improvements that need to be made in the underlying, core applications. Also, the new wave of applications typically comes with advanced (Cloud-based) platforms that provide alternative ways to unlock legacy applications and link them to the new front-ends. Done in the right way, the application portfolio would be a convincing mix of new, high-value solutions and critical changes to the underlying foundation.

## Embed innovation in the application lifecycle

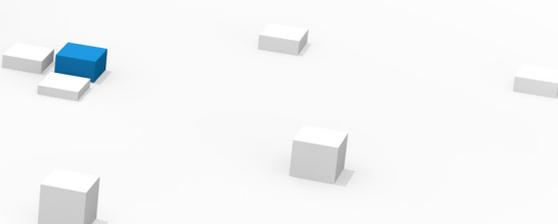
It is tempting to focus on the daily challenges of “keeping the lights on” of the application landscape. As running and operating existing applications often seems to require a different mindset than innovating them, renewal is often – most likely involuntarily – forgotten. Innovation should therefore be built into the applications lifecycle (and if applicable, into any application management or support contract). For example, this can be done through organizing periodical trend workshops, the obligation to dedicate a well-defined part of the project portfolio to innovative solutions or more organizational measures such as establishing an innovation governance element (like a “value office”) or simply crowdsourcing suggestions for improvement.

## Systematically use facts and metrics to create more mutual understanding

In the end, agreeing on how to rationalize and innovate is only possible once Business and IT develop a mutual understanding of what the current state of the application landscape is and where it needs to be improved first.

Consider tools for application mapping and assessment, and for application portfolio management. Use these tools – among other things – to relate applications to business processes, so that the business impact and value of applications become clearer and more tangible. This helps to make rationalization decisions and establish priorities based on business criticality. Also pay more attention to business case development, business outcome-driven dashboards and even “value engineering,” as they provide powerful, objective means for communication between the various stakeholders. Do realize, however, that the maturity needed for using these tools effectively needs to be built up over time.

With this, both factual insights and engaging storylines can help to create the forward-looking, collaborative atmosphere that is needed to fuel real Digital Transformation.





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We would like to express our gratitude to those individuals and organizations that dedicated their time to participating in the survey and enhancing the richness of this report.

## About the study

For this report, we surveyed over 1,100 CIOs and top-level IT decision-makers in companies of various sizes within a wide range of industries. With the emphasis on global coverage, 16 countries were covered as part of the survey, with 53% respondents from Europe, 27% from the fast-developing countries (China, India, Brazil), 10% from USA, and 10% from Australia. The results of this survey were supplemented with insights from in-depth interviews conducted with business CIOs and top IT managers across geographies and sectors.

In addition, we gathered data points for this report from the extensive application landscape data repository available with the WARP CoE, and have discussed them in the WARP CoE section in this report. This repository is a database of key application metrics collected over four years of the CoE's experience in IT strategy and transformation exercises, spread across sectors and geographies, and comprises data for more than 30,000 applications analyzed.

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