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## Seeing the forest from the trees.

To address the drivers of complexity within IT it is crucial  
to see the complete picture

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# Contents

Introduction	1
Alignment of IT with the business	3
Customers	4
Regulation	5
Technology	6
People	7
Conclusion	8

# Introduction

It is easy to assume that the increasing complexity of IT is a direct result of the increasing complexity of business – not so easy is the challenge of addressing this complexity. The drivers of complexity are many and varied and finding a clear route to simplification can prove overwhelming to many CIOs. But complexity is a critical issue and one that must be overcome.

Over the next few years, analysts predict that IT complexity will grow steadily and will eventually result in the majority of organisations facing reduced value from their IT investments. As reduced value from IT leads to a poor perception of the IT function, this is not something to be taken lightly.

Increasing IT complexity is an inherently difficult issue to address, existing as it does across multiple dimensions. Identifying the drivers of complexity is the first step towards addressing the issue and, to do so, we conducted research amongst more than 400 CIOs around the globe. Our findings form the basis of the following document.

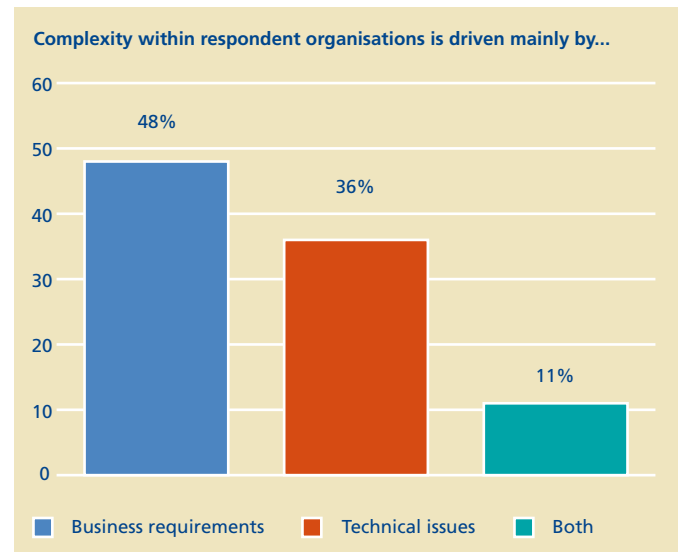
Our research showed us that the drivers of IT complexity fall into five core groups. This ‘complexity cocktail’ includes alignment of IT with the business, the needs of customers, the impact of regulatory requirements, technology (both existing and its evolution) and people. This document examines each in turn.

Globally, our research showed that 50% of CIOs rate their current systems infrastructure as complex or very complex because of the complexity of business requirements; 48% of CIOs highlight business requirements as the no.1 driver of IT complexity. But is there a vicious cycle here? CIOs highlight that IT complexity is driven by changing and complex business requirements but does this continual race to keep pace with the business result in a complex environment of legacy technology and disparate systems that need to be managed?

Add to this an increasing regulatory burden diverting IT resources and the need to find, develop and retain skilled people and it’s no surprise that the picture is complex.

Simplification is needed, but it’s important to look at the whole picture, rather than any single element in isolation. After all, it is difficult to complete a jigsaw if you can’t see the complete image, or only have half the pieces...

**Paul Robinson**  
January 2007



**“Simplification is needed, but it’s important to look at the whole picture, rather than any single element in isolation.”**

“In the UK, 47% of CIOs rate alignment of IT functions to business process as having strong impact on complexity, with this figure increasing to 58% of CIOs globally.”



# Alignment of IT with the business

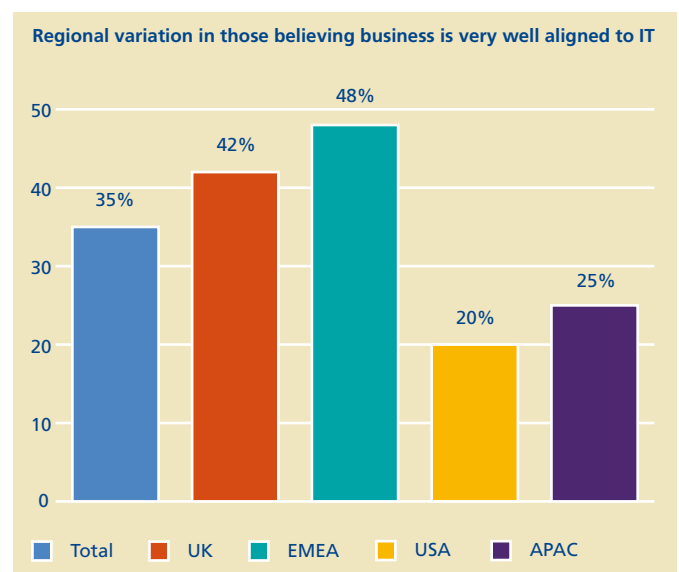
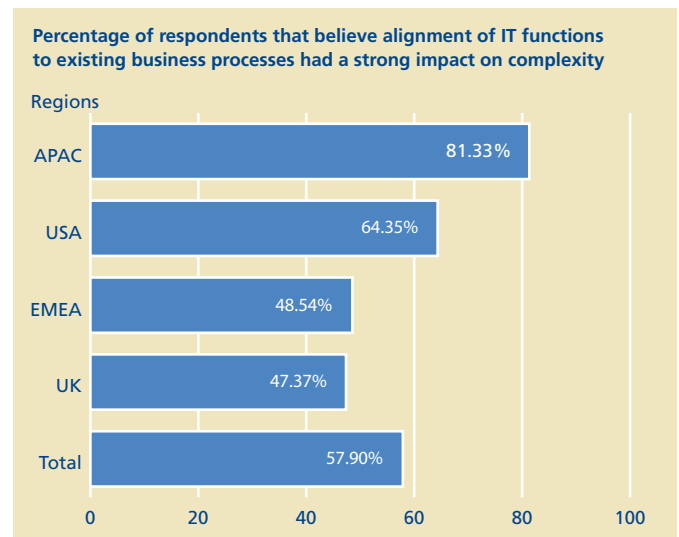
Alignment of IT with the business is consistently highlighted as the number one priority for CIOs. Failure to do so is seen as the primary issue in IT not being recognised as delivering value to the organisation as weak alignment of IT to business process and organisational strategy damages the credibility of IT. In our own research, 64% of CIOs feel that “ensuring that IT delivers to the expectations of senior business management” has a strong impact on IT complexity.

In the UK, 47% of CIOs rate alignment of IT functions to business process as having strong impact on complexity, with this figure increasing to 58% of CIOs globally. More than one in five UK CIOs (21%) also see improved alignment of IT and business strategy as being their number one priority over the coming year, the most frequently cited response.

Interestingly, 42% of UK CIOs believe that their IT function is already ‘very well’ aligned with existing business operations, lagging a little behind their EMEA counterparts (48% with ‘very good’ alignment), but comfortably well ahead of CIOs surveyed in the USA, where only 20% of CIOs claim ‘very good’ alignment). However, only 37% of global CIOs felt that the IT function supported the strategic direction of the organisation ‘very well’, with this again being lowest in the USA, at just 30%.

There is clearly a marked difference between the perception of CIOs in the US regarding IT alignment with the business (i.e. fewer regarding this positively) and those throughout the rest of the world. This is particularly interesting as US CIOs also said that they spend more of their time on “developing IT strategy and roadmap with the business” (25%) than, for instance, their counterparts in the UK (at just 16%). Perhaps, in spending more time on strategic activity, US CIOs are better placed to see the scale of the issue than their peers in other parts of the world.

The findings raise a question regarding where within the organisation responsibility lies for effective alignment of IT to the business. It is simple to point to this being a fundamental aspect of the CIO’s role. However, when in many organisations IT is regarded as a separate entity to the main business, CIOs are uninvolved in strategic decision-making and IT is seen as a back-office function, can the CIO be expected to effectively align IT to the strategic direction of the business?



# Customers

Meeting the demands of customers is clearly critical to business success and has an increasing impact on IT complexity. Technology to support new product and service development, the support of existing products, the management of customer relationships and the provision of new – often technology-driven – channels to market all have a significant impact on IT strategy, solution development and support.

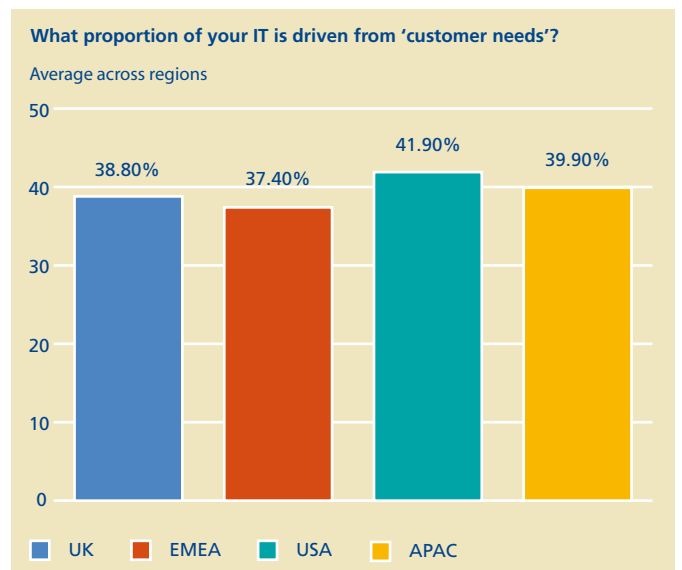
Our research highlights customers as one of the top three drivers of day-to-day IT complexity, cited by almost a quarter of global CIOs (23%). More than half of global CIOs (51%) feel that IT had a strong impact in retaining the organisation’s existing customer base and the same number felt that IT had a strong impact in supporting the development and growth of the customer base.

Supporting this growth imperative brings a real challenge for CIO’s. Moving at the pace that customers demand requires flexibility and quick response times. The services that can add the most value in customer relationships also seem to bring inherent complexity – for example, integrating processes and data with customers can cut admin and increase profitability, while also making it harder for customers to switch to competitors – but if every customer deal is different, so will be the integration. And the support demands from this ‘external user’ community also bring a new burden to the IT function.

Clearly new ways of working are required to bring IT closer together with commercial functions and customers – with IT increasingly seen as part of the extended product/service offering to the customer. Too often the IT element of that product/service is an afterthought. Planning ahead for this, with IT involved in defining the offering, enables some standardisation and simplification to be brought to bear on what will always be a complex and rapidly-changing area. IT also have a value-adding role to play in helping the business to access and leverage the data and insights captured as a result of more closely-integrated customer relationships – managing customer data as the valuable asset that it represents.



**“Meeting the demands of customers is clearly critical to business success and has an increasing impact on IT complexity.”**



# Regulation

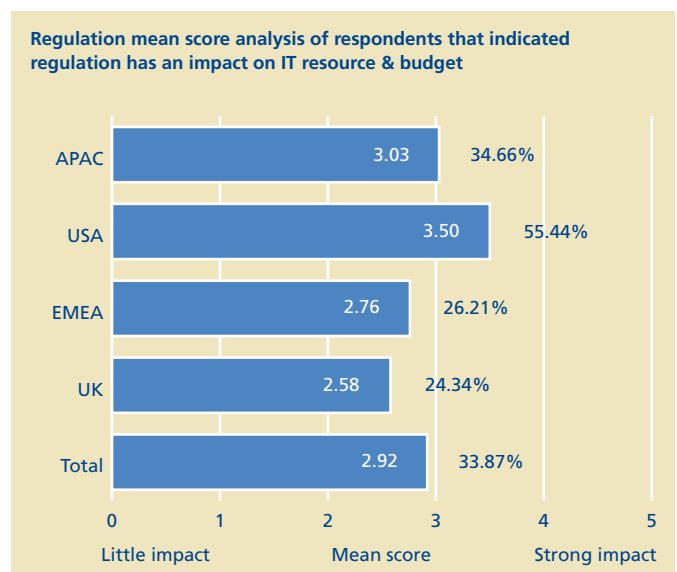
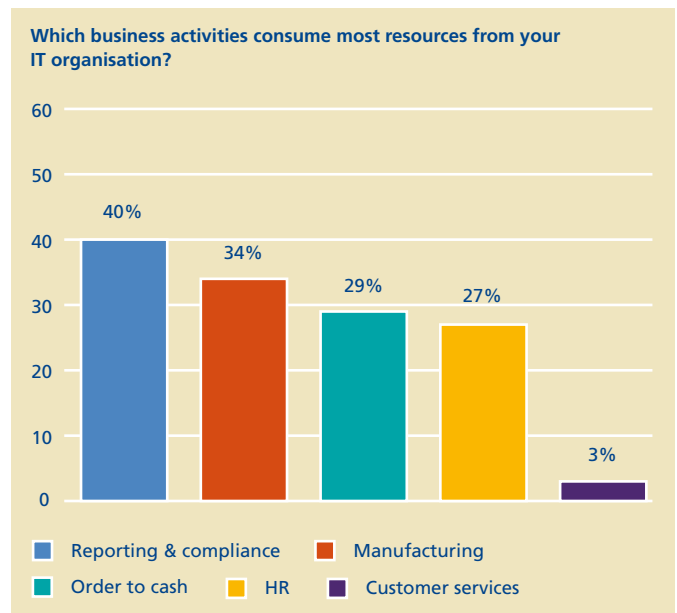
Regulatory compliance requires the modern day CIO to remain aware of both new and existing regulation, while ensuring that the IT environment is compliant with international, country-specific and industry-specific legislation. Over the past 10 years, more than 30 regulations have been passed that have a significant impact upon the IT function, including the Sarbanes Oxley Act, Basel II, Homeland Security Act, and more stringent Data Protection regulation.

Often, regulatory compliance efforts are treated as stand-alone tactical projects rather than as part of a strategic restructuring of IT assets, leading to increased complexity. With the requirement for increased transparency and better protection of customer data the regulatory burden on business can only intensify. A piecemeal approach will simply drive further complexity.

Nearly half of all CIOs surveyed in our research (48%) state that implementing regulatory requirements was having a strong impact making IT more complex. This figure increases to 61% of CIOs in the US, where regulation such as the Sarbanes Oxley Act has had most impact (though SOX is mentioned as having some impact in all regions).

As the business activity that consumes more resources from their IT organisation than any other, reporting and compliance is highlighted by 40% of all CIOs and a staggering 66% of CIOs in the US. Indeed, in the US, more than half of CIOs see regulation taking IT resources and budget from other IT projects. It is clear, therefore, that corporate governance projects divert IT budget from strategic investment projects; that programmes that are not aligned with compliance and corporate governance are being delayed or even cancelled.

Analysts highlight that spending on IT for regulatory compliance is likely to grow significantly; some claiming that it will climb at twice the rate of overall IT spending over the next few years. However, much as regulatory requirements and corporate governance projects are currently adding to IT complexity, they also point to a changing role for the CIO; from that of technical planning to increased involvement in strategic business decision-making.

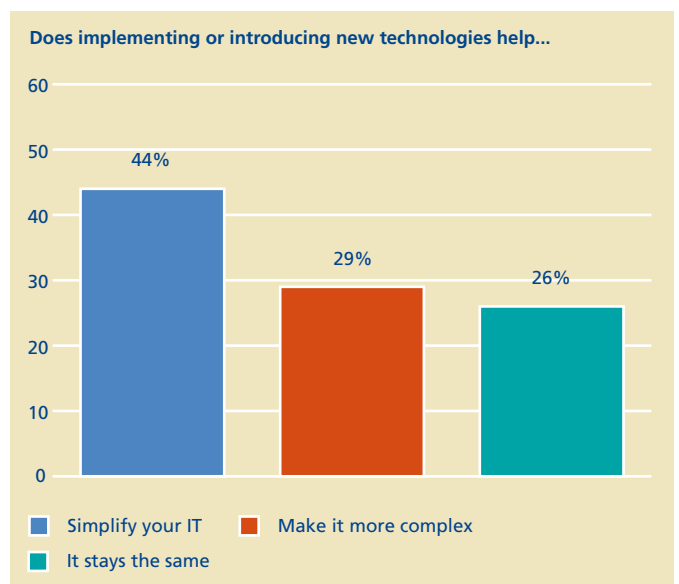
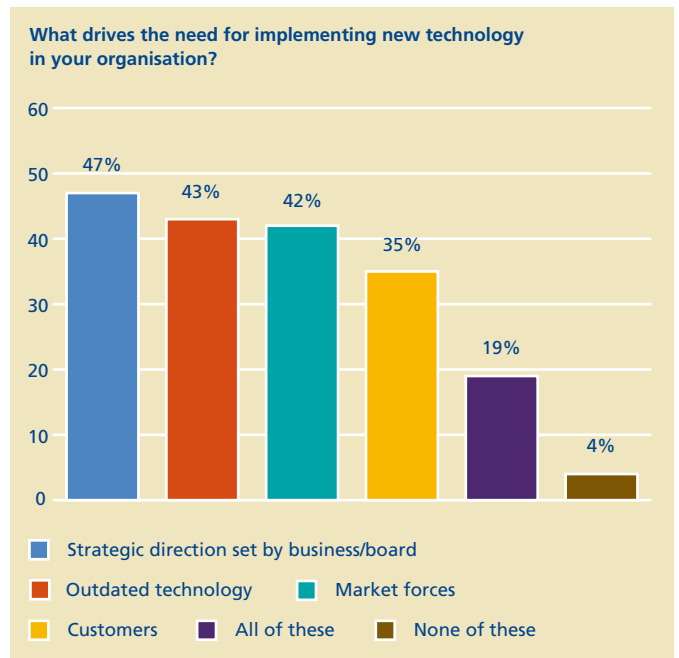


# Technology

In relation to technology, two key factors impact IT complexity: the need to implement new technologies, and the requirement to integrate and maintain existing legacy systems. More than half of CIOs surveyed (55%) feel that multiple systems, applications and platforms had a strong impact on IT complexity and it is estimated that the vast majority of organisations will remain locked into multiple types of technical architecture for years to come.

The top three reasons cited by CIOs as driving the implementation of new technologies are the strategic direction set by the business (47%), the replacement of outdated technology (43%) and market forces (42%). Though one in ten feel that the implementation of new technology is a direct cause of increased IT complexity, a much larger proportion (44%) feel that new technologies help simplify their IT. However, more than half of CIOs (55%) think that the implementation and maintenance of new technology has a strong impact on complexity within the business.

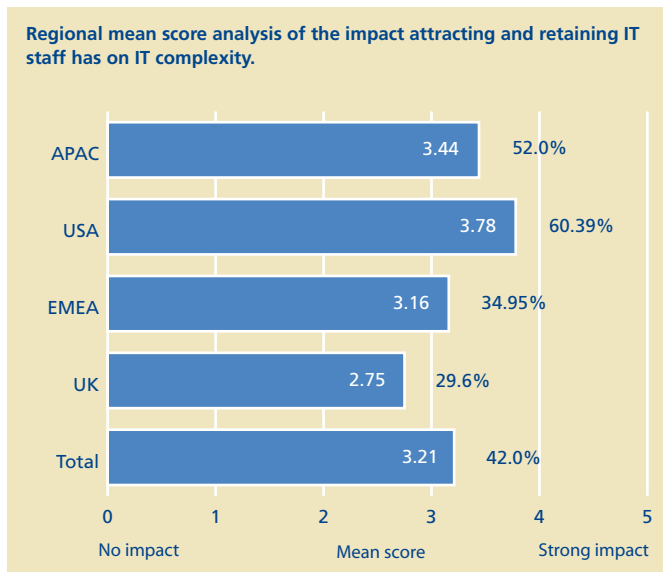
Looking forward, businesses are likely to be driven to implement numerous new technologies; from the proliferation of mobile and wireless, to emerging technologies such as Voice over IP, to Next Generation Architectures. In addition, with greater access and openness of systems and data across the business – and the wider business ecosystem – implementing security policies, procedures and products appears to be a key driver for complexity. In this environment, security is the second most common factor mentioned by CIOs as causing “most concern or causing your IT structure to be unnecessarily complex.”



# People

A key challenge for many organisations is finding the internal capabilities to both manage and improve their technology environment. A lack of required skills and experience not only hinders efforts to overcome complexity, but exacerbates the issue as senior IT executives strive to fully understand the capability requirements of their organisation. In addition, even when IT teams demonstrate good technical skills, their project management skills and ability to execute complex programmes can let them down and lead to a high proportion of project failures.

People clearly play their part in driving a more complex IT organisation, whether this is their attraction, retention or training. In all, 42% of CIOs globally feel that the attraction and retention of trained IT staff has a strong impact upon the complexity of their IT organisation, with this being most acute in the US, with 60% of CIOs highlighting the issue.



“Though one in ten feel that the implementation of new technology is a direct cause of increased IT complexity, a much larger proportion (44%) feel that new technologies help simplify their IT.”



# Conclusion

## Top five drivers of IT complexity:

1. Aligning IT to rapidly changing business demands.
2. Implementing solutions to support the increasing regulatory burden.
3. Finding, retaining and training staff with appropriate technical and management skills.
4. Increasing demand for innovative technology as a profitable channel to acquire and retain customers.
5. Integrating and maintaining mixed-architecture legacy infrastructure.

The obvious answer to complexity is, of course, simplification. The benefits of simplification are clearly recognised by CIOs and are highlighted as cost savings (63%), being able to do things more quickly (61%), improvement in internal IT structure (50%) and increased competitiveness (49%).

However, simplification is easy to say, but less easy to do. Paradoxically, though nearly three-quarters (72%) of CIOs feel that the benefits of simplification would outweigh the costs, issues relating to costs are still cited as the main barrier to simplification by 39% of CIOs.

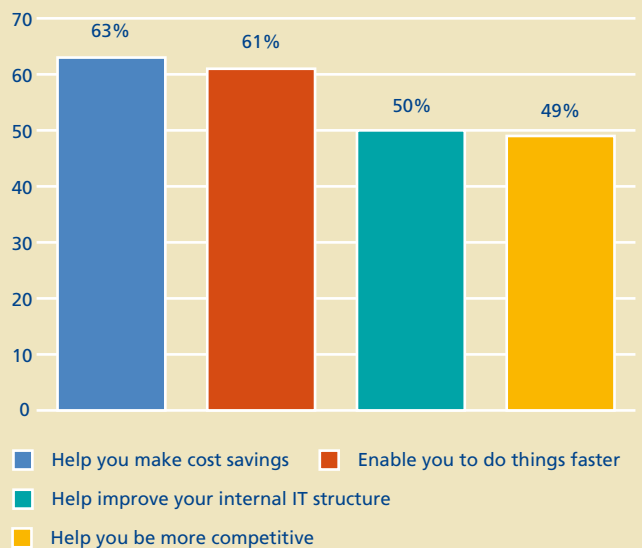
Does this point to an inability to build a convincing business case for IT simplification? Furthermore, with the top answer to the question of what would drive their organisation to simplify its IT structure being “system failure or necessity”, are CIOs sitting on their hands waiting for disaster to strike before the case for simplification becomes clear and allowing simplification to become a reactive issue?

Many claim that outsourcing can play its part in the process of simplification, though CIOs are more sceptical, with only 41% believing that outsourcing is a means to reduce IT complexity. Of more potential benefit, in the eyes of CIOs around the globe, is the establishment of partnerships with vendors and suppliers, with 61% saying that they felt these can drive a reduction in IT complexity.

Reducing complexity is essential if IT is to become more closely aligned to business objectives and therefore deliver increased value. The CIO needs to look across the IT organisation at all the drivers of complexity, and identify the levers that will have greatest effect in simplifying the picture.

To return to our original analogy: when tackling a jigsaw, it is best to start with the border. Once the framework for the complete image is in place, it is far easier to fill in the details.

Thinking of simplifying your IT environment, what do you see as the main benefits or advantages to you and to your business?



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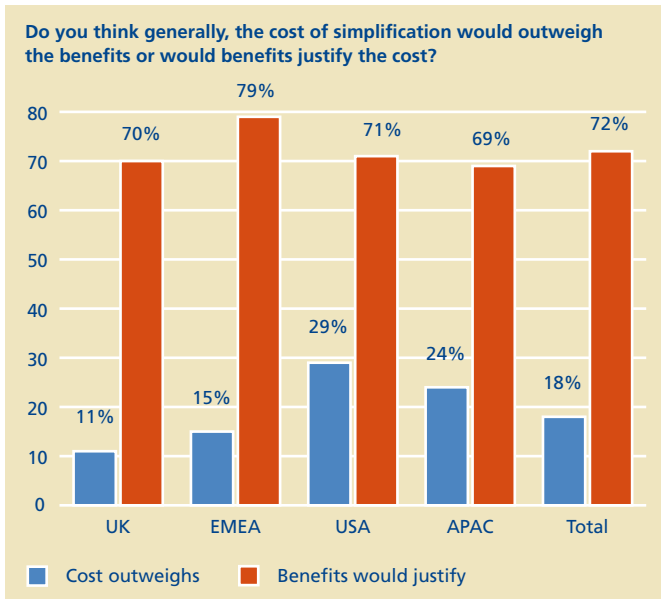
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