



Keeping up with the pace of IT change

What can c-level do to plan organisational value for critical stakeholders?



Introduction

The capabilities of IT are now so powerful that IT improvement is the primary mechanism for c-level to be able to add organisational value to critical stakeholders. In the technology driven world, there is a constant pressure for organisations to meet demand for enhanced functionality, keep up with market trends and react quickly to the competition.

Many organisations are addressing the problems associated with IT estates through a variety of commendable approaches including vendor outsourcing, adoption of Agile practices and improving testing processes. Yet they are still experiencing project pains and failures, which could have a crippling effect on the value of such programmes, and ultimately the success of their business. To help overcome these critical issues, our whitepaper addresses your business objectives and will help you to:

- Accelerate the pace of IT change including system modernisation
- Adopt new technology
- Implement effective supplier management and
- Successfully apply multi-sourcing

In addition it illustrates how to integrate customer value with Quality, allowing you to change effectively and efficiently. Companies wishing to survive, grow and prosper simply cannot ignore these challenges driving the market now and in preparation for the future.

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Typical supplier related drawbacks are featured in figure 1 below. This diagram highlights that all too often your business ends up carrying out more extensive testing than the implementer of the change. Effective quality management allows the testing to be carried out earlier and a greater quality burden to be put on the 3rd parties or system integrators.^{1,2,3}

Quality management plays a vital role in helping companies keep pace with these changes, but for the majority little thought is given to this aspect of the process, with software programme development and testing often performed by an external supplier with little governance controls applied.

Organisations know that this approach can and must be improved^{4,5} and a proportion have succeeded on a small scale with pilots and sections of the business. However, when it comes to wholesale adoption across an organisation excuses

creep in, leading to inertia, project delays and ultimately the failure of systems that prevent organisations maintaining a competitive advantage over the more proactive, nimble and consumer-focused competition.

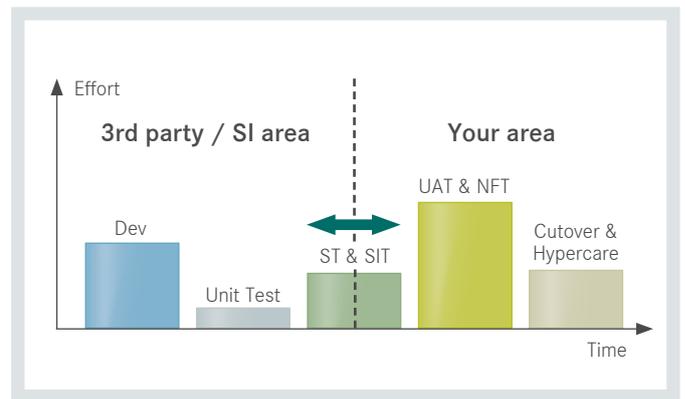


Figure 1: Common pitfalls of using suppliers

Impacting factors

“In the majority of cases, IT departments have struggled to keep up with the ever increasing pace of change.”

Dogged by a significant legacy estate, lack of appreciation of the speed of technological advancement and the way it would influence consumer behaviour, ineffective and often politically charged relationships between the business and IT, and budget constraints, IT departments have been forced to evolve through a series of tactical decisions as opposed to adopting a well thought through strategic transformation programme.

The reality is that you can only live hand to mouth for so long before it has a direct impact on your health and, ultimately, your survival. This is demonstrated by our annual survey which identifies the top 10 software failures from the last twelve months. Some of the top software incidents in 2013 include^{6,7}:

- Trading on the US Nasdaq exchange crippled for three hours
- A flawed algorithm in a trading system resulted in \$440m loss in 45 minutes
- A utility company paid \$2m in settlements having incorrectly charged 96,000 customers

1. Attitude towards technology

Recent developments in technology – including cloud computing and big data solutions – have given companies of all sizes an opportunity to compete on a global scale. Cloud computing for example has become a leveller where all organisations regardless of size or IT budget can have access to the same powerful technology. Big data solutions are helping organisations take the guess work out of decision making by providing ways of using and better analysing their vast amounts of data to respond to customer demands and behaviour. Younger organisations are often built with technology at the heart of operations, enabling them to react much quicker than their larger counterparts.

CIOs are increasingly challenged to move beyond maintaining the status quo⁸ – towards leading the organisation closer to the benefits that can be derived from the adoption of this new technology. The emphasis therefore has to be on speed to market and increasing the pace of IT change successfully delivered into production.

2. Loyalty towards legacy estate

Some CIOs perceive the legacy system of yesterday to still be up to the demands of today. An inability to realise the bigger picture and introduce change will result in organisations relying on complex process-heavy middleware and function-rich front-end. As a result, over time, the organisation will become crippled by technical debt, unnecessarily complex systems, and a slow rate of change.

Not only are legacy systems complex, they are often badly documented and the thought of re-designing an IT system that only a few long-term IT team members know how to maintain is daunting – especially when the current system is seen as up to the job.

3. Speed of technological change

Unless your core business is writing software, technological innovation is moving too fast to justify the expenditure to understand and implement the vast array of new technology available. We have worked with many organisations where the need to maintain and support existing applications prevents the investment required to take advantage of new technology, yet there is a critical need to leverage it to maintain a competitive edge.

A very real example of this is the vast delta between the banks competing on the high-street. On one hand, large retail banks with outdated technology face extinction⁹. On the other, the prospect of Atom, an entirely virtual bank, is challenging the validity of physical branches¹⁰.

4. Demand exceeds supply

As consumer behaviour evolves, so does an organisation's use of technology. Not only do organisations interact and transact with target markets in more ways than ever before, there is now constant pressure to meet demand for enhanced functionality, keep up with market trends and react quickly to competitive "topping".

For example, it is widely acknowledged that mobile technology is the near-term game changer in car insurance¹¹ and is changing the way insurance companies are interacting and transacting with their customers. Mobile presents a significant opportunity for insurers to innovate and, in doing so, appeal to their chosen target audience in new and exciting ways, tapping into their big data repository and packaging readily available information.

"For many organisations, this unprecedented demand for technology far surpasses their ability to deliver IT based on current processes and procedures."

5. Poor quality management

The majority of organisations have suffered at the hands of poor quality management. Fortunately many of these incidents are internal and do not adversely impact the brand; however, there is a cost associated with every quality issue. As software becomes more pervasive, achieving appropriate software quality becomes of paramount importance to an organisation's success. Surprisingly, even the significant tangible and intangible risk associated with poor software quality, is often overlooked at board level and played down in statements to corporate investors.

"For 20 annual reports issued in 2013 for large retailers in the UK, with a combined turnover of £239bn, the average number of corporate risks identified was 14 but the average number of risks that were explicitly related to IT was three."

We believe that investors would do well to challenge the relationship between software quality and the ability of these organisations to improve their trading position and reduce their business risk.

6. Testing takes over

Testing still remains a strong focus for most organisations striving to improve production quality and there is no shortage of mechanisms to improve testing efficiencies, but the key risk is that testing is only one of the mechanisms used to raise the quality ceiling. The later in the lifecycle testing takes place, the more inefficient it becomes. Testing identifies defects, it does not improve quality. The reality is that effective mitigation requires quality to underpin everything that you do and that the approach taken is proportionate to risk presented to your business.

The key is to start with the end in mind and adopt a holistic approach to quality that comprises a set of activities shared across the entire lifecycle, not to rely on any single phase to take sole responsibility.

7. Inefficient outsourcing

In our experience, it is unlikely that any large-scale outsourcing is a pain free experience – for supplier or client – and, after some initial cost savings, it is common for the relationship to turn sour.

Typically, the driver for outsourcing is cost reduction. However, indiscriminate outsourcing of IT delivery as a whole often costs the organisation more. There is the pain of transition at the outset, increased management and rework costs, poor quality resulting in damage to the brand and the organisation's reputation – this list is endless. The time-cost-quality savings often promoted as the reason behind the decision often do not consider the increased risks associated with such a move, nor does it get to the heart of the problem.

In reality it's not practical, nor feasible to go it alone. It may also be the case that larger business process outsourcing (BPO) and Information Technology Outsourcing (ITO) organisations are too strongly focused on reusing existing practices and processes to maximise savings achieved. If this is the case, it is feasible to assume that this will result in less investment in and adoption of innovation. Regardless, flexibility is the key.

Live Example

Global retailer enables ambitious expansion plans by putting major technology initiative at its heart.

Aggressive growth plans became a driver for IT change for a major global fashion retailer. A key part of the process was to ensure that integration and upgrades could take place smoothly with no risk to the business. A lack of control was evident from the multi-vendor approach that had been implemented. SQS was brought on board to spearhead a change management programme and ensure smooth system integration.

The successful project provided common testing and a quality assurance framework, allowing the client to retain their multi-vendor approach. This gave the retailer confidence in their IT transition and future scalability.

The trend to outsource to one, maybe two larger suppliers does not necessarily provide:

- the best solution,
- optimum flexibility,
- best-in-class suppliers or,
- adequate commercial competition to ensure value for money

Agile approach

There are many reasons why Agile is promoted as a preferred IT delivery method to enable organisations to keep up with the pace of change¹². We are of the opinion that an Agile approach can be much more efficient than a more conventional sequential delivery model and this is also the position of the Scaled Agile Framework initiative (scaledagileframework.com).

Keeping up with the pace

Change presents a significant challenge, but also a huge opportunity, if approached in the right way.

A new IT approach focused on constant low-risk change, where risk is shared with multiple best-fit suppliers, will increase the rate of business functionality delivered into production; and enable your organisation to better connect with its customers and respond quickly and effectively to the competition and help you to lead in your market sector as featured in figure 2.

Fear is understandable. But it is important not to let fear take over. Unless an organisation embraces the need for a new approach to IT, the speed at which change is delivered will continue to be hampered by the high inertia parts of your IT estate.

1. Align business and IT objectives

The top-level strategic business objectives are consistent across most organisations: improve the top line, increase profits and reduce risk. Taking a closer look at an organisation's specific business objectives in consideration of industry trends presents an interesting picture.

For example, with mobile web adoption growing eight times faster than web adoption did in the 1990s and early 2000s¹³, and an increasing trend for consumers to interact with organisations via mobile devices, organisations have an opportunity to use the power of mobile to engage with their target market in ways that simply have not been possible until now. The speed at which new products can be made available to the target audience challenges the traditional approach to IT delivery, causing organisations to rethink what IT delivery characteristics will truly support the business objectives given the speed of technological advancement.

2. Quality is key

Quality management is not a new concept. For more than 30 years, Toyota has been advocating operational excellence as a strategic weapon and that quality sits at the heart of excellence¹⁴.

Aligned to the quality management concepts from ISO 9001: 2008, quality management should sit as a "wrapper" around product realisation and allow the business to focus on the core business needs, as featured in figure 3 (next page).

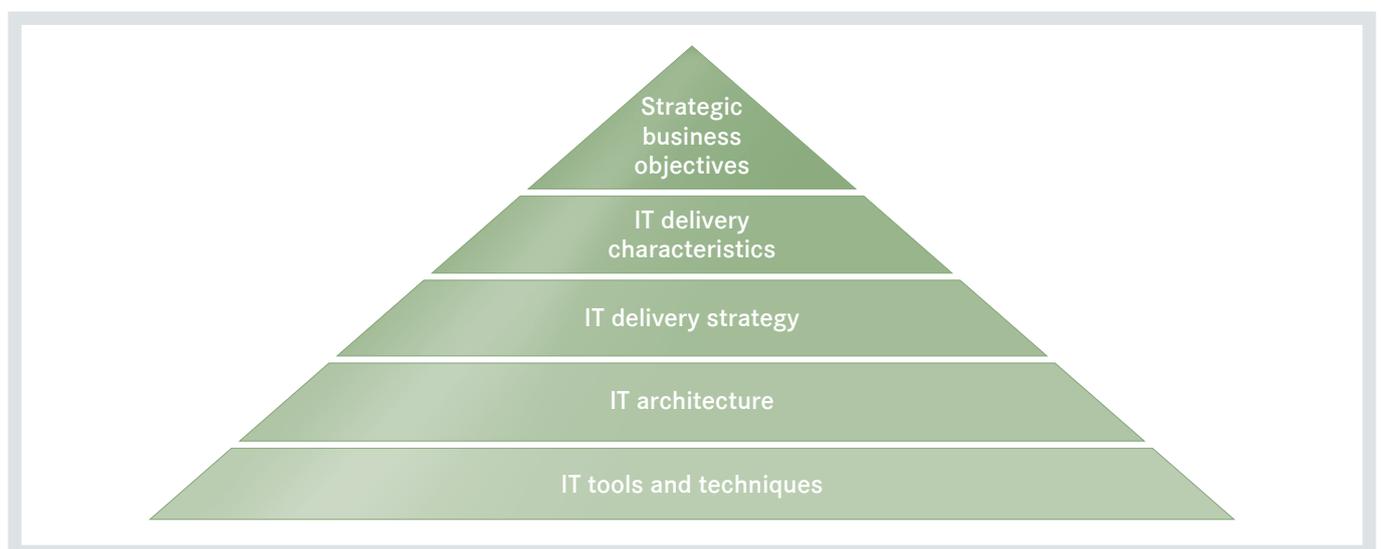


Figure 2 - IT supports business objectives

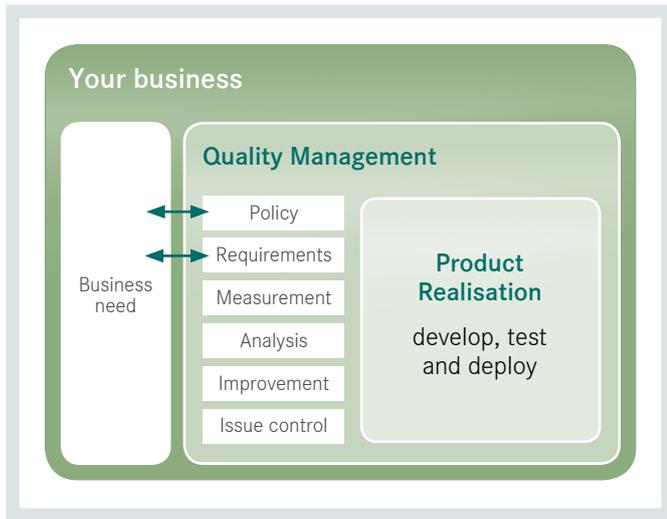


Figure 3 – Quality Management wraps product realisation

Software quality plays an increasingly important role in the value of organisations. Even now technical due diligence is performed as part of the legal process associated with mergers and acquisitions, assessing the ownership, the quality of code and the quality of the develop-test-deploy process.

The effective way to mitigate the risk of poor software quality is to control quality. Start by considering how you might change the value of your organisation by approaching quality in a more mature, measured and responsible way, learning the lessons of others, embracing quality standards and quantifying the quality of the software that you are dependent on.

3. Spread quality throughout the business

It is generally accepted that it is a good idea to discover defects earlier – not only are they cheaper to fix but they require less re-work and testing. In addition, detection of problems before code is created can significantly reduce defect multiplication in later phases.

The reality is that it is not just quality that needs to shift left but whole projects, with more being run in parallel. Realistically this means that quality needs to be spread throughout the business. Quality discussions about service virtualisation, test data and environments need to be pushed up within an organisation to get buy-in and investment as portrayed in figure 4.

The real truth from how your system operates comes from production, yet all too often we ignore the information that is available and do not honour the valuable data from support teams. All too often the accountability for overall quality sits with your organisation and the third parties and system integrators who helped create the solution are absolved from responsibility immediately after go-live or a limited period of hyper-care. By putting more of a quality onus on the suppliers of the solution it is possible to share the risk further.

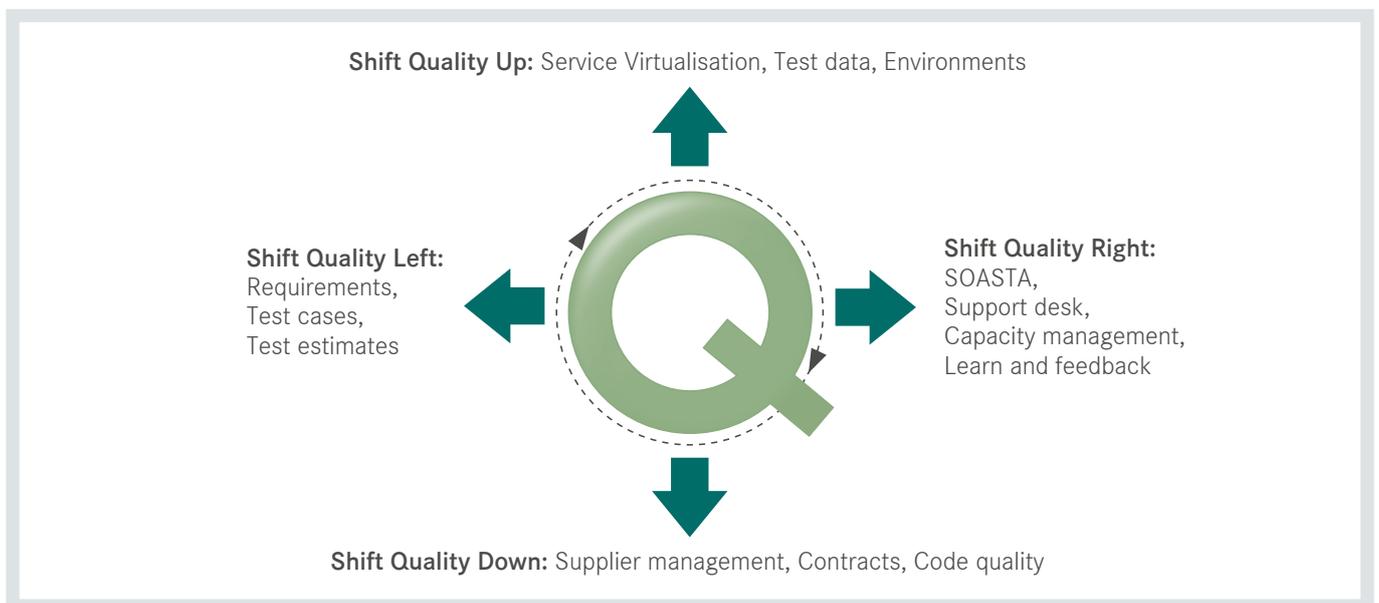


Figure 4 – Push quality into all areas of your business

4. Embrace agility

True quality needs to recognise that delivering the right thing at the right time is of paramount importance.

Agile delivers change quickly; however, most CIOs believe that a legacy estate is unsuitable for Agile development. The burning question is “can we deliver what is required now and in the future if we don’t adopt Agile principles?” The answer is that smaller changes that add business value delivered more regularly is the solution to “hitting the target” more frequently and that Agile is a proven approach to achieve this.

Not only will adoption of Agile principles increase the cadence of IT change, it also supports the ability to deliver in small components, each of which is aligned to specific business priorities.

Having the ability to be flexible in the delivery of business functionality means that there is a need to evaluate the projects that you are embarking on more frequently. To support this is project portfolio management (PPM), within which the merits of different projects are assessed in terms of pains and benefits for your organisation.

In our experience, few IT organisations revisit their project portfolio more than once a year. However, if all of the projects are being delivered in an Agile manner then it is possible to assess the value delivered, the cost and the quality on a much more regular basis.

In the case where you have shared your risk with a number of vendors then, your multi-sourced vendors need to provide you the required information so that you can make your PPM decisions more regularly and more effectively.

5. Outsource outcomes, not activities

In reality it’s not practical, nor feasible to embark on this transformation journey alone. To deliver the change and realise the benefits quickly, while minimising the risk of rapid technology evolution, there is a need to outsource IT delivery to multiple suppliers.

The product realisation of IT delivery should not be restricted to a very small set of suppliers for a long period of time. Your business can benefit from outsourcing to multiple suppliers, where each is selected on their skills, experience and expertise in a specific area and their ability to meet the new IT delivery characteristics.

As an example, one insurance company has a large outsourcing deal for the majority of its software development but uses a specialist boutique for the development of the actuarial algorithms.

Multi-sourcing within a pool of competitive vendors promotes the use of the right partner to do the right job in the smartest way possible. Committing to a single vendor for three years can appear to have commercial benefits but it may be restrictive as the technology and business changes in the next three years are likely to be diverse and surprising.

Breaking down barriers – six steps to transforming quality management

To overcome doubts and mitigate the risks associated with such a change, an approach to quality that enables the successful transition to a new IT paradigm is required. But this cannot be done alone. Using best-in-class suppliers for the delivery of IT change will enable the business to flourish now and in the future.

We have identified a six step best practice approach to transforming the role of quality management within an organisation and how to reap the benefits of IT change.

1. Immersion

The first step in transforming the process is to determine who might want to be involved and then immerse your existing staff in what you are trying to achieve. This should ideally be done in the spirit of true partnership where all parties benefit.

It is also important to identify the obstacles that are present within your organisation and develop some ideas about how these could be overcome. This should be done in partnership with your potential suppliers. The essential aspect here is for everyone to understand how sharing risk can be beneficial for all parties concerned.

2. People

There are five main questions to address for the people that are being asked to make the quality management journey:

- What talent exists in your organisation?
- What talent needs to exist in your organisation?
- Who can make the transformation journey?
- What is the proposed solution for any remaining people?
- Who will be involved in the quality management process?

There will be some contentious or difficult decisions to make about people but this is all about transforming the way in which IT delivery takes place and using multi-sourced providers to supplement in house skills. Large scale education programmes may also be required and it is important to consider these as early as possible.

When it comes to implementing the transformational quality management programme, as featured in figure 5, then it is necessary to set up a number of functions that move your business from the present state to the future state.

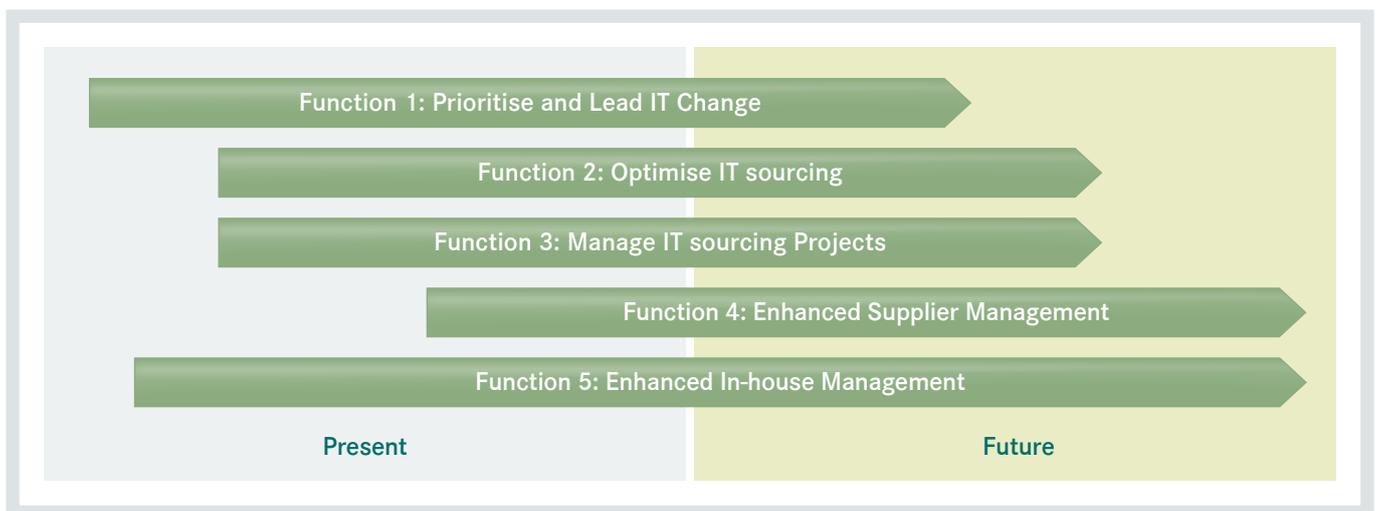


Figure 5 – Quality Management needs to operate across your business

The first function already exists in your organisation as the IT leadership team or equivalent. It may need to be augmented with additional expertise about identifying suitable candidates for outsourced support or development and will need to consider the implications of moving towards more granular quality managed solutions.

The second function concerns realising the maximum value of your existing assets before electing to outsource them. In the past, many companies have done large scale outsourcing without really understanding what was outsourced. This function needs to evaluate its assets properly.

The third function is a project management role, to move the outsourcing candidate to its new state. However, it needs to have a strong reliance on specifying the quality and development blueprint for each part of the outsourced IT estate. The function also needs to define the checklists that will be used to manage the supplier relationship.

The fourth and fifth functions are all about enhancing the way in which all aspects of the IT estate are managed.

The make-up of these functions varies and will consist of people from your business, people from quality management (which could be outsourced) and could well need some external advisors as well. Clearly the transforming of quality will take time and figure 6 should be considered as a possible end state.

3. Process

Each function has a role to play in transforming quality management within an organisation.

- Function one is tasked with prioritising and leading the IT change which will include strategic leadership of multi-sourcing and defining IT candidates for sourcing.
- Function two is tasked with optimising the IT sourcing by health checking the outsourcing candidates and identifying opportunities for optimisation and quick wins.
- Function three is tasked with managing the IT sourcing projects and engaging suppliers and defining governance models.
- Function four looks after enhanced supplier management through operational management and service delivery.
- Function five oversees enhanced in-house management.

Each stage comes with its challenges but for many it is just a case of repositioning many of the things that they do today to embrace a more flexible way of working and to encourage an Agile approach with suppliers as featured on the next page.

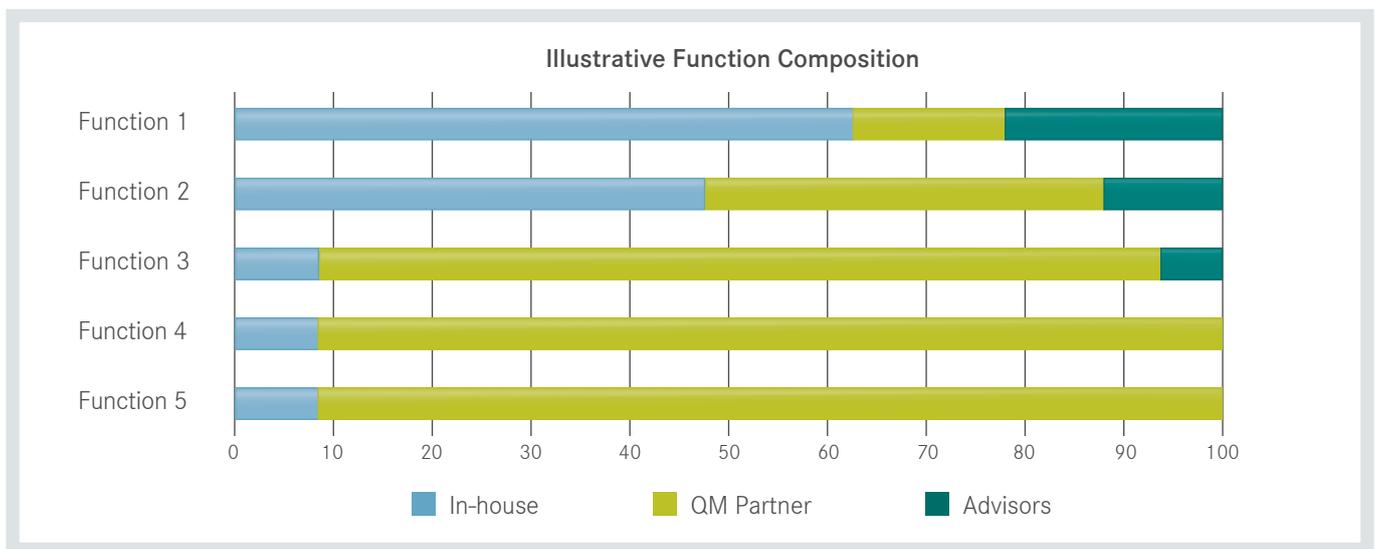


Figure 6 – Getting the right people involved is important

Main Process	Biggest Challenge
Control change of IT landscape	Defining the IT roadmap will certainly be different in an Agile multi-sourced world
Strategic leadership of multi-sourcing	Develop and test the IT sourcing blueprint
Define candidates for IT Sourcing	Establish the delivery and quality characteristics for each candidate for outsourcing
Prioritise IT change	Performing the cost-benefit analysis is more complex but is not insurmountable
Manage IT change	The assessment of change proposals

Table 1: Function 1 – prioritise and lead IT change

Main Process	Biggest Challenge
Health check the outsourcing candidate	The asset review needs to cover whole SDLC
Identify optimisation opportunities	Establishing the expected benefits and costs of quality, testing and path to production changes
Take some quick wins	Identifying the highest quality improvement approach

Table 2: Function 2 – optimise IT sourcing

Main Process	Biggest Challenge
Supplier engagement/proposal management	Facilitating the drafting of the contract as it needs to include transformational aspects as well
Transition to supplier	Building the transition and change teams
Define on-going supplier governance model	Clear strategy about the relationships over time
Back-sourcing/re-outsourcing	Clear definition of an exit strategy

Table 3: Function 3 – manage IT sourcing projects

Main Process	Biggest Challenge
Operational Management	Setting objectives for service improvement that are incremental
Service Delivery	Driving continuous improvement
Contract and Relationship Management	Managing relationships
Strategic Partnering	Setting overall mechanism for risk/reward sharing

Table 4: Function 4 – enhanced supplier management

Main Process	Biggest Challenge
Operational Management	Setting objectives for service improvement that are incremental
Service Delivery	Driving continuous improvement

Table 5: Function 5 – enhanced in-house management

4. Products

The products or deliverables, that are required as part of the transformation programme, are a combination of good practices.

Of paramount importance is setting up the contracts in the correct way and being crystal clear about the required level of application quality and how it will be measured. This means that vendors should be willing to share risk and in return they should get generous rewards for success. Rewards should also be given for the results that enhance the overall quality ceiling for your organisation.

The mental shift for the vendors is that they will win more business by implementing solid software engineering than if they try to carve out a niche of expertise through protectionism and obfuscation. This means the products should be defined; quality assured and represents an excellent approach to engineering. In the waterfall world of software development this is well documented and in the Agile world this means agreeing the Definition of Done (DoD).

5. Programme

This is the relatively easy part. The programme required to transform your quality management needs to bring together several building blocks. Some of these are more complicated than others (e.g. identifying outsourcing candidates in your existing IT estate) but everything can be addressed and you already have a lot of expertise in-house.

With the approach outlined you can follow your standard in-house project management approach. The important part is to share the lessons learnt so that your approach to multi-sourcing improves over time.

The maxim that needs to be applied is that if there is a risk to your business, find someone to share the risk with – there will be plenty of takers.

6. Prove

At each step in your transformation journey you need to prove that quality has been improved. This should be relatively easy to do as the rewards available to your new multi-sourced suppliers should be available for improvements in quality. The quality management part of enhanced supplier management will be responsible for collecting and analysing the metrics that measure quality and will be used to determine the reward payments made.

Conclusion

It is clear from our own experience and the wealth of material out there that a large number of organisations are still struggling to support the pace of technological change and take steps to a better approach to IT delivery. Without an honest assessment of what characteristics your organisation needs to adopt in order to foster success, the situation will not improve.

“Whilst many organisations have implemented improvements on a small scale, few have realised the benefits associated with the wholesale removal of traditional IT delivery approaches.”

Effective multi-sourcing is a possible mechanism to achieve improvement at scale and in doing so, move away from high-risk large-scale change delivered slowly to that of low-and-shared-risk small-scale change delivered constantly. Enhanced supplier and quality management will be key to effective multi-sourcing and underpins the successful transition and on-going evolution of IT delivery.

For 32 years, SQS has been at the heart of IT change. We are experts in the accelerating pace of change including system modernisation, new technology adoption and supplier management. Embracing customer value and providing you with confidence to help your organisation deliver quality effectively and efficiently both now and in preparation for the future.

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With over 20 years' experience in the software industry, David's expertise covers complex IT problems, multi-sourced environments and IT strategy. He has experience in writing and testing applications across the full range of applications within various industries including financial services, utilities, retail, manufacturing, defence and government.

David is passionate about understanding the problems faced by his customers and helping them to develop the commercial and technical solutions to meet their needs, whatever the sector or requirement.

Bringing a strong academic background to his role with a PhD from Manchester University, he is an industry recognised authority on IT delivery with a string of published articles to his name, which have appeared in publications such as BCS, New Scientist, and Test magazine. David is also a frequent speaker at events, including TestExpo, SIGIST, and PLM Connections.

Away from work, David lives with his family in Cheshire where he enjoys spending his time walking in the hills with his dogs.

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