

TECHNOLOGY MANAGEMENT STRATEGY, EXECUTION & GOVERNANCE

Innovation is fuelling the evolution of the technology world. Not only does innovation drive change in how technology is delivered, it also changes the careers, roles, and responsibilities of the people who deliver it. With that change being delivered faster, careers are changing faster, and career paths are getting shorter.

Take for example, the evolution of today's senior technology manager over the past five decades: data processing manager to computer manager, then IT manager to information systems manager, and on to chief information officer (CIO) or chief technology officer (CTO). These roles, essentially the head of IT, are reflective of the maturity of the pervasive technology at the time.

With a faster route to the top, CTOs are potentially missing out on some of the training experience afforded by a more traditional career path, creating an opportunity for a supportive framework for technology professionals.

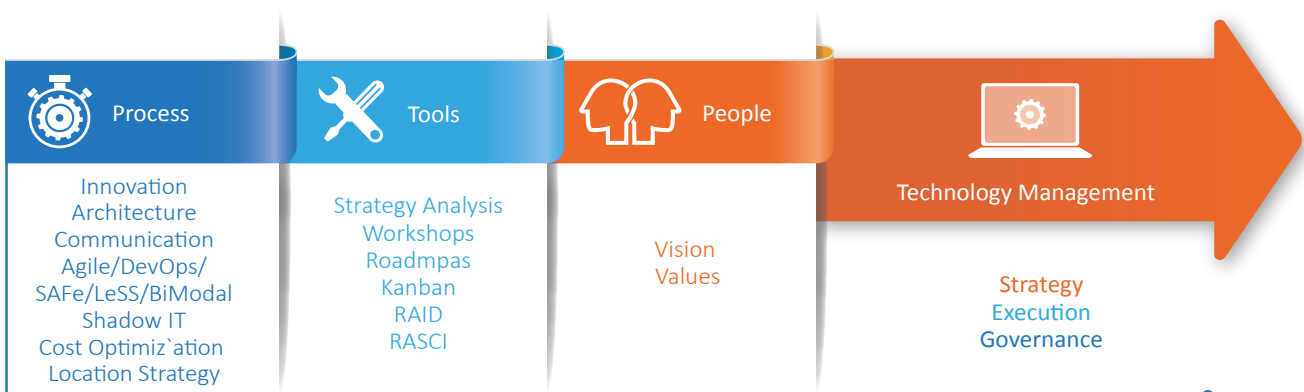
In this paper, Brickendon aims to provide some guidance for the CTO to assess their technology management strategy.

Three main sections address the following questions:

- ⚙️ What is the technology management strategy for my organisation (**STRATEGY**)?
- ⚙️ How will it be delivered (**EXECUTION**)?
- ⚙️ How do we know it's been delivered well (**GOVERNANCE**)?



Each theme is assessed through the lenses of people, process and technology, providing an analytical framework through which to assess the technology organisation.



To begin, let's consider why we use the terms strategy, execution and governance. If you want to get anywhere, you need a strategy to get there. To ensure you get there, you need to execute a plan, and to ensure you will arrive as planned, you need governance to see how you are doing. Strategy, execution and governance are not sequential steps, but they are heavily interrelated.

FORMULATION OF STRATEGY

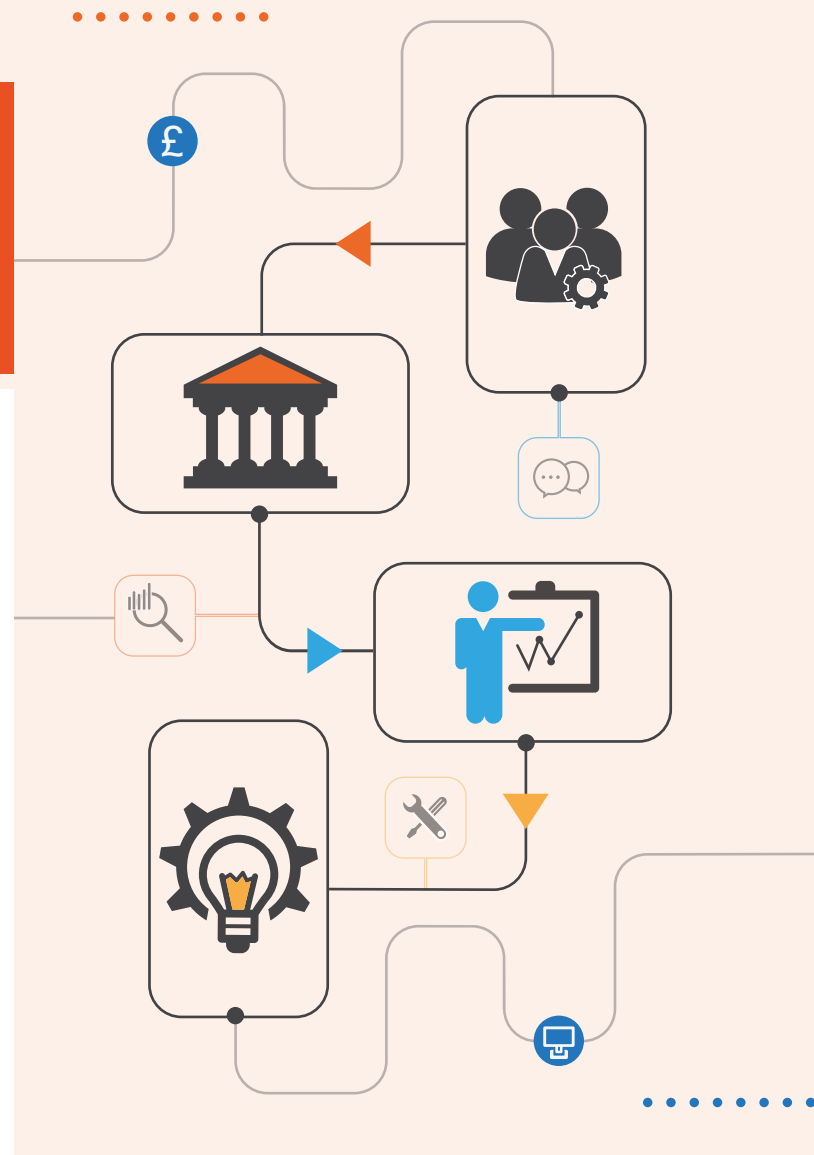
"A clear, communicable, business-aligned vision of the future state is paramount to the successful execution of technological strategic plans."

Geoff Cooper
Director

Strategy is important. If it is not clear, it will be misinterpreted and thus risk the inefficient deployment of resources. If it is not communicable, effort will be repeatedly spent on translation and clarification, and if it is not business-aligned, it will not deliver the expected results.

The CTO has the unenviable challenge of coordinating a broad set of potentially conflicting business requirements, technological innovation, people leadership, financial justification and risk management, and transforming them into a strategic plan with which all stakeholders agree. As a result, the CTO needs to become a master of destiny and marshal the available resources to deliver the strategic vision. Building that vision in a collaborative and consensus-minded fashion with all stakeholders, is the only way to guarantee success.

A successful business strategy is made up of customers, product development, marketing, finance and operations. A successful technology strategy is no different, and as a result, the same strategic business analysis tools can be used to identify success:

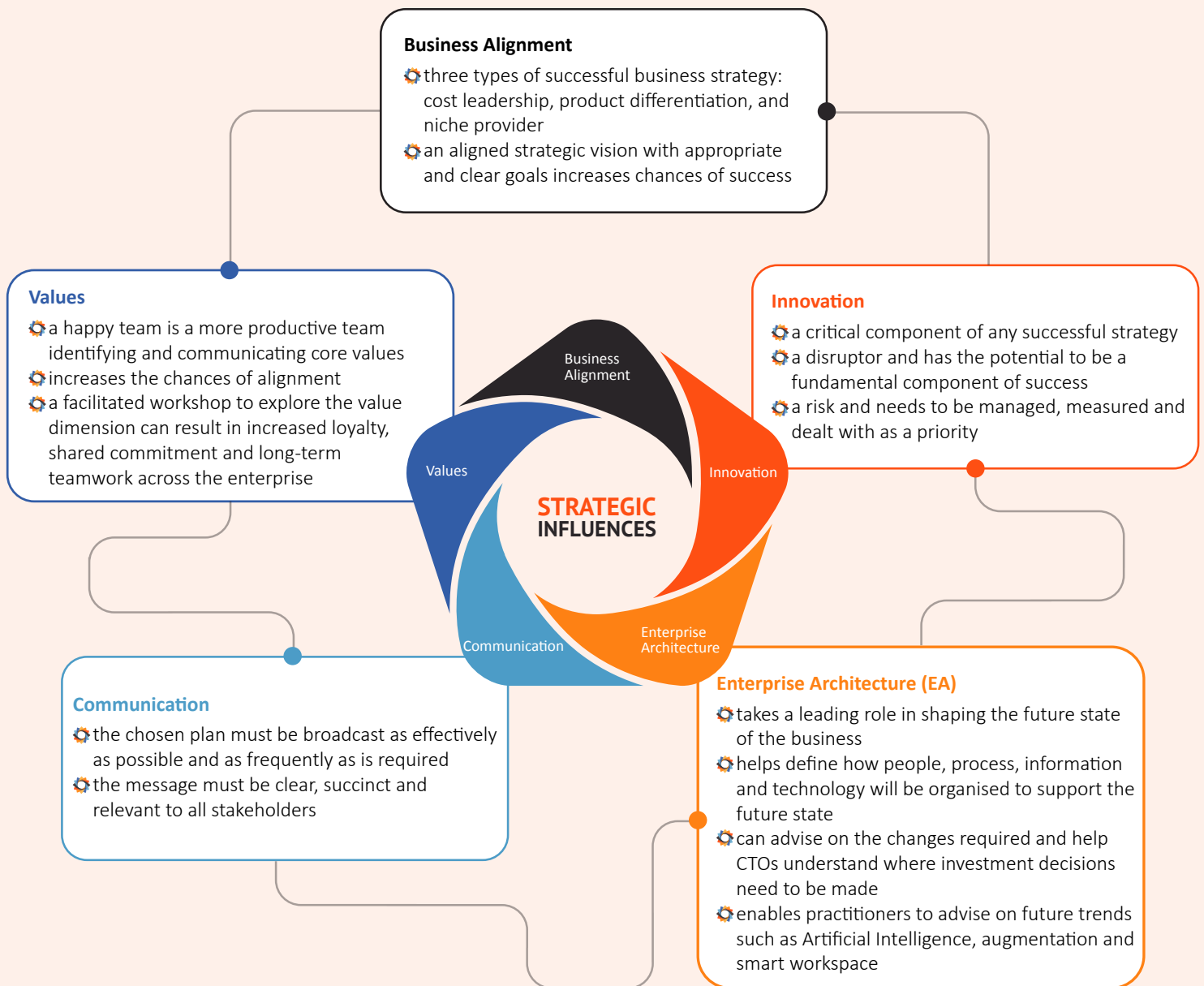


Tool	Benefits
SWOT Analysis	<ul style="list-style-type: none"> helps immediately identify strengths, weaknesses, threats and opportunities provides a sense check for the strategic management team does not help with structuring the result
Porter's 5 Forces	<ul style="list-style-type: none"> similar to SWOT, but uses competition as the key driver for determining any strategic initiatives does not help with structuring the result, but may introduce a clearer sense of urgency
Porter's Value Chain	<ul style="list-style-type: none"> ideal for bringing the whole team together provides an overview of how the 'product' is constructed good for a baseline enables basic visualisation for investment opportunities limited external focus
BCG Product Portfolio	<ul style="list-style-type: none"> categorises products by threat to market share and opportunity for market growth helps identify investment opportunities
Lewin's Force Field Analysis	<ul style="list-style-type: none"> focuses on change as the driving force and where it is more likely to be successful internally and externally
Michaud & Thoenig Strategic Orientation	<ul style="list-style-type: none"> compares market forces with time to provide a subjective approach enables management team to align values with external forces which introduces a sense of shared success

Vision

The output from the tools enables the strategic management team to understand the current state and enables key initiatives to be highlighted and prioritised. Having done the analysis, part of the challenge is to extract and sequence the initiatives that will deliver on the vision. Ultimately the strategic management team needs to formulate a plan with options that are not overly complicated but can adapt appropriately within a given time horizon.

For a strategy to be clear, the end-point or vision also needs to be clear to increase the chance of success. Sometimes, vision and mission statements are confused. Simply put, vision is the desired future state, and mission guides how to get there.



STRATEGY INTO EXECUTION

Having decided on the optimal strategy for your business, the focus pivots to transforming that strategy into an executable plan. As there is an unquantifiable number of ways to deliver technology solutions, this section focuses on the how, rather than the what.

Execution techniques:

Giving individuals responsibility for solving problems is a good way of ensuring issues are dealt with. Below are three techniques which can help with documenting and communicating the strategic plan:

Workshops

Global leaders recognise the value of bringing people together at the outset of any initiative to formulate a strategy. Not only is the consensus formed and opposing views recognised, the coming together of like minds forms a catalyst for future success.

Running successful workshops is a skill and external facilitators can create an impartial environment which encourages openness and information sharing, facilitates engagement of multi-cultural teams, flattens hierarchies therefore improving idea-sharing, and provides governance to ensure clear results are produced. While bringing the global management team together for strategic workshops can be a costly exercise, if organised, planned and carried out correctly, the resulting output will guide the wider team in their day-to-day actions for a considerable period.

Roadmaps

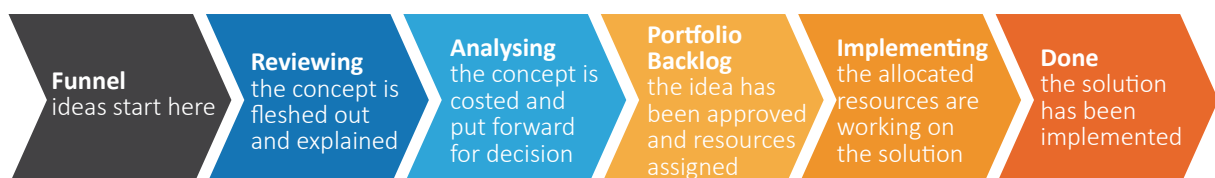
A roadmap is essential for communicating how the strategic plan will be executed. It enables the wider organisation to understand how and when development milestones will be achieved and enables stakeholders to understand the critical path, dependencies and key areas of risk.

Roadmaps need a clear scope and time horizon, enabling the optimal allocation of resources and forcing stakeholders to commit.

Kanban

Kanban is a visualisation tool that enables the entire team to understand where all the key initiatives are in the product development life-cycle. Each work item (name varies depending on methodology chosen) is assigned a placeholder that is put on the left-hand side of the Kanban board initially. As work progresses, the placeholder travels from left-to-right through the various gates for the relevant methodology.

In SAFe 4.5, the gates are:



The advantage of Kanban is that it enables the wider team to visualise where their initiatives are in relation to the wider strategy. Kanban also enables work-in-progress to be managed to reduce the cost of context switching.

METHODOLOGIES

SAFe

SAFe provides a framework for Agile practices to be delivered in larger enterprises. It provides a level of structure and governance on software development so that Agile practices can continue day-to-day where multiple teams are contributing to a large-scale product. SAFe fully supports Continuous Delivery (Continuous Exploration-Integration-Deployment, Release on Demand).

SAFe integrates with existing business management practices to ensure financial governance and encourages leadership to adopt a Lean-Agile mindset.

LeSS

LeSS (Large Scale Scrum) is a software-delivery practice that enables many teams working on one product to deliver using Scrum methods. LeSS is defined by a set of principles to be applied within frameworks and explored using guides and experiments. LeSS is applied in two configurations (LeSS and LeSS Huge).

LeSS has come about because the creators did not want to prescribe end-to-end processes for every eventuality. They prefer to establish guidance and encourage experimentation to find out what works and what doesn't.

Portfolio & Programme Management

Portfolio & Programme Management (PPM) execution methods are well proven across technology in financial services. PPM supports strategic execution when roadmaps and dependencies are very clear.

One advantage of traditional methods of PPM is that responsibility for delivery is clear, i.e. the Portfolio or Programme Manager. In newer frameworks such as SAFe, responsibility is delegated across the team. Fundamentally, this requires new levels of trust and teamwork.

IT Service Management

IT Service Management (ITSM) governed by the IT Infrastructure Library (ITIL) has fallen out of favour with the trend towards more software delivery-focused methodologies (e.g. Agile, DevOps). The underlying principles of ITIL continue to guide many infrastructure organizations as the basic need to operate efficient technology services still applies. Agile/DevOps relies on specifying Non-Functional Requirements to address ITIL equivalents such as Service Level Agreements (SLAs), capacity management and event management, for example. Arguably, with operating requirements built into the product rather than bolted on externally, running costs will be cheaper in the long run.

Bimodal

Bimodal is an extension of the Change-The-Bank/Run-The-Bank model that has been in place for many years and prioritises innovative investments alongside the stability of core systems.

Bimodal is increasingly driven by firms' needs to innovate to stay ahead. Bimodal enables the CTO to prioritise innovative practises, technologies and tooling alongside the existing business requirement. Bimodal practises, once adopted, cascade quickly, and the success of prototypes and pilots created in this manner are quickly demonstrable.

DevOps

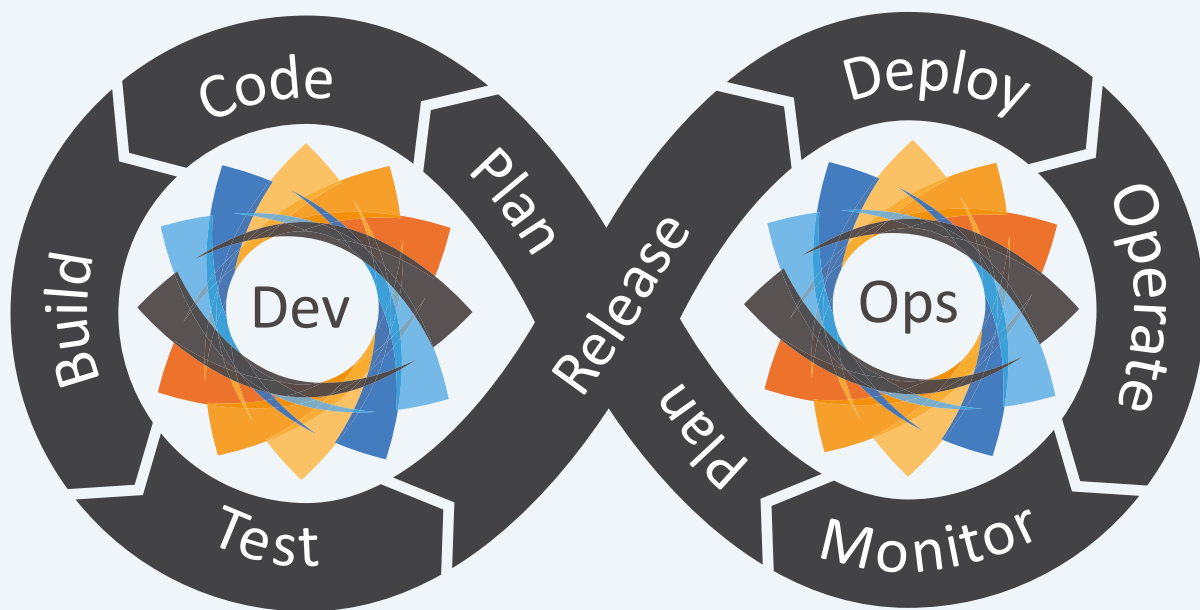
Application development has evolved significantly since the time when development teams simply ‘threw code over the fence’ to production teams for implementation and support. DevOps, an amalgamation of development and operations, is the progeny of Agile development practices. Historically, production support teams only became involved in the application at the implementation phase when nearly all requirements were known and developed. With Continuous Integration/Continuous Deployment (CI/CD) becoming the norm, production support became involved in the application life cycle earlier, which led to a more active voice for operations requirements and thus the birth of DevOps.

Not only does DevOps encourage a more collaborative approach, it should, if carried out properly, reduce running costs and produce a more industrial, scalable

application. Brickendon’s own DevOps methodology has been proven to increase software releases by as much as 45 per cent, significantly lower overall project costs and give management a clearer and more timely overview of the project. See our website to find out more.

www.brickendon.com/insight-papers/devops/

In recent years, a further evolution of DevOps (and possibly even of DevSecOps) called ZeroOps has materialised in thought leading development groups. ZeroOps, as the name suggests, aims to remove the need for any operations or support people to deliver the application service. Whilst an admirable objective, it is difficult to envisage a time in the not-too-distant future when all application use cases will be automated.



Sustainable Agile

The agility that comes with Agile working can often lead to short-term thinking, with little thought for the longer-term future state. Unless the CTO encourages growth and maturity within development teams, they will continue to act heroically.

It has been suggested that Agile should be transformed into an engineering discipline that builds cost-effective, scientifically grounded solutions, which when measured, produce expected results. Taking an engineering approach to software development enables sustainability of delivery practices, predictable scalability, continuous reuse and interoperability that reduces total cost-of-ownership in the long term. An important component of the strategic vision therefore, is to communicate how sustainability will be implemented and assessed.

EXECUTION GUIDED BY GOVERNANCE

Governance provides the organisation with a conscience. When designed, measured and executed well, it can provide valuable inputs to the strategic execution. When not fit-for-purpose, it can create tension, slow down delivery and be expensive.



Financial Management

To run technology like a business requires excellent financial controls. Financial management enables the firm to understand the cost and value of any technology stream. It provides transparency and enables effective decision-making, prioritisation, change and accountability. Without it, firms will make the wrong choices, focus on the wrong things and ultimately lose money.

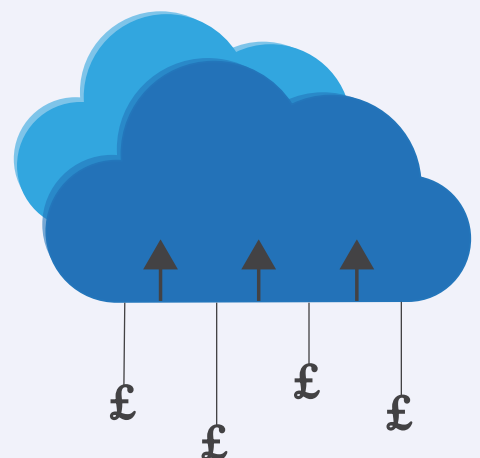
Companies typically prepare budgets annually, with some carrying out half-yearly adjustments or interim re-allocations where over/under-spend occurs. Both top-down and bottom-up approaches are applied to get an initial view. Agile delivery approaches are forcing a re-assessment of these methods. As touched on earlier, SAE's economic framework forces the business to focus on where true value will be derived and then aligns investment activity to the results.

Irrespective of the methods chosen, the primary benefit of financial management is transparency. Both the business and technology can understand how much a service costs and tune their requirements accordingly. This enables more engaging and fruitful discussions when costs are under the spotlight.

Impact of the Cloud

Much is said about the ability of companies to transfer capital expenditure to operational expense when transitioning to cloud-based services. Whilst initially the switch may seem like a sensible one, the usage of cloud services quickly grows and the financial models that support them require a new skill as the layers of cost are much more detailed. Technical architects and business managers must work very closely together to understand the long-term cost implications as design choices have a direct impact.

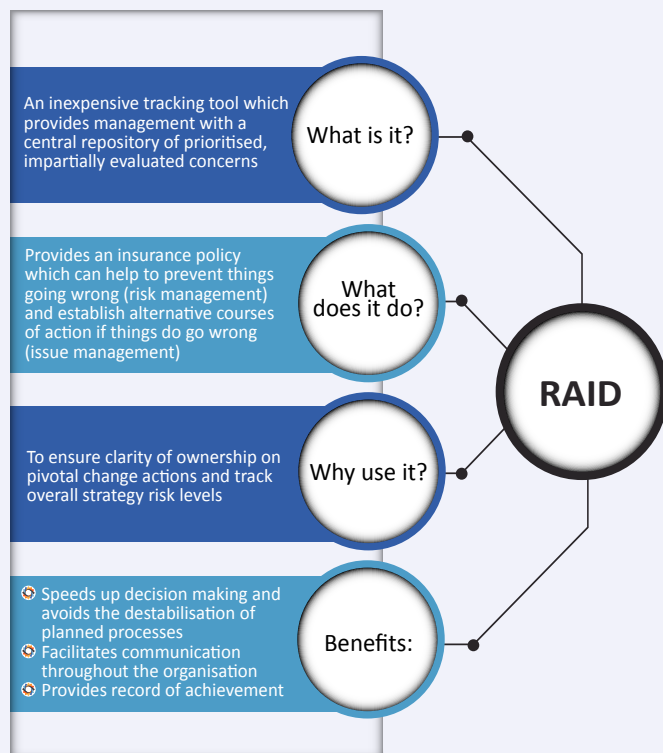
Using the cloud may look like a cheap option now, however firms must remember that the supplier has all the power to set prices in the future. Increased dependency over the long term could quickly discount the buy-versus-build decision. Aside from the cost, firms lose control over the technical architecture and need to assess whether that loss of control has the potential to affect the competitive advantage.



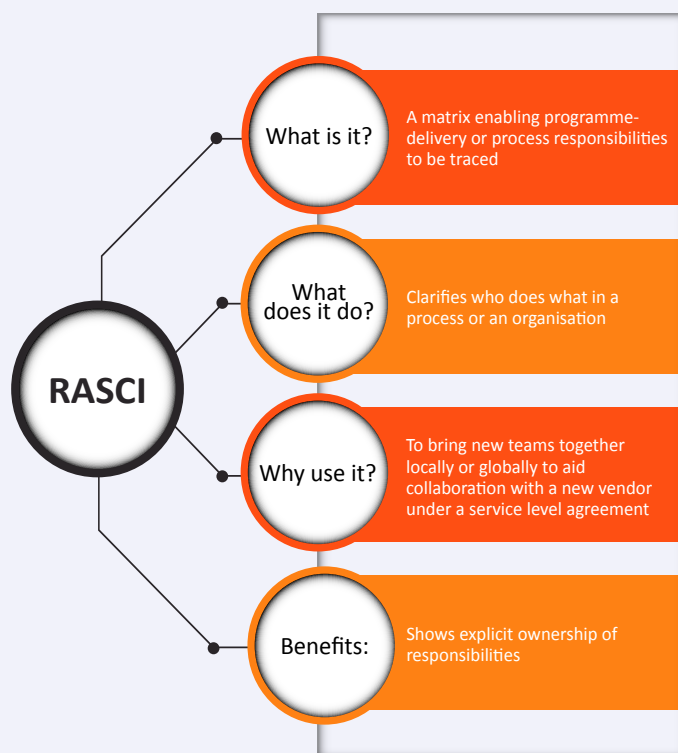
Governance Artefacts

Tools such as RAID and RASCI can be very useful in developing the overall governance framework:

RAID (Risks, Assumptions, Issues & Dependencies)



RASCI (Responsible, Accountable, Support, Consulted & Informed)



Shadow IT

Frustrated by the limitations of centrally-managed IT and opaque governance, business users have taken it upon themselves to acquire and implement their own tactical solutions, often known as shadow IT, which they believe will provide immediate business value. Changes in how technology is being distributed, application cost structure and third-party technical support have also made it much easier for business users to acquire their own applications.

In the face of such subversion, the CTO has a couple of choices – rail against it and demand the IT budget is centrally managed or aim to understand why the business user has chosen to implement a new system alongside their other day-to-day projects and priorities. The CTO can welcome a potential new source of ideas, understand if opaque processes have forced the business to pursue a non-centrally managed approach or check why a business-owned service hasn't made it on to IT's priority list.

This enables innovation to be prioritised and can

quickly reveal more transparency and strategic intent from the business.

Ultimately, it's critical that the business and the CTO work together to ensure any Shadow IT aligns to the strategic plans. It's also incumbent on the CTO to highlight the risks surrounding shadow IT and understand how external platforms can be brought under the wing or guidance of the centrally managed function.

A strategy that takes account of the risks of Shadow IT will be much more prepared to deal with it when it arises. A CTO should be comfortable about what is causing it and aim to fix issues that are within their control, i.e. poor or opaque project prioritisation processes. The question remains as to whether Shadow IT initiatives should be dismissed or folded in to the strategic plan. After all, a strategic plan can encompass new services and by doing so, is often strengthened as a result of the collaboration.

Cost Optimisation

The CTO is continually challenged to seek efficiencies within the available financial resources. Here we look at research and advisory firm Gartner's 10 key points on cost optimisation and offer our own analysis:

Optimisation	State	Advice
Shared Services	This is most likely already in place across the wider firm, so the key is to assess what can be transferred across	Key metrics to understand and evaluate are any SLAs that could adversely affect the business. From a budgeting perspective, it's important to understand how long the service cost is guaranteed and what further strategic initiatives are planned or underway to reduce shared service costs further
Standardisation	Potential for variations across a global estate is high due to regulatory demands	Shared services may enable some consolidation but its 'span of control' will only go so far. Worth reviewing annually
Cloud	Firms with large enough infrastructure can provide a private cloud. There will be significant corporate push to avoid non-cloud solutions	Whilst public cloud does seem like a panacea from a delivery point of view, demand management is complex and the companies providing the services have complete pricing power. They also invest heavily in economic advice, further improving their ability to set the pricing agenda
Transparency	Allocating costs and utilisation across large global estates with regional variations can be politically challenging	Transparency makes IT reflect on usage and think about optimisation. Business users may also question their support once the true cost of the services is understood
Zero-Based Budgeting (ZBB)	ZBB pares everything back to zero each time the budget is being built and enables re-evaluation of cost-benefit decisions which may no longer be optimal	Brickendon highly recommends this process as it not only enables good housekeeping, but also increases the chance of success in demising unnecessary services
Application Rationalisation	Due to perceived effort this can often be pushed back, however with the support of the business to standardise processes, it can reduce costs and improve time-to-market	Evaluate this against global strategy and prioritise by effort implemented. Ensure the savings are traceable over multi-year efforts
Asset Management	Can help provide true cost but also avoid longer term headaches such as out-of-support costs or legal implications of unsupported technologies	Organic, regional deployments result in varying license models for the same product – easy to challenge the vendor. Likewise, capacity is often over-requested and over-provisioned – review quarterly
Purchasing	Buy the right thing at the right time for the right price using the firm's sourcing and procurement capabilities	Technology is constantly evolving, and new competitors make renegotiation easier. The threat of change and ability to justify the cost of change is making this challenging for suppliers
Mode 2 (Agile, DevOps)	Consider scaling successful Agile and DevOps initiatives. Why?	Arguably, Agile delivers with less overhead and DevOps produces lower-cost running platforms. SAgile focuses on Weighted Shortest Job First, which ensures maximum business value opportunities are delivered first. Whilst the business may be focusing on revenue initially, costs become a focus as soon as margins are challenged
End User Computing (EUC)	Aside from the cost of support and potentially scale of deployment, the key challenge is managing change in an uncontrolled environment and the cost of errors through poor processes or poorly thought-through EUC solutions	Once the landscape is understood and risks explained, businesses will quickly support efforts to manage cost, control operations and reduce reputational risk

Technical Debt

From the very first line of code, technologists make decisions not to implement perfect solutions. The art of software development is often to determine what needs to be implemented now and what may be implemented in the future. As we cannot predict the future, we make decisions based on assumptions which may or may not be correct. Each new requirement brings assumptions and decisions which manifest themselves in code. Each piece of code optimised in this manner increases the technical debt, i.e. the work that would have been done if more time or resource was available.

Modern software development practices help to reduce the longer-term build-up of technical debt. Test-Driven Development (TDD) for example, encourages more thought to be put into the ultimate requirement rather than coding requirements by experimentation. The trend toward ZeroOps and EA models such as ASSIMPLER are good practices, which can reduce technical debt in the long run. Even the Information Technology Infrastructure Library (ITIL), with its Plan-Do-Check-Act cycle of continuous improvement, will reduce technical debt by removing defects through problem management (although the incident has to be experienced first).

A CTO who delegates the balancing act between growing or reducing technical debt to the product owner may be building up a longer-term problem. Clearly, growing technical debt will be someone else's problem in the future. By contrast, low technical debt may mean resources could have been deployed to develop product or functionality elsewhere. Strategically, the firm needs to consider the wider implications and set out its own governance and expectations. A time horizon and enterprise architecture guidance on acceptable design patterns can form a template from which to work. Ultimately, acceptable levels of technical debt could even form remuneration conditions to drive the appropriate behaviour.

Location Strategy

Although not explicitly mentioned, location strategy fits within sourcing and procurement. Replace things with people, and clearly the requirement becomes 'getting the right people at the right price at the right time in the right location'. With the potential of costs being reduced by as much as a third depending on choice of location, the benefits are obvious. There are however implications.

A location strategy (current and future state) enables CTOs to appease the business with respect to cost and location of resources. Experience shows that investing in people and treating them as part of a singular organisation improves productivity. Deploying SMEs to train up teams in remote locations is a cost-effective way of building bridges across the global team.

Increased cultural diversity brings new ways of thinking, which is beneficial in a creative environment such as application development. It can also be beneficial when engineering problems arise, such as the need to scale or improve service availability. What is clear is that a common language and value set is required, and that it is incumbent on the CTO and the senior management team to get that message across.

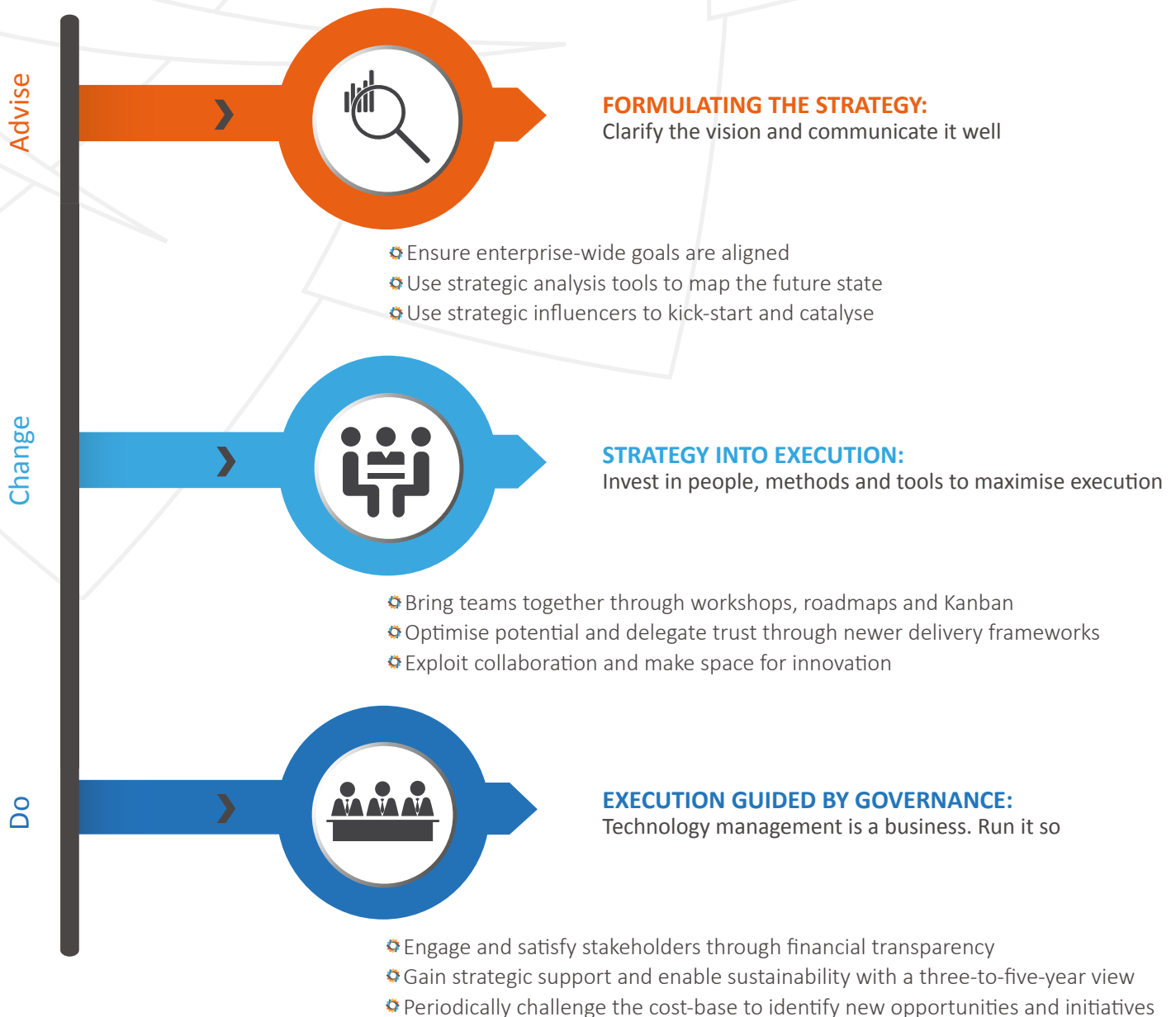
By having multiple sources, CTOs can reduce their concentration risk and maintain some control over salary inflation, however it is important that roles and responsibilities (particularly in global coverage situations) are explicitly defined to avoid gaps or expensive overlaps or a reduced customer experience. Finally, consideration should be given to the type of work required in any particular location in line with skills, culture and capabilities of the team involved.



THE BRICKENDON APPROACH

Having identified the challenges and issues associated with devising an appropriate technology management strategy, Brickendon's expert consultants are well placed to help implement a suitable framework for successful delivery.

Brickendon's approach provides strong support for the framework under the outline of our Advise, Change, Do philosophy:





BRICKENDON
transformational consulting

WE SOLVE YOUR CHALLENGES

Brickendon is an award-winning transformational consultancy specialising in innovative solutions that solve our clients' challenges quickly and efficiently. We are experts in digital, data and automation, with a particular focus on DevOps and agile methodologies, digital transformation, rapid prototyping, product development and the automation of support and business/IT processes. Our aim is to disrupt the market with the latest machine learning, automation, data analytics advisory and programme delivery. We do this in weeks and not months, saving our clients time, money and protecting their reputation.

Why choose Brickendon?



Our track record: We have demonstrated a long, proven track record of transforming our clients through our innovative bespoke solutions.



Our innovative approach: No one client is the same, therefore our intelligent, experienced and focused consultants use their domain experience to address each challenge in an innovative way, using skills from their past and knowledge from Brickendon's continual learning hub.



Our Resources: Our onshore, offshore and nearshore capabilities mean we are well placed to cater for all our clients' needs, making the best use of our consultants' 10 years-plus domain experience.



Our passion: We love what we do and thrive on improving our clients' profitability, efficiency and increasing their competitive edge. We are driven to develop the most innovative solutions and take pride in seeing the tangible benefits of a project come to fruition.

To find out more about Brickendon's expertise, please do not hesitate to contact us:



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