BOSTON CONSULTING GROUP

12 April 2024

Committee Secretary
Joint Committee of Public Accounts and Audit
PO Box 6021
Parliament House
Canberra ACT 2600

Additional Submission to the Joint Committee of Public Accounts and Audit

Thank you for the opportunity to make a submission to the *Inquiry into the failed visa privatisation process and the implementation of other public sector IT procurements and projects*.

We note that the scope of the inquiry was expanded on 29 February 20224, and we are pleased to provide this additional supplementary submission to the Committee for consideration.

We are committed to supporting the Committee as it conducts this important inquiry.

Yours sincerely

BCG Australia

Introduction

BCG appreciates the opportunity to contribute to the Committee's work on the processes to develop and implement information technology (IT) systems in the Australian Government, including large-scale IT procurement, with regard to issues of capability, culture, probity, policy, systems, and decision-making.

We fully support the Committee's objectives of ensuring value for money from public expenditure, realising anticipated savings and impacts from IT projects and procurements, ensuring the ethical use of resources and ethical behaviour, and managing any risks arising to the Commonwealth.

Data and digital technologies are fundamental to modern, citizen-focused government. Unfortunately, several large and well-publicised technology projects have occurred despite extensive frameworks and processes for approval, oversight, governance, and assurance.

Based on our experience working with the Australian Government, we believe there are some underlying causes for the challenges that have been experienced. These are (1) the way that digital and technology projects are funded and managed, (2) the lack of frameworks for re-usability to avoid duplicative investments, and (3) underinvestment in the development of in-house digital and data talent and skills.

BCG has identified three areas the Committee may wish to consider to strengthen the planning, procurement and delivery of large-scale IT projects.

1. Reform of funding and governance arrangements
2. Governance and commercial frameworks that enable re-usability
3. Uplifting digital capability of public sector entities

1. Reform of funding and governance arrangements

Currently, funding for IT investments is constrained to annual or semi-annual budget processes. Over the prescribed thresholds[1], these are subject to the ICT Investment Approval Process (IIAP) and require the development of first-pass, second-pass, or combined-pass business cases. These are then subject to extensive internal and external review, reporting, and assurance processes and often require the appointment of independent assurers and stage-gated Gateway Reviews.

This approach has led to the growth of an internal and external workforce, which every year produces thousands of pages of business case documents and appendices, creating an illusion of false certainty and driving departments to make infrequent requests for large amounts of money over multiple years.

This approach is at odds with what is considered global best practice for delivering digital and technology products and services. Done well, BCG believes that Agile delivery methods are a consistently more reliable way of delivering high-quality digital services and features. However, traditional government funding and budgeting frameworks are incompatible with this approach.

As described in more detail in our article, the NSW Government developed a more supportive and aligned Agile funding and governance framework that resulted in more effective technology investments. They achieved this by establishing the Digital Restart Fund ('DRF') and the Digital and Performance Committee of Cabinet (DaPCo).

[1] ICT Investment Approval Process (IIAP) applies to digital and ICT-enabled projects where the total whole-of-life cost is estimated to be $30 million or more, including total whole-of-life digital and ICT costs of $10 million or more.

- The DRF is flexible, as it can release funding to projects outside budget cycles. The funding can be released in smaller increments and up to a pre-determined maximum. Future funding is often linked to delivering code-in-production and previously committed outcomes with specific KPIs. Requests must show evidence of customer testing and user-centred design. Submission paperwork is kept to a minimum, often no more than a few pages.

- The DaPCo sat alongside both the Cabinet and the Expenditure Review Committee (ERC) and was tasked with assessing the digital and data components of every new policy proposal before they could move forward. It comprised five of the government's most senior ministers, including the Premier and the Treasurer and was chaired by the Minister for Digital and Customer Service. The committee focused on data architecture, digital design and whether the customer was adequately considered.[2]

By taking this approach, investments must demonstrate value early, and failures are more contained and much smaller in scale and impact. Citizens benefit from improved service delivery sooner, and governments can respond swiftly to changing priorities and evolving user needs.

This approach is also more aligned and consistent with those taken by many large private sector companies and boards. BCG knows of other jurisdictions that are already adopting or considering similar digital transformation funds and governance reforms.

BCG has published an article on funding reform for digital government, titled *Fixing Digital Funding in Government*[3]. A copy of this article is attached to our submission. Many of the observations and recommendations in this article are relevant to the Australian Government context.

Other elements of digital and technology funding that may be valuable to consider include:

- **Shifting investments from project-based funding to 'product-based' funding.** Digital technology platforms, products and services are rarely 'once-and-done' investments. Delivering modern and high-quality digital services requires continuing development of new features and enhancements. As a result, many leading organisations are shifting to funding models based on persistent multi-disciplinary teams and capacity-based squads. These teams work through prioritised backlogs rather than assembling and disbanding teams for projects with a fixed scope, start dates and end dates.

- **Ensuring funding models are not biased against cloud-based offerings.** Historically, budgeting processes and culture have favoured one-off, upfront capital investments over ongoing commitments to operating or recurrent expenditure. This creates an unfair bias towards acquisition and sustainment spending profiles, for mainly on-premise and in-house solutions, and against the adoption of more contemporary cloud-based, on-demand and as-a-service offerings. Although this is becoming less prevalent over time, it is important to ensure that there is a level playing field and comparison of options should consider the total-cost-of-ownership (TCO) over the lifecycle of a platform, product or service.

- **Ongoing transparency and benchmarking of technology expenditure.** There have been several efforts over the last 15 years to understand the level of 'business-as-usual' (BAU) and project expenditure on digital and technology across the whole-of-government. These audits and

[2] The committee was subsequently replaced by the Cabinet Infrastructure Committee (CIC) but our view is that the framework is most effective with a dedicated committee for digital and technology programs and projects.

[3] https://www.bcg.com/publications/2021/fixing-digital-funding-in-government

reports have provided insights on performance, productivity, and quality of services and identified opportunities for improvement. However, rather than episodic exercises and audit, it would ideal if this data, reporting, analysis and benchmarking capability was developed and established as an internal capability within the APS and sustained on an ongoing basis.

2. Governance and commercial frameworks that enable re-usability

The Australian Government has a Digital and ICT Reuse Policy, which applies to digital and/or ICT-enabled investments over $10M. Reuse whenever possible – your proposed investments must plan for and make use of any opportunities to reuse existing services or tools within your agency and across government.

Design and build for reuse – if your proposed investment cannot reuse an existing digital or ICT solution, you must ensure that the service you build, can be reused by other agencies.

Enable reuse by others – you It process often have to justify why they are not able to re-use an existing capability. Additionally there is often a requirement or condition placed on certain investments that they need to be available for re-use. However, at the moment there is an absence of a commercial or governance model to support that re-usability objective.

Every agency or department customer and supplier is required to negotiate bilateral arrangements. There are no standardised agreements, pricing models, service level standards or service catalogue. A clear commercial and governance framework is needed to enable the vision of re-usability to be achieved.

The NSW Government DRF initially focused on investments for common or re-usable needs across government, with specific conditions. In the Commonwealth for example, investments could be required to conform with certain agreed whole-of-government standards and 'design patterns' so they are interoperable and can be re-used within other parts of the Australian Government digital and data ecosystem.

A whole-of-government 'app store' or closed 'github' could provide a conceptual model to support the sharing applications, a searchable directory of available solutions, with the associated pricing and service level agreements. In our experience, this would also require the service provider departments and agencies to mature their delivery models to deliver market-standard service to other agencies.

3. Uplifting digital capability of public sector entities

Many of our large public and private sector clients have invested significantly in talent and leadership development to support their digital transformation efforts. Upskilling and reskilling at scale is a challenge across a large and diverse organisation such as the Australian Public Service. Some specific digital upskilling and reskilling initiatives which may be helpful to consider are:

- **Digital and data workforce planning** is a way to more comprehensively understand the current and projected future supply and demand for digital and data skills across the government. This would also help identify where there are critical skills gaps over the short, medium and long term and to help inform targeted strategies and initiatives to address the workforce transition from current to future roles. It would assist and support recruitment and career development programs.
- **Digital academies** with comprehensive programs and curriculums to re-skill and up-skill public servants with the requisite digital and data capabilities, particularly in areas outside of the technology divisions. For example, excellence in product management, cultivating more product managers, advanced analytics and artificial intelligence, and cybersecurity and data protection.
- **Fostering more communities of practice** to support the sharing of knowledge, experience and insights. An example might include establishing communities of practice to encourage adoption

and development of digital service standards. These standards could then continuously and organically evolve and mature over time, while also driving greater take-up and compliance in a decentralised organisational environment and context such as the APS.

Additional Success Factors for Consideration

In addition to the specific points above, we are pleased to share our general lessons about the factors for success in the design and implementation of digital transformation and technology programs. The six success factors have been articulated in a series of articles and reports under the title *'Flipping The Odds of Digital Transformation Success*[4]'. These are based on our direct experience working with clients and significant empirical research.

In summary, the six essential success factors are:

1. **An Integrated Strategy with Clear Transformation Goals.** The strategy describes the why, the what, and the how, which are tied to specific, quantified business outcomes.
2. **Leadership Commitment from CEO Through Middle Management.** The company has high leadership engagement and alignment, including often-overlooked middle-management ownership and accountability.
3. **Deploying High-Caliber Talent.** Management identifies and frees up the most capable resources to drive the transformation program.
4. **An Agile Governance Mindset That Drives Broader Adoption.** Leaders address roadblocks quickly, adapt to changing contexts, and drive cross-functional, mission-oriented, "fail-fast-learn" behavioural change into the wider organisation. They deal with individual challenges without losing sight of the broader goals.
5. **Effective Monitoring of Progress Toward Defined Outcomes.** The company establishes clear metrics and targets around processes and outcomes, with sufficient data availability and quality.
6. **Business-Led Modular Technology and Data Platform.** The company puts in place a fit-for-purpose, modern technology architecture driven by business needs to enable secure, scalable performance, rapid change deployment, and seamless ecosystem integration.

The impact of the six success factors and the ways in which they materially shift the odds for success are remarkably consistent across all types of digital transformation, geographies, and industries. Organisations that get all six factors right can flip the odds of success from 30% to 80%.

We have included a copy of the underlying report and research supporting these best practices as an appendix to this submission.

[4] https://www.bcg.com/publications/2020/increasing-odds-of-success-in-digital-transformation

APPENDIX

Leading in the New Reality
Digital Transformation |

BCG

Fixing Digital Funding in Government

AUGUST 30, 2021

By Robin Mann, Rajive Mathur, Dave Rogers, James Stewart, and Miguel Carrasco

Digital services are the face of modern government, and great digital services can build trust with citizens. Too often, however, failures in such services erode trust in public institutions.

One frequently overlooked cause of subpar digital services in the public sector is the way they are funded. Annual budgeting cycles, detailed

business cases, and capital-spending policies clash with contemporary digital delivery methods and architectures. Governments cannot engage effectively in digital transformation without addressing funding reform.

Just as most digital projects benefit from agile ways of working, they also benefit from more agile and flexible funding models. Such funding of digital projects moves away from the false certainty of business cases, rigid budget cycles, and high-profile announcements. It encourages the development of products that better meet citizens' needs, reduces the risk of cost overruns, and allows more frequent announcement of achievements. Digital funding can be transformative. Investments demonstrate their value early, and so are less risky; teams are empowered; citizens receive faster and better service; and governments can respond more swiftly to changing priorities and evolving user needs.

This new approach, which is based on industry best practice, is novel but not unprecedented in the public sphere. Both the Government Digital Service (GDS) in the UK and the most populous Australian state, New South Wales (NSW), have adopted it, and the US has launched the Technology Modernization Fund with similar goals. (See "Stimulating Growth in New South Wales.")

STIMULATING GROWTH IN NEW SOUTH WALES

In 2019, building on the idea that technology could reduce bureaucracy and improve citizen engagement, the NSW government established a Digital Restart Fund. "Good governments have to compete with the likes of Apple, Google, and Amazon. People are used to customer service and digital tools that work," said Victor Dominello, the state's minister for customer service.

NSW had already established Service NSW, which introduced several user-friendly applications with a common username/password sign-on.

But Dominello thought more was possible. He identified the funding and governance model as a key barrier to improving government services. The model did not recognize the changing needs of the public or the importance of accounting for new ideas and feedback during the life of a project. It also assumed that legacy technology remained effective. It was disproportionately oriented to the long term—five to ten years. The expectations of individual agencies, rather the needs of citizens, drove the process. Agencies assembled teams and then disbanded them, leading to the loss of valuable skills and knowledge.

Dominello tasked the government's chief information and digital officer, Greg Wells, to design a new model to address these shortcomings, accelerate digital investments, improve services, and increase transparency.

The new model changed NSW's digital funding in three critical ways:

- It released funding in smaller increments tied to progress toward specific outcomes, thereby reducing risk and encouraging agile behavior.
- It transitioned from funding multiyear projects to funding persistent teams that delivered end-to-end customer journeys.
- It reformed governance to focus on outcomes.

A ministerial-level delivery and performance committee and an existing expenditure review committee of the Cabinet govern the Digital Restart Fund. The committees demand that funding improve customer outcomes, and they release new funding only in response to demonstrable progress toward those improved outcomes. The initiative started slowly in 2019 but grew rapidly as part of COVID-19 recovery efforts that the government undertook in mid-2020. Its small initial budget was expanded to AU$2.1 billion, spread over four years.

Dominello says that changing the culture was the biggest challenge, but a series of quick wins helped make that shift happen. The Service NSW digital platform enabled the quick rollout of new products and services, such as digital hospitality vouchers issued during the pandemic. With previous innovations such as digital driver's licenses already in place, the NSW government was positioned to respond promptly to citizens' needs as the pandemic continued, such as QR code check-ins for contact tracing. Dominello also used social media channels to announce incremental but useful service improvements, including critical public health measures such as digital COVID-19 venue check-in.

His advice to other governments: Focus first on security and ethics, and then on benefits. If an initiative suffers a cyber attack or is vulnerable to bias introduced by artificial intelligence, citizens will distrust it. Finally, even if long-term plans are grand, start small.

FUNDING IS BROKEN

Traditional government funding of IT projects does not work. Research by the Standish Group shows that only one-fifth of government IT projects were successful and that success rates fall with increasing size and complexity.

Since 2012, many governments have adopted digital ways of working, but these digital initiatives remain prone to failure. In 2012, the UK created the GDS specifically to improve the government's technological performance. Other nations have launched similar efforts, but these have done little to improve the odds of success. (See "Building Momentum in the UK.")

BUILDING MOMENTUM IN THE UK

The UK's highest-profile digital success to date is its GOV.UK platform. The British government gave the Government Digital Service (GDS) an explicit political mandate to move quickly to change citizens' experience of government online. Recognizing that traditional funding processes were too slow, officials gave the GDS the ability to spend the money that the government had previously allocated to more than 1,000 legacy websites that GOV.UK was to replace. They also empowered the GDS to spend leftover resources on other work that aligned with its broader aims.

In its early years, the GDS replaced hundreds of existing websites with a single, user-friendly platform that was substantially cheaper to operate. It used surplus funds to accelerate new services without having to run the bureaucratic gauntlet or go through a lengthy business case approval process. The more money team members saved, the more they could do—so they had an incentive for delivering efficient outcomes. The GDS ultimately delivered better services than before and saved £4.1 billion between 2011 and 2015.

The GDS also introduced a new approach to governance. The Digital by Default Service Standard (now known as Government Service Standard) created a new benchmark for government agencies to use in gauging whether a service is good enough to launch. The standard established a life-cycle model that emphasizes such practices as starting small, understanding and validating user needs, working iteratively, clarifying policy outcomes, understanding risks, and prototyping solutions.

Members of the GDS then worked with colleagues at the UK Treasury to streamline the business case approvals process for smaller projects, giving departments leeway to use their existing budgets to fund early development work without first completing lengthy approval processes. The team also developed user insights and created technology prototypes rather than relying on the sort of abstract analysis that many business cases require.

Many departments across the UK government have taken advantage of this approach to lower the risks associated with their efforts. Even so, further financial reform is necessary to deal with other issues:

- Departments may not have the funding flexibility to work on new initiatives.
- There is no new mechanism for sustained funding of live services that still rely on annual department budgets to maintain and improve what they have.
- The Treasury's policies regarding capital and operating expenses remain unchanged, limiting the freedom of service teams to rely on cloud architecture.

The UK has begun the work of unlocking new funding models that are more appropriate for digital products and services. More work must be done, however, to perfect these practices and apply them at scale.

In many instances, digital government initiatives fail because the government's financial departments and treasuries do not fully understand digital ways of working. Financial practices in the public sector have changed little in decades. When governments create fast, adaptive digital teams, those teams come up against slow-moving, rigid financial processes, creating friction.

Traditional funding models are a predictable feature of digital project failures in the public sector for six reasons.

Governance and funding do not support digital delivery. Government IT projects generally receive funding in the form of time-bound allocations supported by a business case and approved during an annual budget process. Most major funding decisions occur before the

start of an initiative. The senior officials within the treasury and finance ministries who are responsible for giving the final sign-off on budget allocations often have no ongoing involvement in the work itself. This system is fraught with problems:

- Once the money is allocated, further financial scrutiny is rare. If a cost overrun occurs, the sunk cost fallacy often leads to additional spending.
- Teams are not rewarded for finding leaner ways to deliver the same outcomes, for returning unused money, or for redirecting money to more pressing issues.
- Business cases project a level of certainty about the future that is unrealistic. Good ideas, new information, and greater clarity about needs can reasonably change the original case, but teams rarely have the authority to correct course.

Funding announcements set unrealistic expectations for digital teams. A government initiative commonly starts with political leaders announcing the allocation of funding as evidence of their intent to address a challenge. Expressing that intention is important and necessary. But trust in government erodes when leaders fail to deliver on their promises.

Government officials often prepare funding announcements in isolation, without the benefit of digital and technology expertise, user research, or prototyping—capabilities that are essential to the successful deployment of digital services. Policies developed in isolation from the real world may lock teams into specific technologies or methodologies even when better approaches may be available. Simply announcing the allocation of funding to a presumed solution can lock operational teams into delivering the promised solution rather than the best outcome.

Digital is treated as overhead, rather than as a strategic investment. Digital initiatives commonly proceed only if they can save cost. When planners view IT as a cost center, they focus on cost minimization rather than value creation. Goals of delivering better services, such as improved mental health or access to justice, become secondary.

Digital services have a complex cost profile that rarely receives proper management accounting treatment. Some services, such as a new digital offering, may add cost but create new value. Some digital services are less expensive than the manual processes they replace. And some digital services replace more expensive legacy digital services. In other words, the goals of a healthy digital portfolio may range from strategic investment to tactical cost reduction.

Siloed funding inhibits cross-agency collaboration. Delivering a multi-agency initiative requires collaboration—joint teams, clarity about funding and accountability, and a single governance structure. Too often, however, "Conway's law" prevails: services mirror the current structure of government rather than the requirements of the problem to be solved.

Governments have limited options for reshaping the internal boundaries of their organizations. In the criminal justice system, for example, a defendant moves through a labyrinth—from policing, to prosecution, to the courts, to incarceration, and back to society. Agencies involved with mental health, child protection, disability, housing, and employment may also be involved with the individual's journey through the system. Most governments struggle to coordinate across these agencies.

Solutions to this challenge require funding that cuts across institutional boundaries, but this is hard to achieve. Citizen-centered, cross-agency initiatives with a positive cost benefit often get stuck in the machinery of

government, buried by multiple agencies' governance requirements or undermined by uncertainty about their longer-term home.

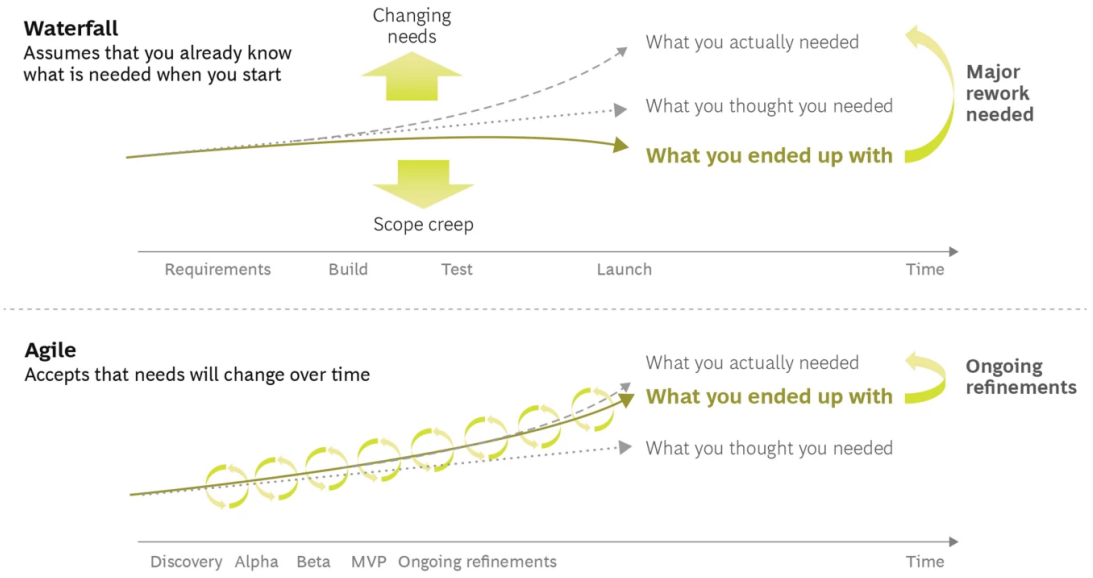
Traditional portfolio funding of separate parts of government with separate allocations of money also limits the ability of teams from different departments or different levels of government to share a common platform. As a result, shared horizontal platforms remain rare in government.

Siloed, risk-averse funding inhibits experimentation. Traditional funding does not support or facilitate experimentation. Incubator or catalyst funding, for example, encourages the creation of products that evolve throughout their development. The GOV.UK Notify platform, which initially focused on tracking government transactions, offers a striking contrast. Free to experiment, the team discovered that sending out push notifications about the status of transactions was a bigger need than simply tracking them, so it shifted course.

Existing approaches are ill suited to a changing environment. As the pace of change in the world accelerates, governments need to respond swiftly today while also developing resilience so they can respond tomorrow, too. Traditional government finance and project management practices, however, are stage-gated, sequential, and inflexible. These practices struggle to accommodate change and mesh poorly with the rapid feedback cycles and flexibility that are essential in building digital services.

For most digital projects, agile ways of working have proved to be a less risky approach than the traditional, sequential waterfall method of development. To accommodate uncertainty, agile methods use a customer-centric DevOps approach and create fast-feedback loops that allow adjustments. (See Exhibit 1.)

Exhibit 1 - Agile Practices Anticipate Change and Uncertainty



Source: BCG analysis.
Note: MVP = minimum viable product.

Agile practices and teams have improved the delivery of government services. But without a reformed funding model, agile runs into brick walls. The upfront cost of continuing to fund and govern as usual will become an increasing liability. Projects will continue to run late, exceed budget, and fail to meet expectations. Poor project outcomes lead to poor experiences, as citizens resort to phones, in-person visits, and even mail to obtain public services that should be available through digital channels.

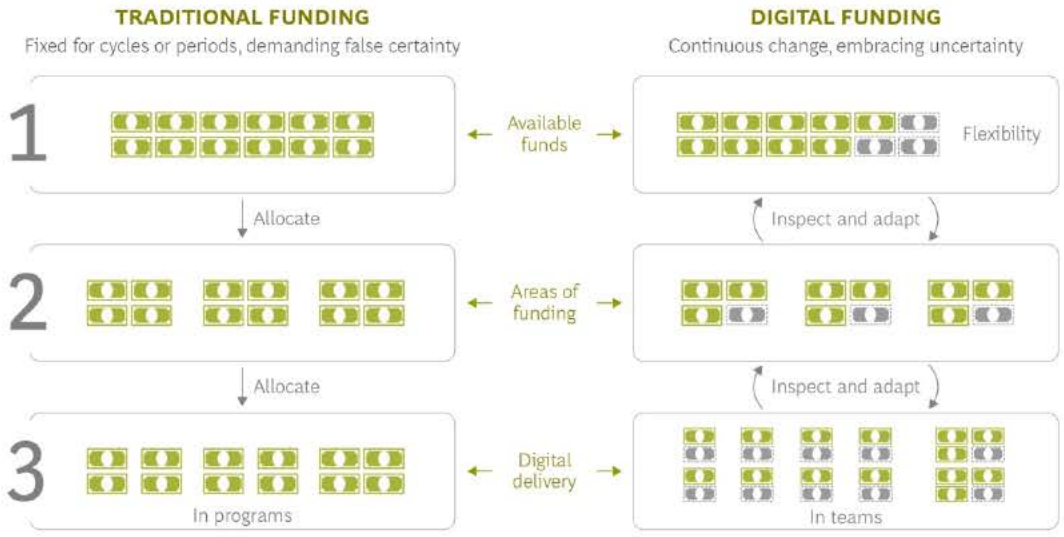
ALL GOVERNMENT LEADERS NEED TO EMBRACE DIGITAL FUNDING REFORM

Although funding for digital projects affects a broad array of public sector leaders–agency heads, CFOs, CIOs, and many others—few of them consider financial reform a priority. But funding reform is necessary if governments are to realize the full potential of digital technologies.

Reformed funding of digital projects should support digital ways of working and recognize digital's transformative potential. It must be

flexible but also rigorous and open to scrutiny. (See Exhibit 2.) Some key shifts in culture, attitude, and behavior are necessary.

Exhibit 2 - Digital Funding Minimizes Risk and Improves Outcomes



Source: BCG analysis.

Fund less, but fund more often. Digital funding needs to match more closely the rhythms of digital delivery. Smaller and more frequent releases of funding can help ensure that teams stay on track and that those in need of fresh funds to support innovative work do not have to wait for the next budget cycle. The US Congress passed a law in 2017 that facilitates this sort of funding flexibility. Although reform efforts started slowly, recent changes in the law may accelerate digital funding practices. (See "Modernizing Tech Funding in the US.")

MODERNIZING TECH FUNDING IN THE US

For far too long, federal US agencies have struggled to strike a balance between maintaining their legacy systems and investing in modern and secure technology solutions. As much as 90% of an agency's IT funding supports day-to-day operations and maintenance, leaving the

agency little money to invest in modern technology.

In 2017, the US Congress passed the Modernizing Government Technology (MGT) Act, which aimed to create greater funding flexibility so that agencies could engage in multiyear digital transformations without repeatedly having to seek new funds through traditional annual budget cycles. The MGT Act created the Technology Modernization Fund (TMF) with a modest initial funding amount of $100 million. In 2021, Congress passed the American Rescue Plan (ARP), which, among other things, increased the TMF's funding to $1 billion.

Prior to this year, agencies had to repay TMF loans within five years. Now, the TMF has greater flexibility in determining whether the loans need to be repaid in full. This shift, prompted by the need to accelerate the pace of modernization in the face of the pandemic, has increased interest in the program. As of July 2021, the TMF had received more than 100 proposals totaling $2 billion in requested funds.

The TMF board evaluates several factors in deciding whether to approve an agency's application for funds:

- The impact on the agency's mission, including improving service delivery and security, reducing operational risk, or addressing urgent consumer pain points
- The agency's digital maturity and the role of the investment proposal in accelerating the agency's IT modernization
- The feasibility of the project, including team strength, executive visibility, and support
- Expected cost savings or lasting positive financial impact
- The agency's ability to use common solutions such as government shared services, reusable technology from existing agency products, or off-the-shelf software

- Potential reduction or retirement of outdated, legacy systems in favor of modern scalable technology platforms

The TMF board conducts detailed reviews with project teams and executive leadership before approving funding. It reviews the status of investments quarterly to ensure that the agencies are meeting their plan. Technical experts are available to support project teams.

Agencies have tapped into the fund to improve public services and internal operations. For example, in 2018, the Department of Agriculture used a TMF loan to consolidate and modernize ten public websites into farmers.gov, resulting in improved, centralized services such as financial assistance and payment. The Department of Labor led a multi-agency effort, which also began in 2018, to streamline and digitize the US visa application system for employers.

Announce more achievements and fewer intentions. Breaking up large projects into smaller and more frequent releases allows leaders to focus public attention on the actual delivery of features and functionality that benefit citizens rather than on big spending commitments that fail to deliver. Regular delivery of results builds trust in public institutions and increases accountability.

Regularly review every part of the budget. Digital funding may seem out of place in the traditional world of public funding. Its emphasis on funding individual projects in smaller, lower-risk increments is hard to square with the need for high-level scrutiny and oversight. One way of dealing with this mismatch is to adopt a model that scrutinizes both project funding and business-as-usual funding so that officials are regularly rebalancing and reprioritizing funds strategically.

In some US government agencies, the IT operating budget may consume up to three-quarters of the agency's overall IT budget. By evaluating existing spending and operational risk, governments may be able to redeploy funds from lower-risk, business-as-usual activities to support critical digital projects that would otherwise go unfunded.

In the US government funding process, when agencies receive incremental dollars to support a key technology initiative, they are often expected to demonstrate fiscal prudence by contributing materially to a project from their existing budget. A process that questions business-as-usual funding, if done well, can support such requests for agencies to have skin in the game.

Fund persistent, mission-centered, multidisciplinary teams. Organizations commonly fail to recognize the permanence of change and the need for permanent teams. Success accumulates continuously over years or decades, but most digital teams are temporary and under constant threat of disbandment. To encourage teams to become successful, capable, and experienced, agencies must fund them more sustainably, with both *core funding* to encourage longevity and *burst funding* to accommodate temporary expansion or expertise.

The model that brings these ideas together is the persistent, mission-centered, multidisciplinary team. Such a team combines several valuable features:

- **Persistence allows people working closely together to become more effective.** Over time they build better relationships, adapt internal processes, and learn how to deliver faster, higher-quality services. Iterative funding helps reduce the impact of funding allocations on teams.
- **A mission gives teams the freedom to experiment and adapt without traditional constraints.** Teams are free to adopt new

approaches as long as they accomplish their mission.

- **A multidisciplinary approach ensures that teams have the skills they need in order to deliver.** Teams can reduce the feedback loops for designing, making, testing, and operating technology from days or weeks to minutes because representatives from each relevant field are on the team.

Build modern governance and management practices. Governance should accelerate progress and reduce delivery risk. It should also provide teams with the context and insight necessary to make consistent, transparent decisions that align with overall strategy.

A governance model that supports digital funding has five key characteristics:

- A clear definition of the problem and desired outcome
- An approach that focuses on empowering teams to come up with solutions
- Senior-level sponsorship and input into funding decisions
- Frequent funding decisions
- Flexibility to redirect funds and teams to other priorities

These characteristics enable teams to experiment and then to choose a direction on the basis of evidence that it works. They also encourage teams and individuals to be open and honest and allow uncomfortable truths to emerge. The rationale for funding decisions relies on data and experience rather than assumptions and norms.

Encourage emerging and experimental practices. Teams that repeatedly face the same problem will often find creative solutions if they

have the autonomy to experiment and the freedom to fail. Return on investment is volatile for experimentation; it may be high in some cases and zero in others. This is the nature of venture capital and other forms of private-sector funding. The public sector cannot expect to achieve digital innovation without putting some money at risk. The current approach of minimizing short-term risk on every initiative creates long-term risk by stifling innovation.

Governments should create a portfolio with a balanced range of approaches to spread their risk, and they should ensure that planners view every initiative—whether successful or not—as an opportunity to learn.

Embrace cloud technology and a little opex over a lot of capex. Data centers, corporate networks, and complex hosted systems such as enterprise resource planning systems and customer relationship management systems are expensive to create and maintain, and they require specialized skills and knowledge. Today, organizations can obtain these commodity systems as cloud services. The range of available open-source, off-the-shelf, and X-as-a-service offerings that meet government needs is rapidly increasing. Moving from owning computing resources to renting them entails making a corresponding shift from capital expenditure to operational expenditure. But many government budgeting processes have an implicit or explicit preference for one-off capital expenditure and asset ownership over commitments to ongoing operating expenditures. Governments need to eliminate any bias for capex, and they should encourage greater use of configurable solutions that get the job done over unnecessary customer and bespoke software.

Existing patterns of funding, approvals, and governance pose major challenges to digital delivery today. In response to these difficulties, a few governments have begun to explore new approaches. They recognize that

digital services are central to citizens' experience of government and are vital to citizens' trust in public institutions. Even so, today, such approaches remain rare, experimental, or exceptional. In order for these approaches to reach scale, government finance departments and treasuries must make them part of the financial governance toolkit.

Digital professionals and financial professionals within the government must partner closely, as both bring valuable perspectives to the table. Digital transformation cannot occur without financial reform. Financial and digital leaders can work together to simplify and speed up approvals processes and to support teams that are on board with the digital funding approach.

Reforming digital funding is not without risk, but it's a challenge that governments must embrace boldly and openly if they are to be the effective, trusted institutions we need.

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Sydney

ABOUT BOSTON CONSULTING GROUP

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we work closely with clients to embrace a transformational approach aimed at benefiting all stakeholders—empowering organizations to grow, build sustainable competitive advantage, and drive positive societal impact.

Our diverse, global teams bring deep industry and functional expertise and a range of perspectives that question the status quo and spark change. BCG delivers solutions through leading-edge management consulting, technology and design, and corporate and digital ventures. We work in a uniquely collaborative model across the firm and throughout all levels of the client organization, fueled by the goal of helping our clients thrive and enabling them to make the world a better place.

Flipping the Odds of Digital Transformation Success

Leading in the New Reality

BCG

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To succeed, organizations must blend digital and human capabilities. Our diverse, global teams bring deep industry and functional expertise and a range of perspectives to spark change. BCG delivers solutions through leading-edge management consulting along with technology and design, corporate and digital ventures—and business purpose. We work in a uniquely collaborative model across the firm and throughout all levels of the client organization, generating results that allow our clients to thrive.

Contents

If Failure Is Not an Option, Why Is Success So Rare?

With so much at stake to build digital capabilities that drive customer centricity and productivity, why do so many companies fail? And not just troubled companies—top performers, market leaders, and investor favorites, too. New BCG research shows that 70% of digital transformations fall short of their objectives, often with profound consequences.

Digital transformations are an imperative as today's leading corporations need to build bionic capabilities in order to harness the potential of disruptive technologies and integrate them into new processes, organization models, and ways of working. This necessity has been accelerated by the pandemic.

Our research shows that more than 80% of companies plan to accelerate their companies' digital transformations—and with good reason. Overwhelming evidence shows that successful digital transformations drive performance and competitive advantage and propel companies toward becoming bionic.

Digital leaders achieve earnings growth that is 1.8 times higher than digital laggards—and more than double the growth in total enterprise value. In the short term, digital technologies and ways of working offer productivity improvements and better customer experiences. In the medium term, digital opens up new growth opportunities and business model innovation. Successful transformations also set companies up for sustained success; they won't have to digitally transform again as they master continuous innovation. Investors say that 50% of companies should invest more aggressively in digital capabilities and technology.

But there is a conundrum for management: digital transformations are difficult to execute. And with so much on the line, only 30% of transformations succeed in achieving their objectives. There are good reasons for this, too. Delivering such fundamental change at scale in large, complex organizations is challenging, especially with short-term pressures. Individual leaders must decide whether they want to jeopardize their careers against these odds or risk falling behind.

The technology is important, but the people dimension (organization, operating model, processes, and culture) is usually the determining factor. Organizational inertia from deeply rooted behaviors is a big impediment.

Failure should not be an option, and yet it is the most common result. The consequences in terms of investments of money, organizational effort, and elapsed time are massive. Digital laggards fall behind in customer engagement, process efficiency, and innovation.

In contrast, companies that are successful in mastering digital technologies, establishing a digital mindset, and implementing digital ways of working can reach a new rhythm of continuous improvement. Digital, paradoxically, is not a binary state, but one of ongoing innovation as new waves of disruptive technologies are released to the market. Consider, for example, artificial intelligence, blockchain, the Internet of Things, spatial computing, and, in time, quantum computing. Unsuccessful companies will find it extremely hard to leverage these advances, while digital organizations will be innovating faster and pulling further away from digital laggards—heading for that bionic future.

Digital transformations can define careers as well as companies. The fundamental question on the minds of all business leaders must be: "How can I ensure that my organization is among the 30% of successful transformers?"

With the insights gathered from both our empirical work with clients and a global survey of senior executives whose companies have undertaken transformations, we have carefully analyzed the main drivers of success. The work is evidence based. It shows that getting just six things right flips the odds for success from 30% to 80%.

Here's how the winners win.

Flipping the Odds

~30%

Only ~30% of organizations achieve successful digital transformations…

~80%

…but the success rate is ~80% among those that get six factors right

The Six Critical Success Factors for Digital Transformations

01

An integrated strategy with clear transformation goals

02

Leadership commitment from CEO through middle management

03

Deploying high-caliber talent

04

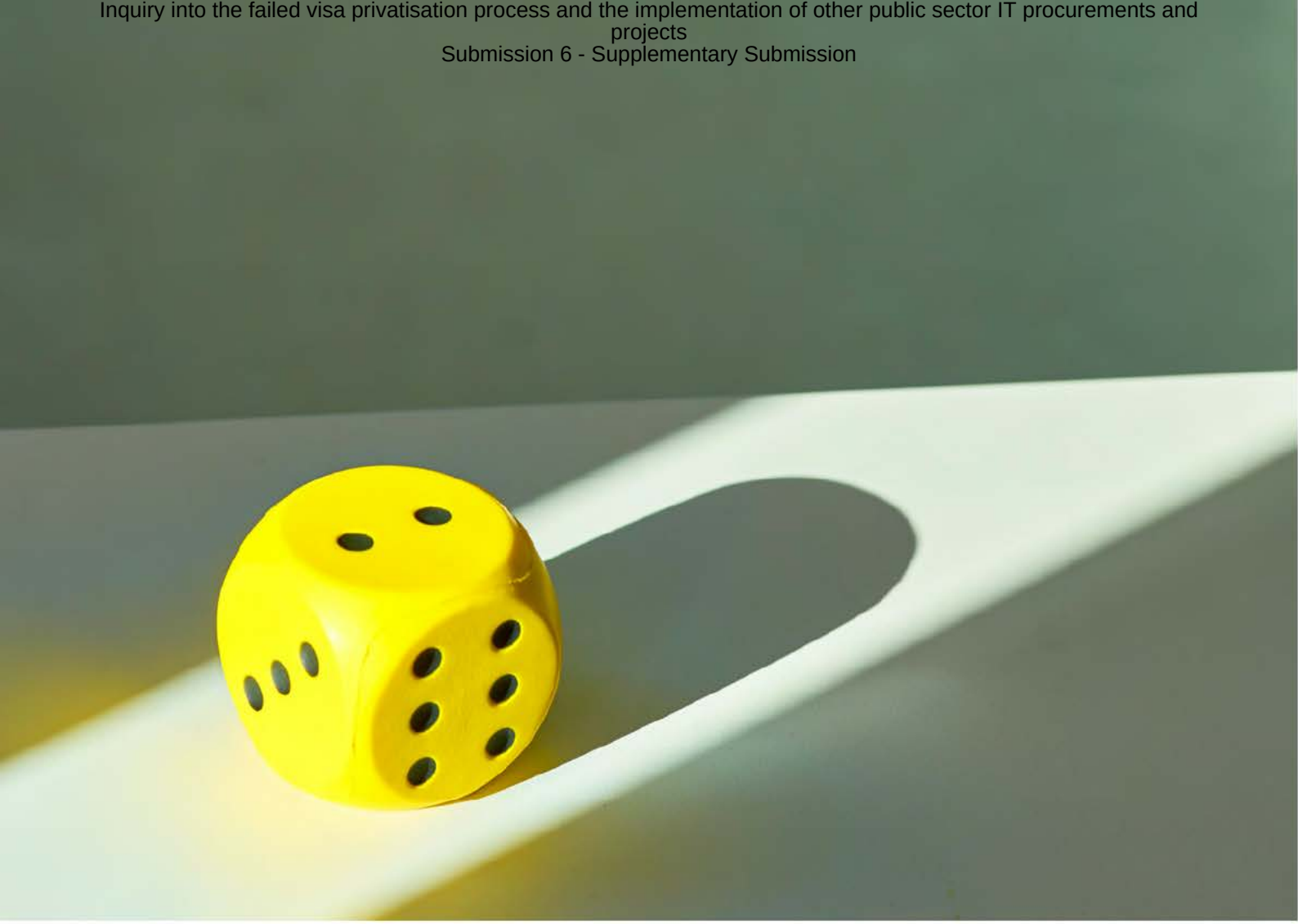
An agile governance mindset that drives broader adoption

05

Effective monitoring of progress toward defined outcomes

06

Business-led modular technology and data platform



How Winners Win

Our research involves both internal and external data sets. The internal data comes from BCG's own experience working with 70 leading companies worldwide on their digital transformations over the past several years. The external data comprises responses offered by 825 senior executives in a detailed survey about their transformation experience.

To determine how companies succeed, we asked executives to assess their transformations on a scale of 1 to 10. We defined success to include the percentage of predetermined targets met and value created, the percentage of targets and value met on time, success relative to other transformations, and success relative to management's aspirations for sustainable change.

Only 30% of transformations met or exceeded their target value and resulted in sustainable change; companies in this group are in the win zone. Some 44% created some value but did not meet their targets and resulted in only limited long-term change; these companies are in the

worry zone. And in the woe zone, 26% created limited value (less than 50% of the target), producing no sustainable change. (See Exhibit 1.)

From a comparative point of view, successful transformations created, on average, 66% more value, improved corporate capabilities by 82%, and met 120% more of their targets on time than those in the woe zone. Compared with the worrisome transformations, winners created 29% more value, improved capabilities by 20%, and met 32% more targets on time.

What Drives Success

Despite the differences in industries, starting points, and goals, management teams wrestle with a very similar group of questions at the start of a transformation:

- **Why are we doing this?** Do we need to become more responsive to rapidly shifting customer needs? Does our productivity need a step change improvement? Is our ability to innovate lagging?
- **What should we do?** The scope of digital transformations varies widely, from focusing on people (for example, agile at scale) to overhauling technology and infrastructure, replacing legacy IT platforms, and moving to the cloud. Many companies focus on specific business outcomes, such as personalization and digital marketing, end-to-end customer journeys, digital supply chains, and digital shared services.
- **How do we implement the transformation?** There are many questions around leadership, governance, resourcing, focus, approach (such as using pilots, incubators, or lighthouses), and sequencing. How do we make sure that product, channels, and support functions work in unison with the technology function, and how do we get middle management on board?

Executives must make many important decisions before starting, and typically there are (legitimately) differing views around the leadership table. These can range from "Let's manage this in the business units so we can integrate well" to "We need to do something across the entire organization to change the mindset"; or from "Let's do

Exhibit 1 - Only 30% of Digital Transformations Are Successful

Source: BCG analysis.

Note: Based on 895 transformations.

¹The success score is calculated on the basis of the percentage of predetermined targets met and value created, the percentage of targets met and value created on time, the success relative to other transformations, and the success relative to management's aspirations for sustainable change.

some pilots, and if they succeed, we can expand to other areas" to "We must commit the whole organization to change."

When trying to bring everyone along with the overall plan, it can be easy to compromise and lose focus on the transformational aspiration. This is where the trouble usually starts. But among all the decisions that must be made, six critical success factors stand out. The companies that get these six factors right flip their odds of success from 30% to 80%.

The six essential success factors are:

- **An Integrated Strategy with Clear Transformation Goals.** The strategy describes the why, the what, and the how, which are tied to specific, quantified business outcomes.
- **Leadership Commitment from CEO through Middle Management.** The company has high leadership engagement and alignment, including often-overlooked middle-management ownership and accountability.
- **Deploying High-Caliber Talent.** Management identifies and frees up the most capable resources to drive the transformation program.
- **An Agile Governance Mindset That Drives Broader Adoption.** Leaders address roadblocks quickly, adapt to changing contexts, and drive cross-functional, mission-oriented, "fail-fast-learn" behavioral change into the wider organization. They deal with individual challenges without losing sight of the broader goals.
- **Effective Monitoring of Progress Toward Defined Outcomes.** The company establishes clear metrics and targets around processes and outcomes, with sufficient data availability and quality.
- **Business-Led Modular Technology and Data Platform.** The company puts in place a fit-for-purpose, modern technology architecture driven by business needs to enable secure, scalable performance, rapid change deployment, and seamless ecosystem integration.

When tackling these six factors, companies must satisfy two conditions. First, management needs to make sure that each of the six is adequately addressed in their planning, preparation, and execution. Most companies in the worry and woe zones put effort into this. The problem is that these organizations did not address each factor sufficiently.

Sufficiency can often be a vague term and is susceptible to embellishment, especially when program leaders are justifying their plans in order to get sign off and resources. In the sections that follow, we provide a readiness checklist for each factor that companies can use to assess their positions. Imagine a high-jump contest. All the contestants have been practicing, all have prepared for the competition. But only those who clear the bar will advance. The defining questions that we provide, based on empirical evidence, will help companies determine whether their chances of clearing the bar are low or high.

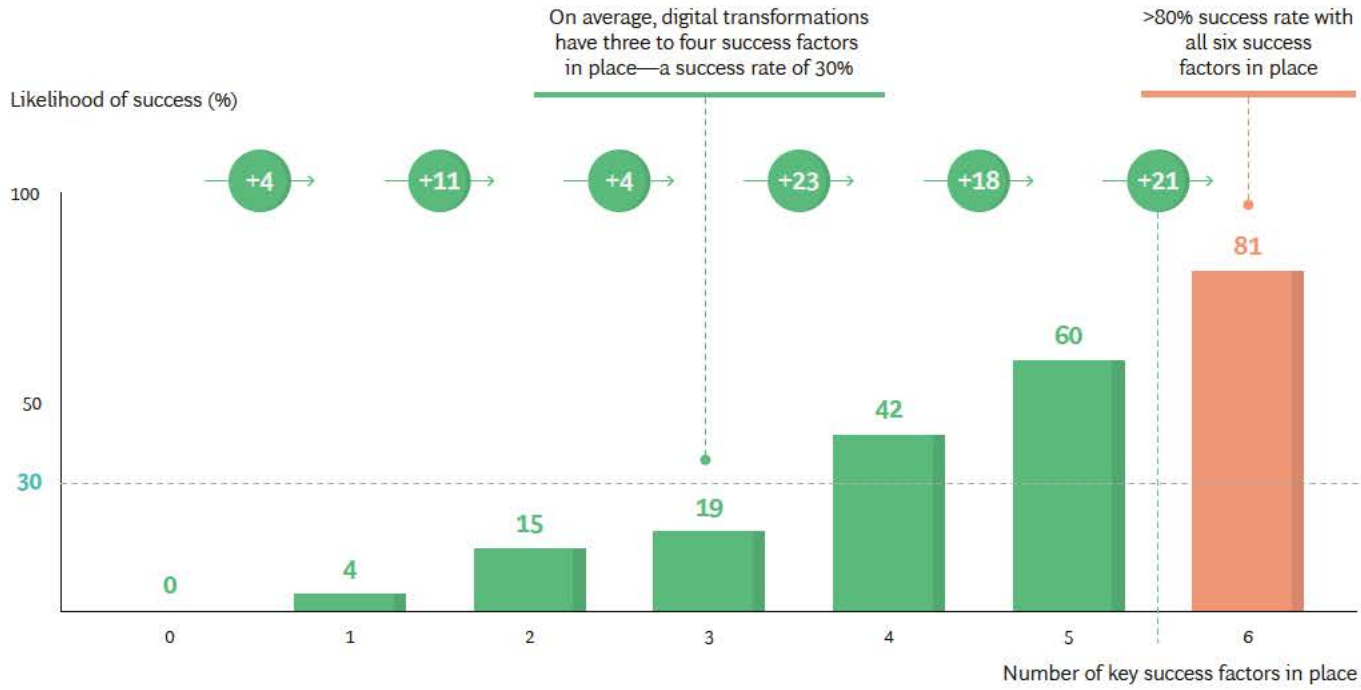
Second, it is crucial to address ***all six*** factors. (See Exhibit 2). Companies that adequately addressed only three or four failed.

We tested more than 35 factors that reflect commitment, strategy, approach, governance, financial and people resourcing, and technology enablers. (See the sidebar "BCG's Proprietary Research.") Out of all of the possible combinations that we examined, none had the same impact on success as these six. One reason is that many of them are correlated with one another. When organizations address one factor effectively, they also tend to address one or more of the others. For example, adopting an agile governance mindset correlates strongly with the adoption of agile principles and culture through the organization. Similarly, the quality of talent correlates closely with turnover rates, so that when organizations bring in strong people to run the transformation, these individuals are also less inclined to leave midway through the transformation.

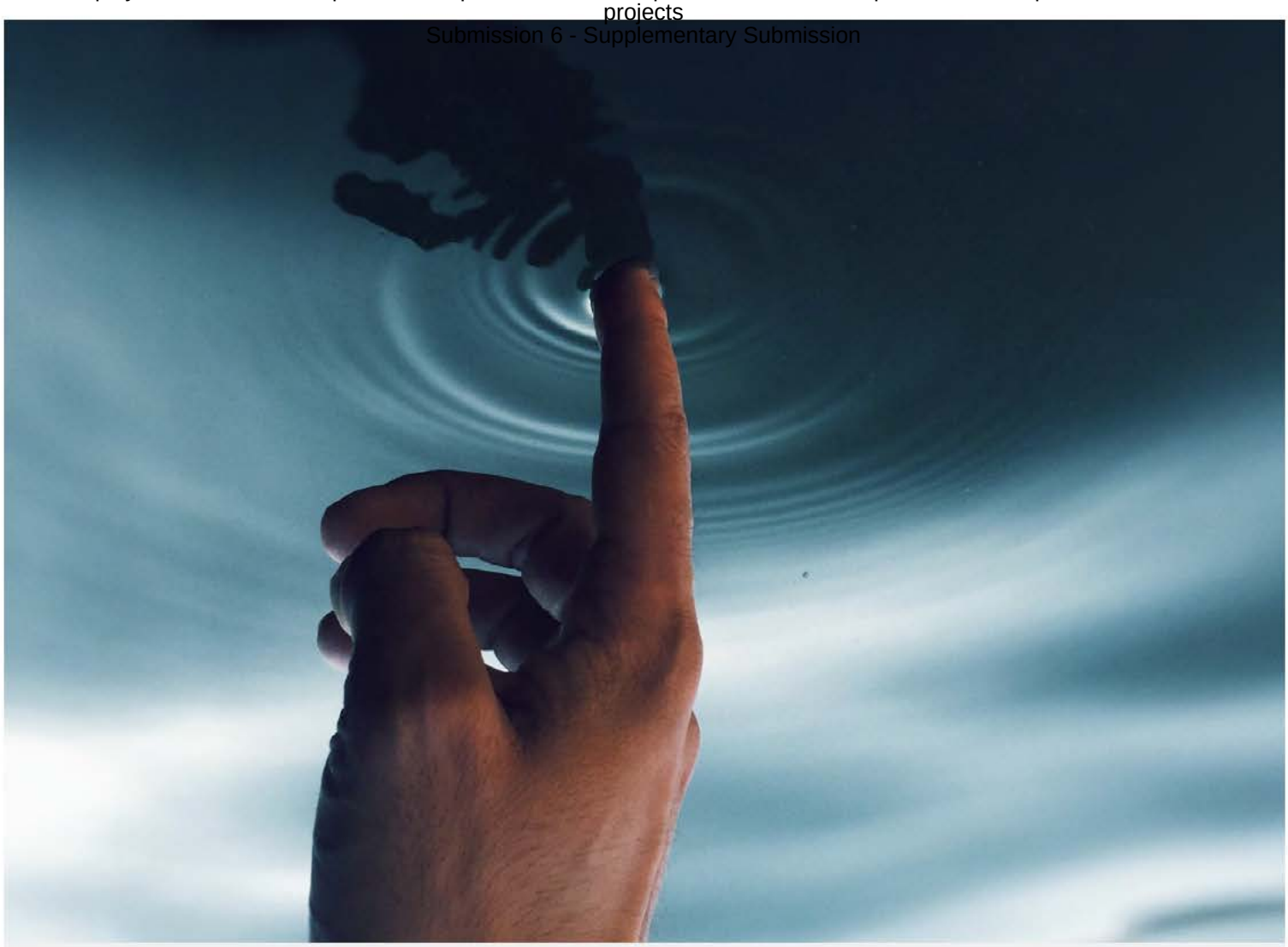
We examine each of the six factors in depth in the following sections.

The technology is important, but the people dimension is usually the determining factor.

Exhibit 2 - Companies Need to Perform Well on All Six Factors to Be Successful



Source: BCG analysis.



BCG's Proprietary Research

BCG's leading position as a strategic partner in delivering digital transformations with our clients gives us a unique ability to provide insights on transformation success. We undertook a systematic and forensic analysis of 70 BCG-supported digital transformations. We supplemented this analysis with external research among 825 executives who have undertaken digital transformations in their companies. The combined data set covers all geographies, industry sectors, and types of digital transformation.

We conducted a detailed survey asking all participants about the goals of their transformation, how successful it has been, and the degree to which each of more than 35 potential influencing factors were in place. (See the exhibit.) These factors covered:

- Leadership commitment
- Strategy and approach taken
- Governance
- Financial and people resourcing
- Starting capabilities (such as technology and agile)

We Tested More Than 35 Factors Across Five Dimensions

Commitment	Strategy and approach	Governance	Financial and people resourcing	Tech enablers
CEO involvement	Complete strategy and goals set	Effective program sponsor	Sufficiency of capex	Robustness and flexibility of tech and data platforms
Alignment and involvement of the executive committee	Cascading KPIs and accountabilities with meaningful incentives	Effective program manager	Dynamic readjustment of capex	Sufficiency of IT investment and time
Alignment and involvement of middle management	Adoption of agile principles and culture	Effectiveness of the chief digital officer and chief technology officer	Sufficiency of opex	Ability to support and scale use cases
Board involvement	Adoption of cloud	C-suite digital expertise (excluding the chief digital officer)	Dynamic readjustment of opex	Data governance and regulations
Level of ambition	Benefits portfolio linked to business needs	Central value-adding governing body (e.g., PMO)	Quality of talent	Data-driven culture
Communication to the market at the start	Use of external ecosystems and experts	Effective problem solving	Sufficiency of resources	A proprietary, or advantaged, data set
Effective monitoring	Effective monitoring	Effective monitoring	Turnover rates	
Level of pressure to transform		Effective internal communication		
		Agile mindset in governance		

1. For each transformation, survey respondents described the objectives and the outcomes achieved[1]
2. Each respondent then assessed its performance across the five dimensions[2]
3. We then determined the set of factors most important to drive success

Source: BCG analysis.

Note: PMO = project management office.

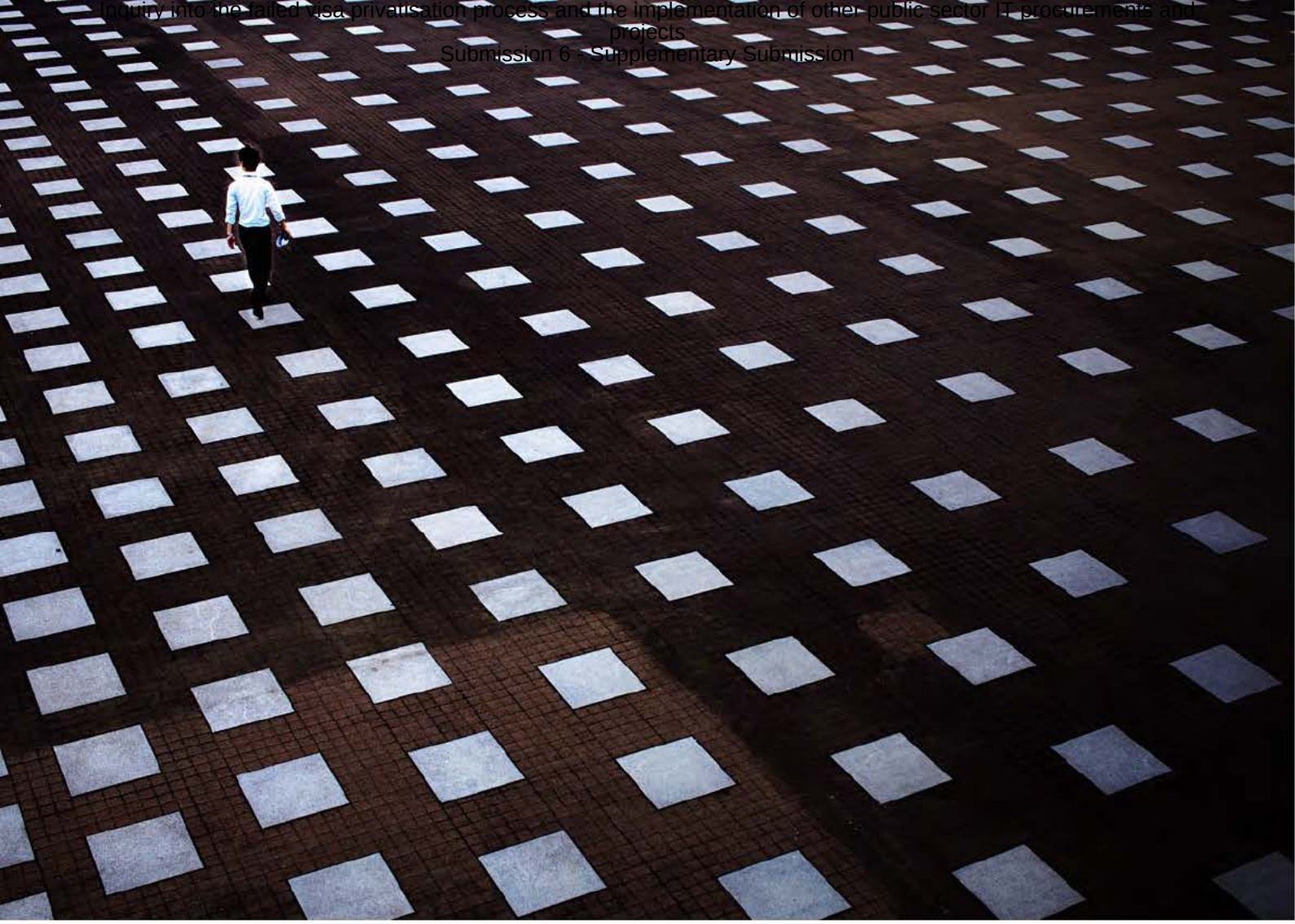
[1]Based on a range of factors, including the percentage of the targets met, the amount of value achieved, and whether the targets were achieved on time.

[2]Assessment offered either on a scale of 1 to 5 or by answering a yes-no question.

We then used the resulting data set to empirically analyze which combination of factors, if performed sufficiently well, had the biggest impact on success and which combination differentiated successful transformations from those that were less successful. The six critical success factors emerged from this analysis.

We defined the success of a transformation on a scale of 1 to 10 using a combined success score. This score was based on a set of survey responses that included the percentage of predetermined targets met and value achieved, the percentage of targets and value met on time, the success relative to other transformations, and the success relative to management's aspirations for sustainable change.

To determine the most effective combination of critical success factors, we used a multivariate analysis on the full list of potential influencing factors. We employed a multivariate linear regression approach, run using the "R" coding language. All input factors were included in the initial regression analysis, with the combined success score being the target or output variable. R^2 and adjusted R^2 values for this initial regression analysis were measured, as well as the coefficients and standard errors for each input factor. This analysis determined that this particular combination and concentration of factors explained more of the variance of the data points than any other combination. For example, adding the sixth factor increased the likelihood of success significantly (by about 20%) while adding a seventh factor had a negligible additional impact. Thus, we can say confidently that our combination of the six success factors best determines the success of a digital transformation.



Factor 1

An Integrated Strategy with Clear Transformation Goals

All companies undertake some form of strategy setting. But only 40% overcome the hurdles to create a truly integrated strategy: a clear vision backed by a set of strategic imperatives and quantified business outcomes, linking digital to the overall business strategy and sustainable competitive advantage. A strong vision, or sense of purpose, energizes and aligns the organization. The strategy must be translated into specific actions embedded in an actionable business roadmap that addresses use cases and technology, people, and organizational capabilities.

One technology company had been spending money for several years on many discrete digital initiatives. But it made little progress until the CEO decided to align the executive team around company-wide digital imperatives. The management team then designed an approach for implementation that prioritized resources around impact and struck a workable balance between company-wide initiatives and customized approaches at a business unit level.

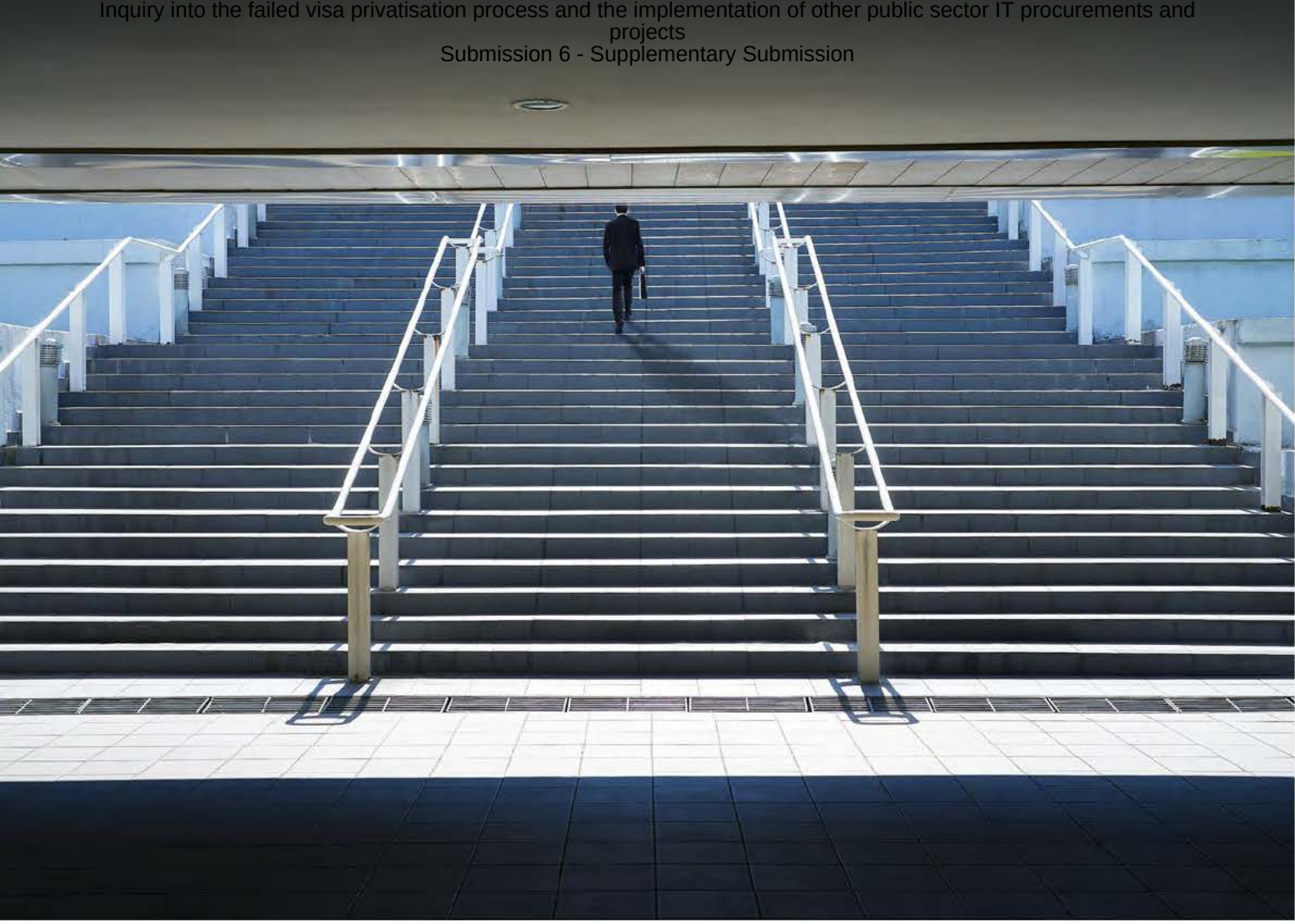
Exhibit 3 provides the defining questions to assess whether this factor is adequately addressed.

Exhibit 3 - Readiness Check for an Integrated Strategy

Source: BCG analysis.

The starting point must be a clear vision, focused on and motivated by customers. To deliver, you need a specific business case, led by senior executives, who are committed to working together.

– Andrew Thorburn, former Group CEO and Managing Director, National Australia Bank



Factor 2

Leadership Commitment from CEO Through Middle Management

Most people understand the importance of commitment by the CEO and other top executives to large-scale change. Yet, by itself, commitment is not sufficient. Companies must also involve the relevant middle managers in the planning and execution of the transformation program to make sure they buy into the goals and strategy. Without this, middle managers often become sources of resistance, defending functional siloes and power bases. As one executive put it, "We knew that it was absolutely critical to address the 'frozen middle.' We couldn't afford our middle management to be cynical or to want to preserve the status quo."

Companies also need to recognize the threats to people's careers that transformations can represent. Automation, bionic processes, and new ways of working mean job losses, especially if retraining and upskilling programs can't compensate. And new digital skills must be brought in. Middle managers feel particularly vulnerable. As organizations adopt agile operating models, they must adjust compensation programs and career paths and then communi-

Exhibit 4 - Readiness Check for Leadership Commitment

Source: BCG analysis.

cate those changes effectively. A motivating purpose, coupled with transparency, is a powerful weapon for bringing people on board and activating behavioral change.

One successful company took the time to involve middle management in the design of the transformation, making it evident that individual managers would be unable to deliver their specific targets unless company-wide digitization succeeded. In another example involving a global organization, management took care to demonstrate the impact of the digital solutions in one operating company before scaling to its functions in other countries. Senior executives also worked hard to respect different countries' business contexts while remaining firm about the need for full adoption.

In our survey, three out of four executives felt that they had good leadership engagement. In fact, however, only one in three had committed middle-management engagement. In those companies, the middle managers felt motivated and empowered to deliver outcomes.

To assess your organization's leadership commitment from the CEO through middle management, see the questions in Exhibit 4.

It was the persistence and results-oriented mindset from the leaders as well as employees from all parts of the company that got us through.

– Somkiat Lertritpuwadol, Senior Executive Vice President, Corporate Strategy, IRPC

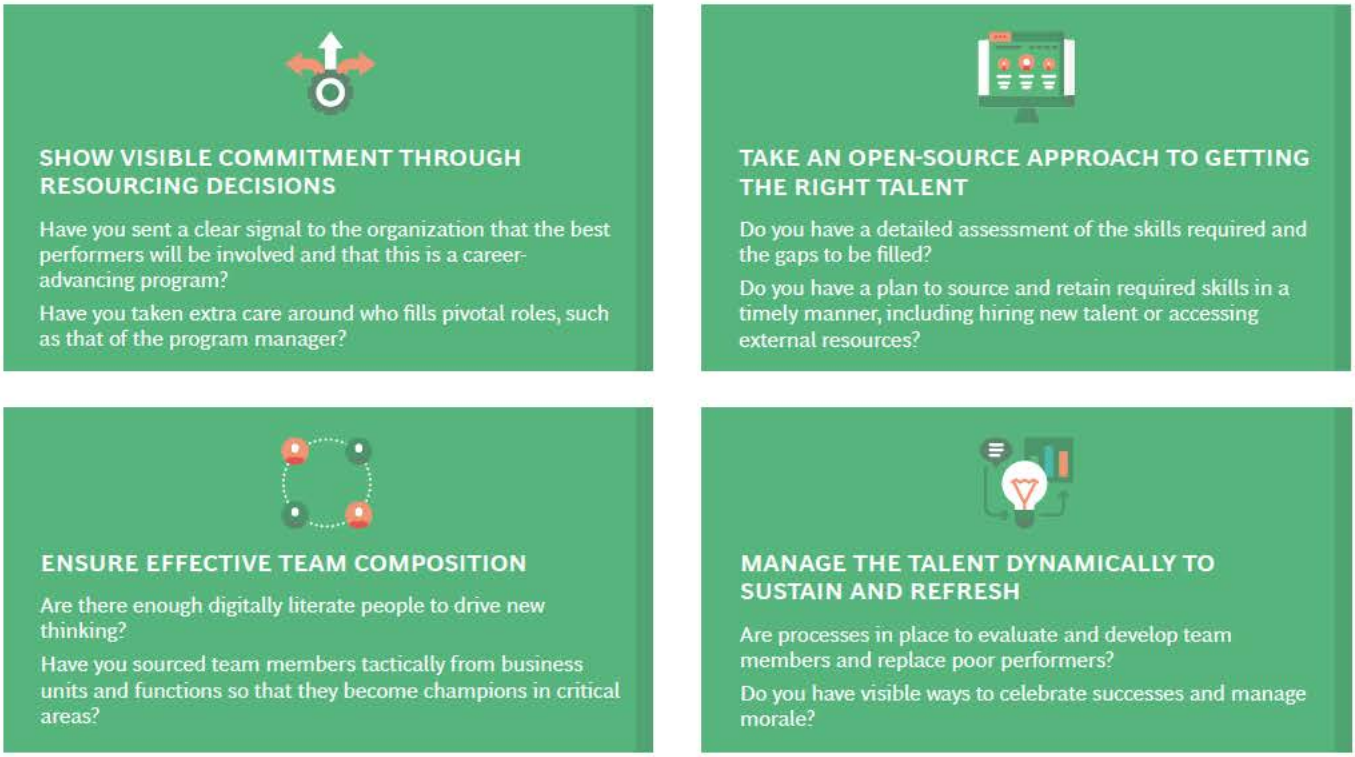
Factor 3

Deploying High-Caliber Talent

Companies often do not have the mix of skills that they need, and they tend to underestimate the skills and expertise of the people required to execute a successful digital transformation. In fact, only one in four organizations in our research cleared the hurdle on this dimension. The successful companies paid particular attention to transformation leadership positions, addressing both digital expertise and broader skills. One executive told us, "You need a core of around 10 digital superstars to drive new ways of working in around 100 others." Just as important are broad-based skills, such as persistence, pragmatism, resilience, collaboration, critical thinking, creativity, emotional intelligence, and learning agility.

Successful companies demonstrated visible commitment to the organization by appointing the best people with the highest potential to lead the transformation. They carefully assessed the roles and skills required and were prepared to source some roles externally if needed. They also ensured

Exhibit 5 - Readiness Check for High-Caliber Talent



Source: BCG analysis.

that talent was managed actively—by, for example, rewarding and retaining strong performers and rotating out underperformers.

A large airline understood that the selection of the transformation program manager was key to success. It took the time to find a digital native who also had the leadership skills to be authentic, honest, persistent, and, when necessary, confronting.

To assess whether your organization is playing its part in securing high-caliber talent to drive transformation, see Exhibit 5.

You need program leaders who bring digital skills and a digital mindset as well as the ability to navigate organizational dynamics. Qualities like stamina, authenticity, and a single-minded focus on the goals are also critical.

– Sander Stomph, Vice President Leading Digital Operations, KLM

Factor 4

An Agile Governance Mindset That Drives Broader Adoption

This success factor has two elements that turn out to be highly correlated. First, the leadership must govern the transformation with an agile mindset. This means engaging deeply enough to be able to actively steer decisions, tradeoffs, and priorities by serving as an effective escalation point for teams. One executive described her company's approach this way: "We had a weekly 'impediments' agenda item where program leaders could tell executives about roadblocks and get them addressed." Leaders should also be prepared to adapt the governance and adjust priorities on the basis of changing context. In this way, they demonstrate resilience and reinforce commitment to the vision and goals, especially when there are setbacks or moments of truth, such as funding or competitor pressures.

Second, the leaders must drive agile behaviors broadly into the organization. This requires authentic belief in the behavioral changes required, as well as playbooks, processes, and support to enable the organization to work in a cross-functional, mission-oriented way.

Exhibit 6 - Readiness Check for an Agile Governance Mindset

Source: BCG analysis.

Our vision was to build a connected company, internally and externally, with customers and suppliers. We knew it would take three to five years and spent considerable time building the conviction to stay on this course.

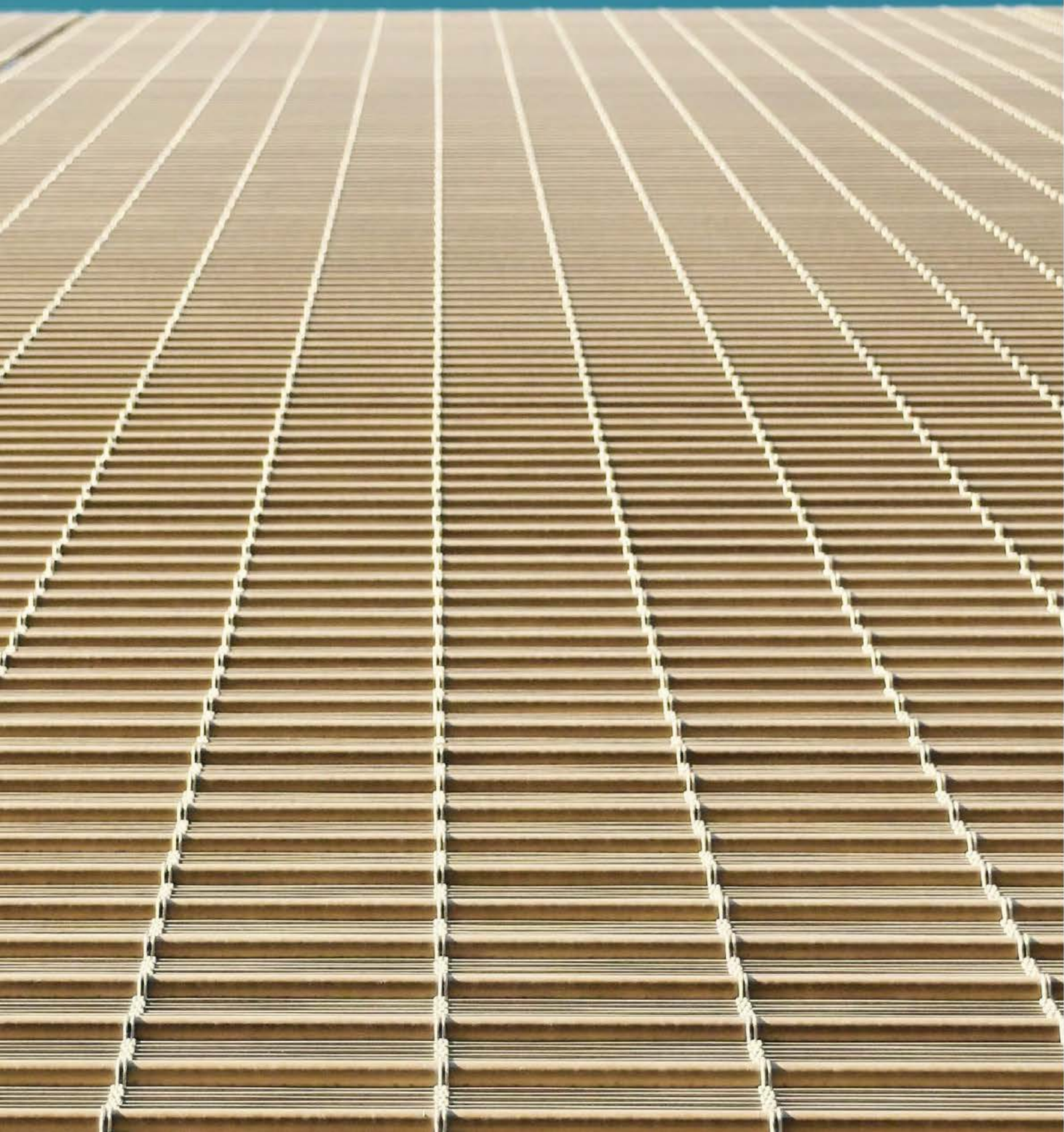
– Phillip Tetteroo, Vice President, Digital Programs, Global Brands, Strategy & Programs, adidas

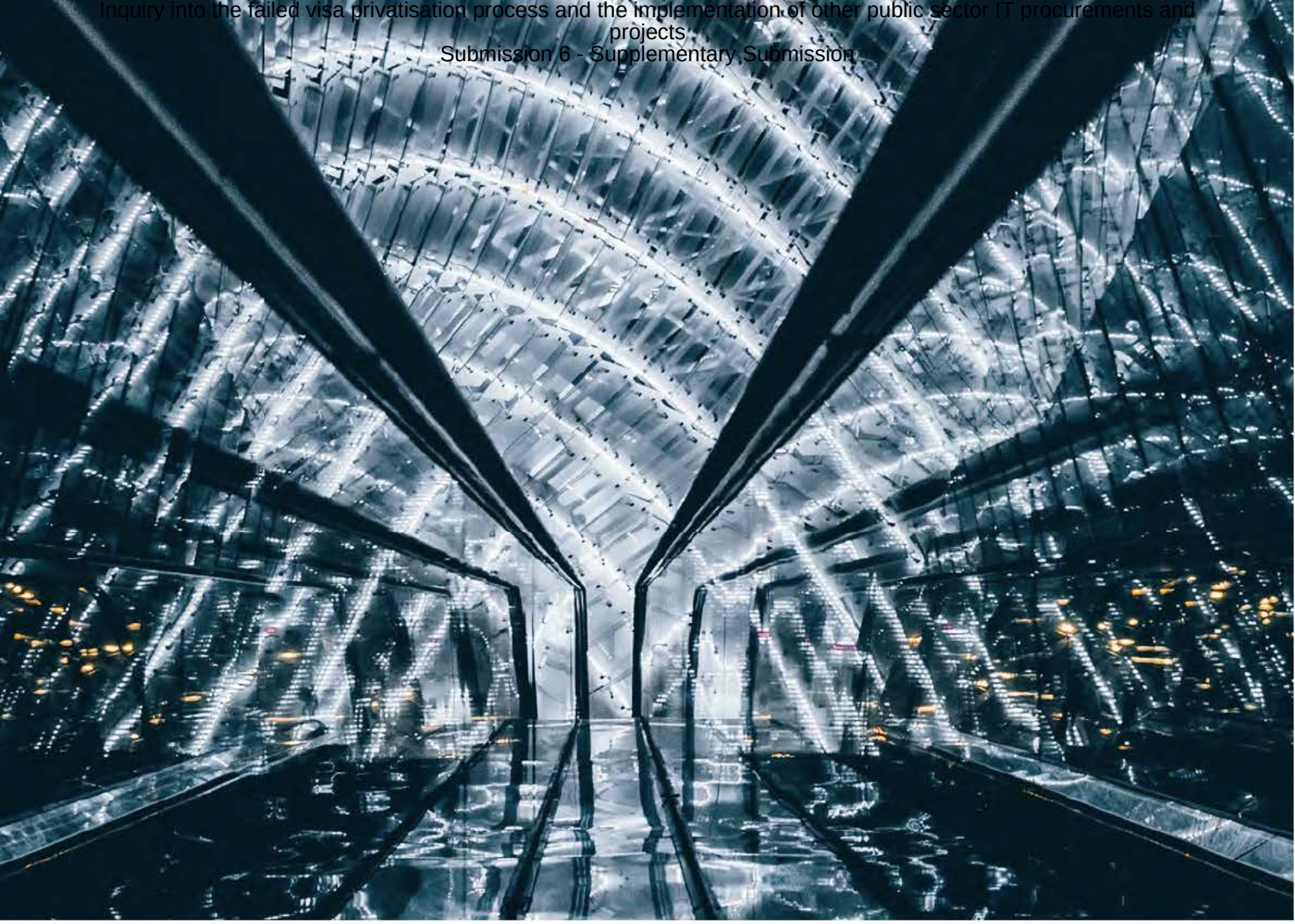
At the start of one successful transformation, members of the executive team were skeptical about agile ways of working. They also recognized that certain corporate initiatives, such as migrating customers to new products and technology stacks, had not been progressing well in the functional organization because motives and incentives were not aligned. The team visited some companies that had deployed agile and became convinced that the move from a functional orientation to a mission-based approach was vital. They oversaw the development of playbooks and operating models and revamped corporate processes around such principles as agile funding and mission-oriented initiatives. At that point, everyone on a mission shared the same targets and worked collaboratively in two-week sprints. The organization began to deliver results much faster.

The research shows that more than two out of three winning digital transformations had effective agile leadership, while 90% of those in the woe zone lacked this factor. In our discussions, executives agreed that they themselves must initiate the change.

To assess whether your organization has adopted an agile governance mindset and is set up to drive broader agile adoption, see Exhibit 6.

Digital is not a binary state, but one of ongoing innovation.





Factor 5

Effective Monitoring of Progress Toward Defined Outcomes

Often, monitoring progress is regarded as a simple matter of good corporate hygiene. However, only two out of five organizations in our study addressed this factor adequately, compared with 90% of organizations with winning transformation programs. Measuring success adequately includes:

- Creating a clear mandate and accountability to monitor progress and to tackle roadblocks and challenges
- Defining detailed operational or financial metrics linked to strategic intent
- Tracking outcomes regularly at both program and initiative levels
- Maintaining a single source of truth on data

For example, one organization implementing a new technology stack developed a comprehensive set of KPIs around the delivery of specified functionality. Management

Exhibit 7 - Readiness Check for Effective Monitoring

Source: BCG analysis.

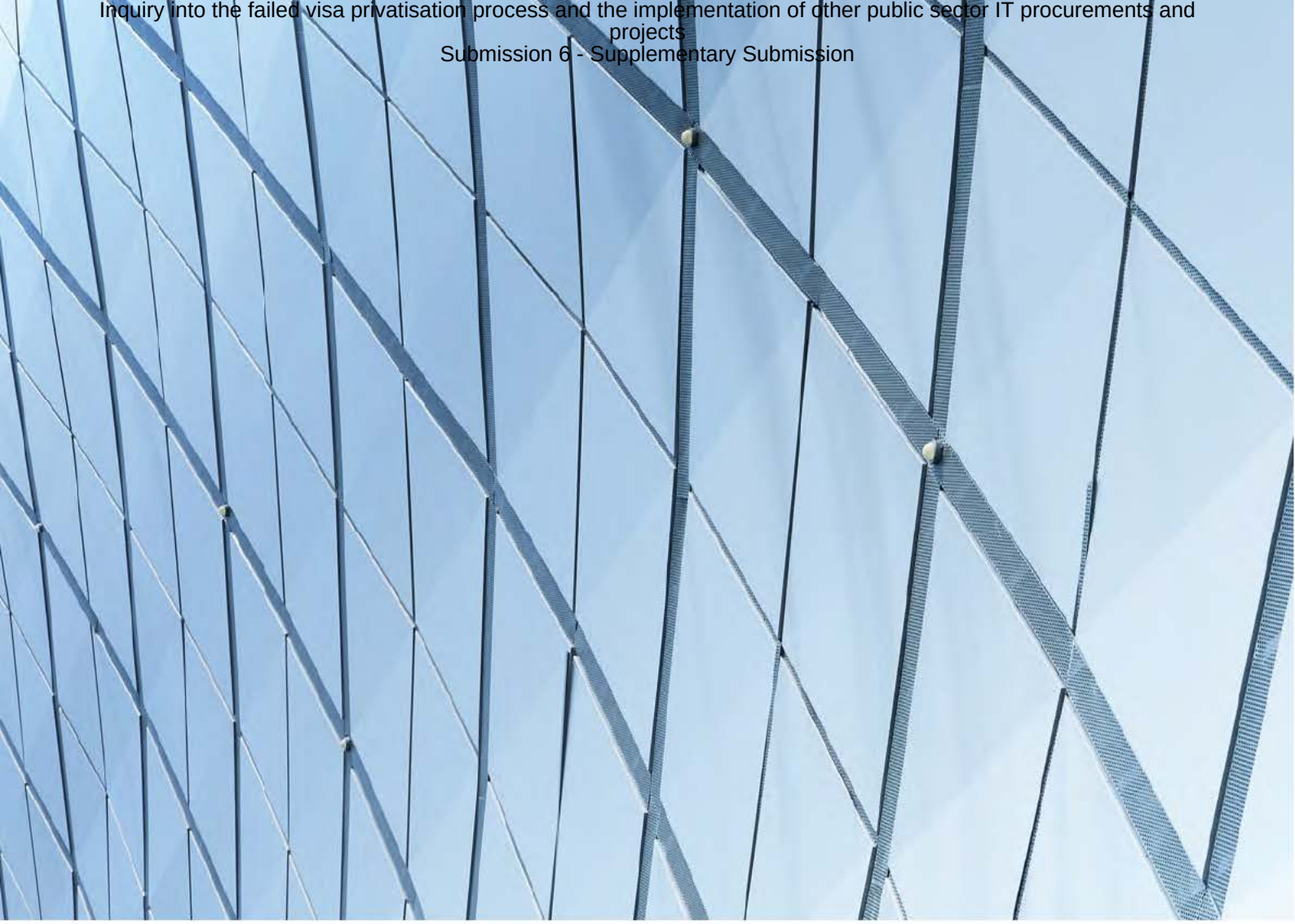
used data from the software teams to develop company-wide measures of productivity and defect rates as well as to assess progress toward agreed-upon milestones. It also developed metrics for value realization, measuring customer migration, operational efficiency (such as end-to-end processing without human intervention), and associated productivity benefits.

As one executive said, "It was essential to join the dots between people with accountability for delivering IT solutions and line managers who had signed up for the business impacts. It is not easy."

To assess whether your organization is ready to effectively monitor progress of your transformation, see Exhibit 7.

Effective monitoring of results is critical. I presented ROI-based marketing performance (versus our shared targets) to the leadership team weekly. By the end of the first quarter, we were seeing positive results from the marketing initiatives and overall positive impact on the shared company targets. The team started to believe in the power of the initiatives and were excited to invest more.

– Aimée Lapic, former Chief Marketing Officer, Pandora



Factor 6

Business-Led Modular Technology and Data Platform

More than half of the companies in our research struggled with a lack of flexibility in their technology platforms. Among successful transformations, however, two out of three invested in a business-led, modern fit-for-purpose technology and data platform to support the development and scaling of digital use cases.

Successful CIOs reinforce that the technology and data platforms must be designed around business priorities. They then implement them using best practices for modularity, flexibility, and scalability, with continuous learning and delivery. Deployment is carried out in frequent release cycles in order to adapt to changing business needs and deliver value incrementally. "We knew that deploying new IT architecture without addressing product and process complexity would have minimal business impact, so we focused on radical simplification and then enabled this with new IT platforms," one company executive said. According to another, "All IT teams were mandated to adopt agile DevOps, and this enabled tight business ownership, rapid iterations, and continuous feedback."

Exhibit 8 - Readiness Check for a Technology and Data Platform

BUSINESS-LED AND FIT-FOR-PURPOSE

Are the proposed technology changes tightly aligned with the overall business objectives?

Have you integrated product and process simplification, and organizational changes, into the designs of the new technology platforms?

DESIGN FOR FREQUENT AGILE UPGRADES

Is the architecture flexible, scalable, and ready to support the use cases in the transformation roadmap?

Does the architecture build in flexibility for future use cases?

Do you have an approach to modernizing or replacing legacy platforms?

Are you investing in tools and people for agile delivery through a DevOps environment?

Does your business-IT operating model support agile delivery?

EMPHASIZE IT ARCHITECTURE DESIGN BEST PRACTICES

Are you migrating toward a modular, microservices architecture?

Does the architecture support easy integration with third-party ecosystems?

Do you have well-managed data that meets future business requirements?

Are you investing in modern tools and platforms (e.g., cloud, data lake, visualization, data governance)?

Have conscious choices been made between commercial off-the-shelf software vs. customization?

Source: BCG analysis.

The advantages of moving to a modern, cloud-based, modular technology stack are huge in terms of end-to-end operational efficiencies and support to business needs and innovation. This type of transformation is a highly complex undertaking, but the rewards—delivering faster and higher-quality outcomes for our people and customers—are worth it.

– Nikos Katinakis, Group Executive, Networks and IT, and Executive Sponsor Digitization Program, Telstra

Exhibit 9 - Examples of How Companies Configure for Success

1 An integrated strategy with clear transformation goals	**Identify a portfolio** of benefits, including year-one impact, to build confidence and assist with funding and longer-term transformational investments. **Create a multiyear funding plan** with commitment to stay the course. Resources will come under pressure, so it is important to reprioritize but remain committed.
2 Leadership commitment from CEO through middle management	**Go public with targets and commit to regular progress** reports to investors. This raises the pressure on the organization and drives executive alignment.
3 Deploying high-caliber talent	**Involve partners.** Technology companies, platform providers, application developers, and experts all have roles to play. Explore ecosystems, involve partners early, share the vision, align incentives, and benefit from others' expertise and experience in decision making.
4 An agile governance mindset that drives broader adoption	**Be pragmatic and flexible.** The customer segment and brand needs, and the regional and country contexts, differ widely. The solutions in Beijing, Berlin, and Boston will not be the same, but they will need consistent approaches to governance, technology, and data resources. **Enable the organization for continuous delivery.** Work iteratively toward long-term goals. Get the organization comfortable with frequent small deliverables, as opposed to one big bang, with MVPs from which to learn and improve. This also improves morale, with many "got the T-shirt" moments.
5 Effective monitoring of progress toward defined outcomes	**Ensure that your key metrics are connected** from top-level aspirations down the organization to the lowest level of financial and operational accountability. We call this "plumbing the plan."
6 Business-led modular technology and data platform	**Test the detail of the linkages between required functionality** and platform and build costs. Often, insufficient detailed analysis is done on what is really required, leading to conservative assumptions on capital expenditures and lower returns on investment.

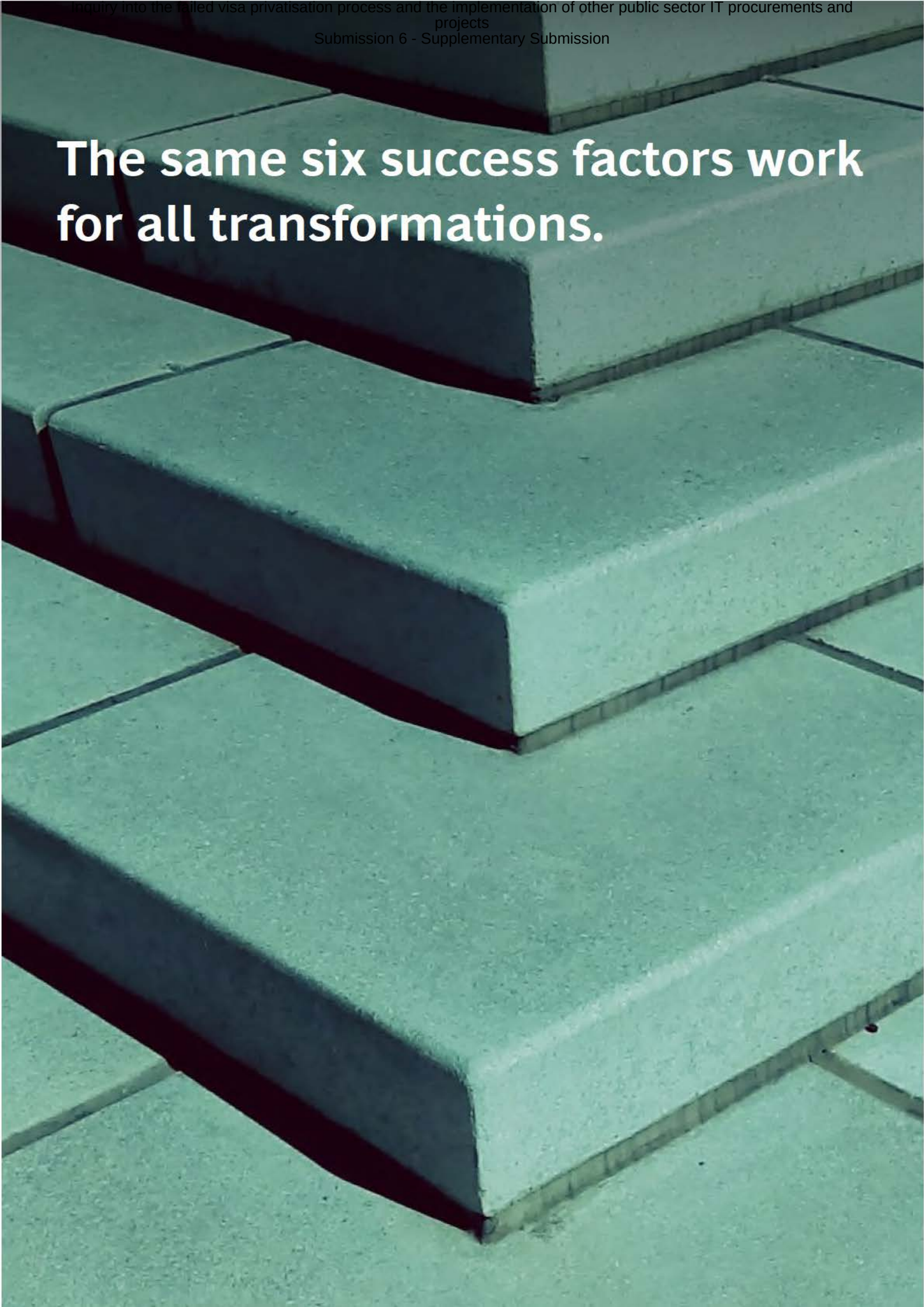
Source: Client quotes; BCG analysis.

Note: MVPs = minimum viable products.

One company waited until it was in the late stages of its transformation to upgrade the data infrastructure and technology architecture for each country. As the tools were rolled out to frontline brand mangers globally, improvements made in one country could be quickly replicated across the whole organization.

To assess whether your organization is prepared with respect to technology and data, see Exhibit 8.

Beyond the checklists, which are broadly applicable, we also see many innovative ways to address the six success factors. The best companies tailor ways to increase their confidence in success. Some examples are shown in Exhibit 9.

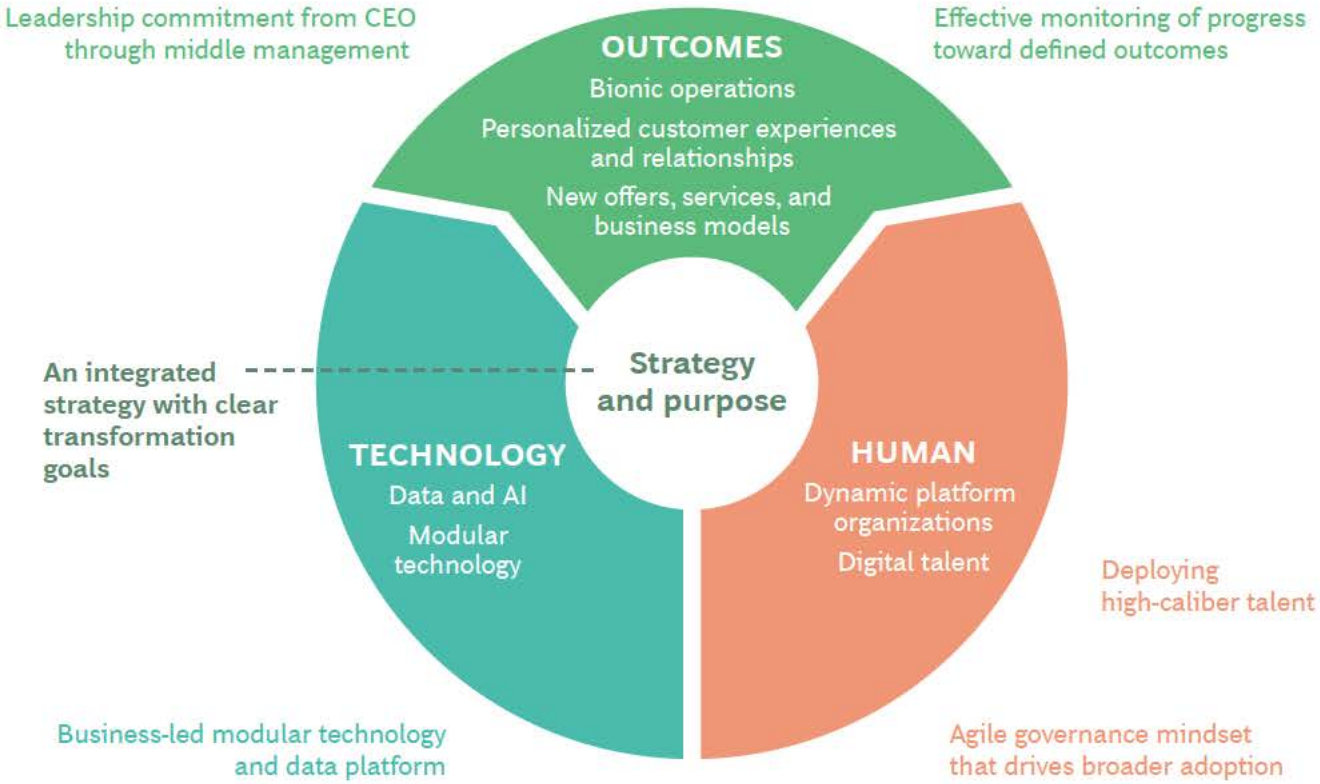

The same six success factors work for all transformations.

A Bionic Roadmap

Digital natives have shown us that the future of business organizations is bionic. By combining human and machine capabilities, bionic companies have the ability to do things that traditional businesses cannot. This bionic end state is a compelling goal, but achieving it requires a successful execution of a full transformation of both technology and human capabilities.

As companies move from their starting point (whatever that may be) toward becoming bionic, the six success factors for digital transformations reduce the risks of getting there and directly address building the necessary capabilities. (See Exhibit 10.)

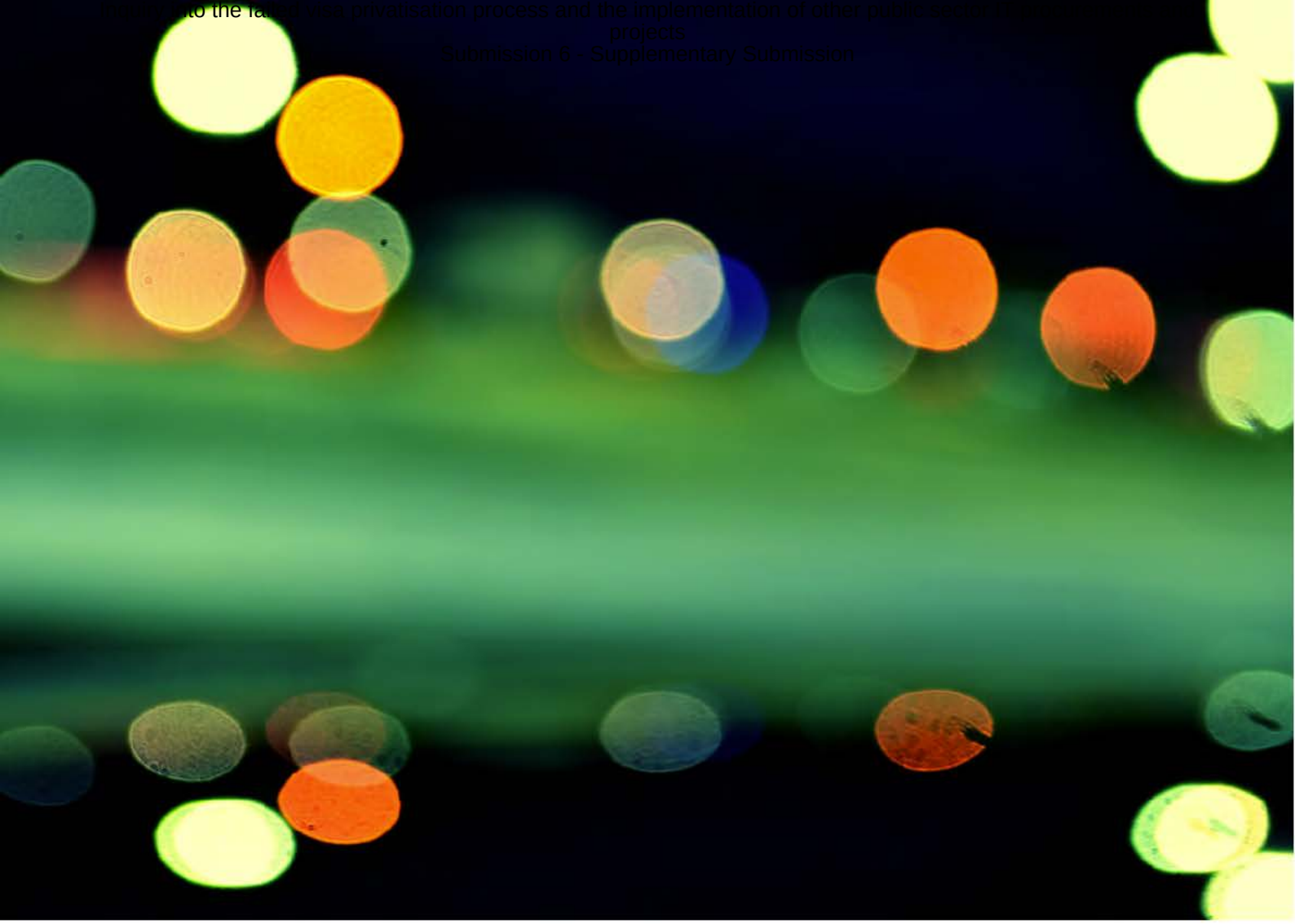
Exhibit 10 - Six Success Factors Are Imperative to Develop Your Bionic Organization



Source: BCG analysis.

We focused on big opportunities, mapped the business processes to uncover the pain points and value, and used data and analytics to define measurable outcomes expressed as KPIs over a two-year period.

– Andrew Geoghegan, Global Consumer Planning Director, Diageo



Setting Up for Success—and Going Beyond

Our work with clients on digital transformations surfaced other important lessons confirmed by our external research.

Invest in Success

The impact of the six success factors—and the ways in which they materially shift the odds for success—are remarkably consistent across all types of digital transformation, geographies, and industries. (See Exhibit 11.) The recipe for success is the same, although specific action plans to address each factor will vary with company context. The implications are important: don't get bogged down in the details until you are confident that you are configured for success. Delivering a digital transformation effectively is a highly complex undertaking. Ensuring that the leadership understands the difference between configuring for success and delivering the specifics helps simplify the task.

Exhibit 11 - The Six Factors Are Consistent Across Geographies, Industries, and Scope

Source: BCG analysis.

Note: Companies in the win zone met or exceeded their target value and achieved sustainable change. Companies in the worry zone created some value but did not meet their targets and achieved only limited long-term change.

[1]The success score is calculated on the basis of the percentage of predetermined targets met and value created, the percentage of targets met and value created on time, the success relative to other transformations, and the success relative to management's aspirations for sustainable change.

Adapt as You Proceed

Few organizations have the luxury to develop their digital transformation plans from scratch, with no constraints. In reality, there are often digital initiatives underway, perhaps with subcritical mass, as well as pressing business issues that require short-term delivery. And few executive teams start out fully aligned on the digital agenda. So, when the decision is made to launch the transformation, the six success factors are usually not in place.

It is neither practical nor desirable to delay until each factor has been effectively addressed. Instead, the critical issue is to be aware of the shortcomings for each factor and to put in place a plan to address them. Winners learn to adapt as they proceed. They identify where they are not configured for success and develop solutions to improve their scores as they move forward (much as fully bionic companies do). Exhibit 12 shows an example of this.

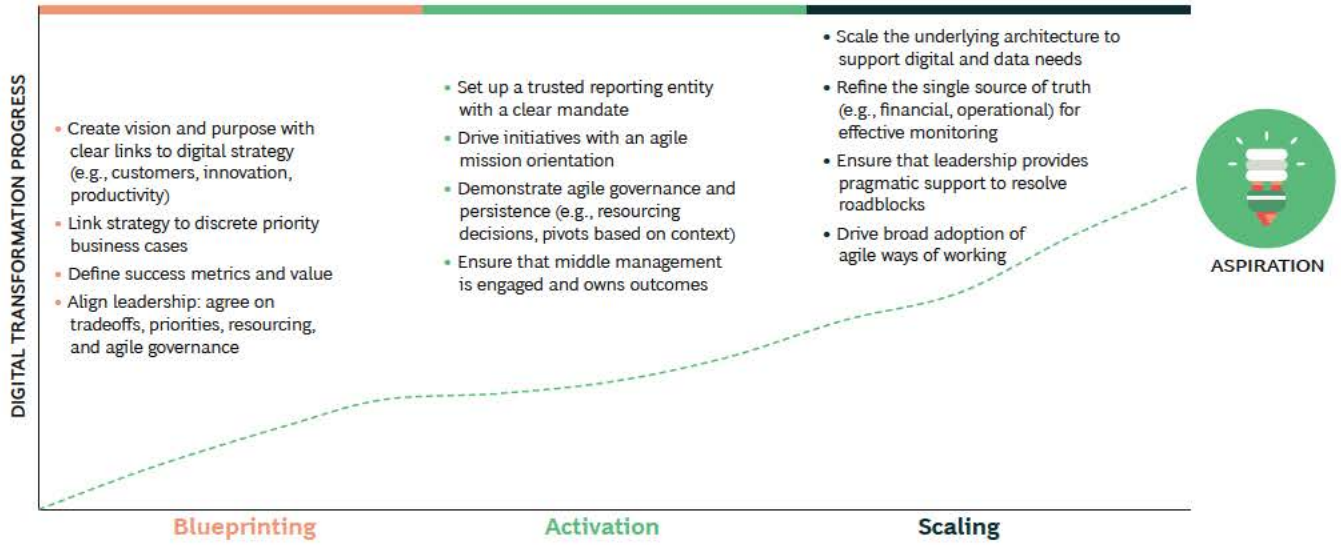
Go Big, Go Bold

Our research shows that the same six success factors work in the same combination for all transformations, whether the scope is narrow or broad. There is a statistically insignificant difference in success between transformations with a single digital initiative (say, customer journeys) and those with multiple initiatives (for example, customer journeys, data and analytics, and technology replacement). (See Exhibit 13.) Similarly, there is no difference in success between digital transformations involving just one business unit and those that are company-wide. We also found no correlation between the quantity of resources devoted to the transformation program and the outcome: the 60% of the companies in the worry and woe categories expended a similar or commensurate level of resources as the winners—but for substantially less benefit.

Given that the executive attention, costs, and elapsed time can often be similar for narrow and broad transformations,


Winners learn to adapt as they proceed: they develop solutions as they move forward.

Exhibit 12 - Companies Should Configure for Success at the Outset and Continuously Improve During the Transformation



Source: BCG analysis.

the implications of this finding should not be overlooked: companies should take the time to configure for success, and then go big with an aggressive scope and bold aspiration.

Create Successful Lighthouses on the Path to Scaling

Even with a bold, company-wide aspiration, however, companies should focus and prioritize their efforts. Transformations that successfully scale up often start by picking one or two major use cases or "lighthouse" opportunities, building a minimum viable solution, and testing and iterating until that solution works in the market and can be scaled. The company then moves to another use case or deploys the initial use case in a second country or business, and works backward to solve for the platforms, infrastructure, and support required to scale up the solutions. This is radically different from assuming that if you build the platform, the businesses will figure out how to get value from it.

Go Beyond Done

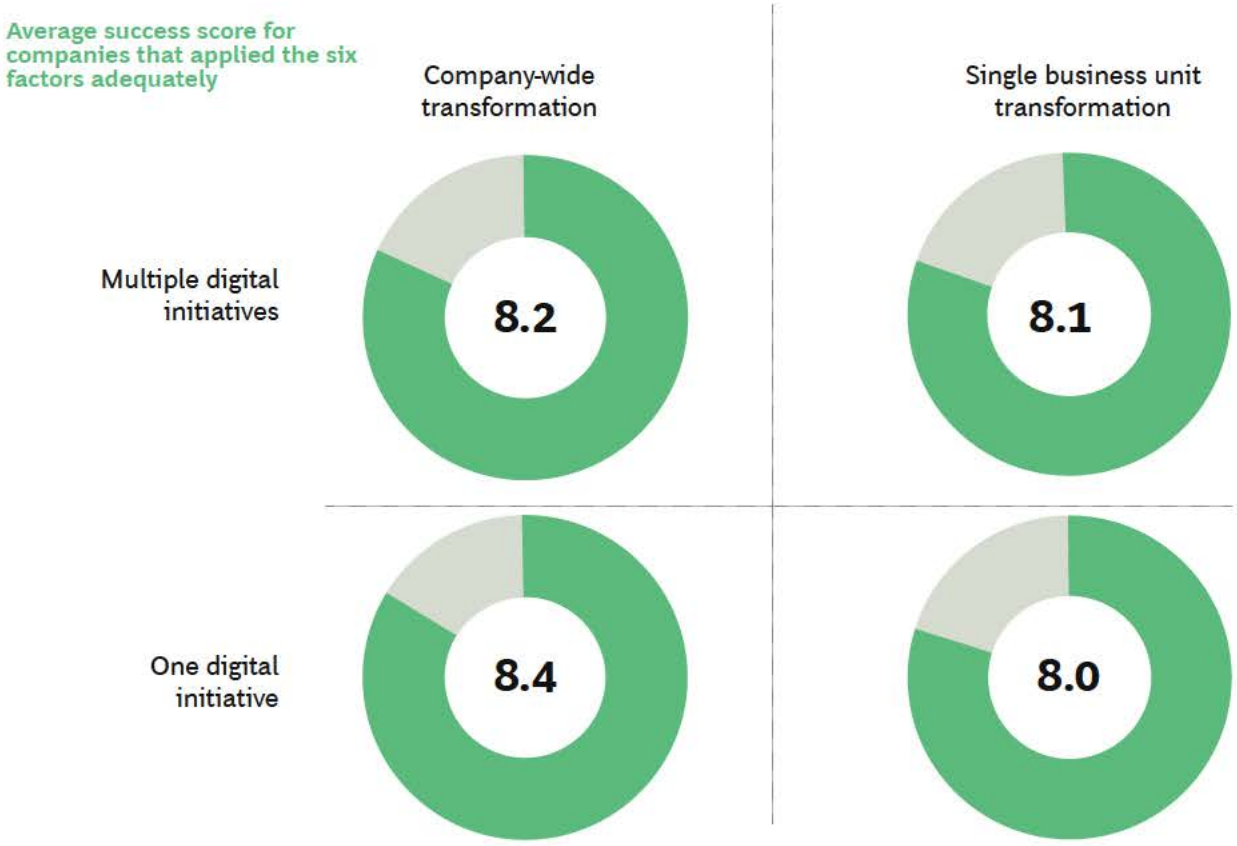
Success in business is transitory. Companies need to continue proving themselves to investors and other stakeholders quarter after quarter, year after year; and for every starting point, there is a value-creating road forward. Digital transformations are no different. The point at which success is declared (for example, the organization has transitioned to agile ways of working, or the last workload has shifted to the cloud, or customers have migrated to the new stack), is actually a beginning rather than an end. The success of the digital transformation is the start of a fresh chapter for the business as it learns how to leverage the new capabilities and to drive continuous innovation in new digital technologies, such as AI, augmented reality and mixed reality, and edge computing. Companies that succeed in industrializing continuous innovation as part of their new operating models have become bionic. They will never have to do another transformation program because the digital capabilities and mindset become part of their new way of working.

Know Whether You Are Succeeding

One of the hardest questions—and one frequently asked by boards—is, "Is the transformation on track? What are the risks of spending all this time and effort and failing to achieve our objectives?"

We can provide both a quantitative and a qualitative answer on the basis of our research.

Exhibit 13 - The Six Success Factors Are Equally Applicable for All Digital Transformations, Regardless of Scope



Source: BCG analysis.

Note: The success score is based on the percentage of the target value met, the percentage of targets met on time, and the perceived relative success for the digital transformations; the scale is 1 to 10.

First, you can periodically score your transformation against the six success factors and adjust your action plan to close the gaps. One company is using the success factor framework to assess how well configured they are for the success of a technology stack replacement and agile operating-model transformation. Its initial score placed it in the worry zone, but the leadership team adopted a clear action plan to address this, and subsequent reevaluation showed progress toward the win zone.

Second, some threshold behaviors can provide good indications of whether the transformation program has critical momentum. An assessment of these behaviors will almost inevitably be negative at the outset, but many leadership teams nonetheless find it useful to calibrate progress in this way. Threshold behaviors include:

- How strong is the business pull for digital solutions versus the program push?
- How do the most talented individuals in the organization feel about joining the program? Are they wary of leaving a line role for a temporary position in a program that might fail, or are they excited to join the high-potential team that is shaping the future of the company?
- Are executives advocating diverting funding and resources to other initiatives, or are they defending the digitization budget and resourcing?
- Which are more common: comments that lower expectations (for example, "the plan benefits were overstated") or upside observations (such as, "now that we have launched the new digital servicing capability, we can extend the use cases and achieve far more than planned")?

The best leadership teams regularly step back from the detail to discuss the quantitative and qualitative ways to assess whether the transformation is configured for success.

The costs of failure are high. The rewards of success are great. In all industries, COVID-19 has accelerated the need for companies to transform their digital capabilities. There is no time for incremental outcomes. Putting in place the six success factors makes all the difference.

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