TECHNOLOGY IS NOT THE ANSWER

Why "Digital" Is Not the Most Important Aspect of Your Digital Strategy

M. Hurst and C. Madsen

Digital transformation stems from having and implementing a successful digital strategy. But digital strategy can be an amorphous concept—it can mean different things to different people, and often looks different from organization to organization. Whether you've been tasked with implementing a digital strategy or have identified that your organization needs help improving their digital services, you might be facing some common questions and challenges:

What is your strategy for supporting "digital" evolution and innovation in your organization?

How do you adapt to and benefit from change and new ideas and technologies?

How do you get an organization that is averse to change to embrace new ways of working?

Where do you even begin?

This book will guide you through the six key elements of a successful digital strategy.

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Introduction: What is a Digital Strategy? What is Not?

Shortly after its establishment in 1970, researchers at Xerox Parc invented the personal computer, complete with graphical user interface, windows, icons and a mouse. Yet Xerox completely failed to successfully market and sell the personal computer and is still today known for making photocopiers. In 1975, an employee at Kodak built the first digital camera. In 2012, Kodak filed for bankruptcy, having had its photographic film business disrupted by competitors invested heavily in promoting the "new" technology of digital photography. Whether an academic or cultural institution or an innovative business, technology is central to any organization, and it can either significantly propel or hinder its success. So why do even technologically-advanced organizations fail to evolve with the times?

Digital transformation stems from having and implementing a successful digital strategy. But digital strategy can be an amorphous concept—it can mean

different things to different people, and often looks different from organization to organization. Whether you've been tasked with implementing a digital strategy or have identified that your organization needs help improving their digital services, you might be facing some common questions and challenges: What is your strategy for supporting "digital" evolution and innovation in your organization? How do you adapt to and benefit from change and new ideas and technologies? How do you get an organization that is averse to change to embrace new ways of working? Where do you even begin?

Our research presented throughout the following pages seeks to provide answers to these daunting questions. We conducted extensive research and in-depth interviews with thought leaders and practitioners in digital transformation and digital skills-building in higher education, non-profits, and corporations. Though digital strategies are unique to each organization, we provide real examples of successful practices undertaken by organizations in the United States, Canada, and Europe that are actively managing digital transformation and benefiting from their investments in innovation. To further reinforce these points, we also provide examples of so-called "failed" digital strategies. The answers as to why digital strategies succeed or fail are complex, but we have come to understand that both hinge on six key elements. And while digital strategies obviously do depend, in part, on data and technologies, these are arguably the *least* important elements in ensuring success or failure.

What is a Digital Strategy?

A *strategy* is defined as a "plan of action designed to achieve a long-term or overall aim"[1] and therefore requires an organization to have a vision for its long-term goals. Organizations do not operate in a vacuum, though, and a critical (and often overlooked) part of strategic planning is identifying broad trends that may affect an organization in the near or distant future. This is particularly critical when creating a *digital* strategy.

> **"We define "digital strategy" as "a plan of action for the adoption of institutional processes and practices to transform the organization and culture to effectively and competitively function in an increasingly digital world."**

We define "digital strategy" as "a plan of action for the adoption of institutional processes and practices to transform the organization and culture to effectively and competitively function in an increasingly digital world." A good digital strategy should result in an organization that is transformed—made more effective and resilient—through its healthy relationship with technology. Digital transformation does not have to mean digital permeation, but it should mean that an organization benefits from—rather than is led by—technology. As Steve Jobs said, "Deciding what not to do is as important as deciding what to do."[2]

For any organization, it is also important that a digital strategy has a strong user or customer focus, that it

increases the organization's ability to take risks, and that it transcends organizational silos. In fact, "institutions will have multiple strategies across all areas of their business, each owned by different directors and senior managers. Digital is most effective when deployed within these strategies rather than alongside or as an addendum."[3]

What some organizations call "digital strategies" are simply IT strategies or IT plans in disguise, with a focus on technology, rather than on its users. Other organizations' "digital strategies" fade away because they are not consistently referenced and utilized and don't connect to a clear plan of action or to the actual work at hand.

We spent a sustained portion of 2018 deeply examining a wide range of organizations' successes and so-called failures at developing and implementing digital strategies to achieve digital transformation. We talked at length with leaders, experts, and those "in the trenches" of digital transformation, largely focused within universities and other complex organizations in the public and private sectors across North America, the UK, and Europe. Since our initial research, we have continued to test the patterns we identified in 2018 against our further observations and engagement with colleagues and clients alike. The majority of our findings are applicable to any organization seeking to strategically manage its digital transformation.

What is very clear from our research and interviews is that digital strategies are most successful when they become part of the DNA of the people and the culture

> **Digital strategies are most successful when they become part of the DNA of the people and the culture of the organization.**

of the organization. This is easier said than done, but by no means impossible. Perhaps the biggest takeaway from our research is that the success or failure of true digital transformation hinges on people and culture, *not* on technology. Technology is important, but it is the least critical factor in successful digital transformation.

The "Moon Shot": Getting the Basics Right

In fact, the secondary importance of technology should not be a surprise today, as one of the most technologically complex accomplishments in human history was successful *only after* it shifted from being treated as a *technology* problem to a shared mission of human excellence. What does it mean to aim for a "moon shot"? Thinking and aiming "big" can be an important part of a successful strategy, but can also hold traps that prevent successful implementation.

The "moon shot" references the United States' NASA Apollo program, which ran for 12 years (1961-1972) and was triggered, in part, by President Kennedy's proclamation in an address to Congress in 1961 that the US would land "a man on the Moon and return him safely to the Earth" by the end of the 1960s. At the time, this was a mind-boggling and almost inconceivable goal. As one former Apollo Mission Control employee characterized it, "You are listening to the radio and the President announces that the country is going to put a man on the

Moon by the end of the decade. Keep in mind that no one has ever even escaped low-Earth orbit, let alone escaped Earth's gravity, executed Holman transfers AND navigated to another body. Now you have to implement the largest engineering project in history, while inventing not only technologies, but also whole fields of study."[4]

One of the most important lessons from the Apollo "moon shot," according to the lead engineer, was a fatal catastrophe resulting from failed communication across specialized technology teams operating in silos. The loss of the lives of two test astronauts made explicit the risks of a lack of shared responsibility and accountability, and the need for deeper collaboration and communication between siloed teams. The sobering reminder that lives were at stake elevated the teams' drives for deeper collaboration in identifying and solving problems, and in creating shared, iterative testing processes and systems to facilitate excellence as they entered entirely new problem spaces. The "moon shot" turned out to be successful because of a dramatic shift in focus from a technology problem to be solved by siloed teams of specialists and experts, to a shared responsibility for the safety of human lives and a *shared mission for collective excellence*. The post-fatal endeavor refocused the teams on *getting the basics right* by breaking every problem down into its most discrete components; continually iterating, testing, and improving; and constantly communicating. At the root of doing the basics right is *establishing a shared understanding of why a mission is being undertaken and why it matters at all*.

Just as a shared understanding of the mission helped the Apollo program succeed, so too is it central to the success of an organization’s digital strategy. Organizations must ask themselves: How are our “digital” efforts crucial to the mission of our organization? Whether they are universities seeking to support research and student success, or businesses looking to respond more quickly to customers’ needs, understanding why the mission ultimately matters—and placing human excellence at its core—is key to seeing it succeed.

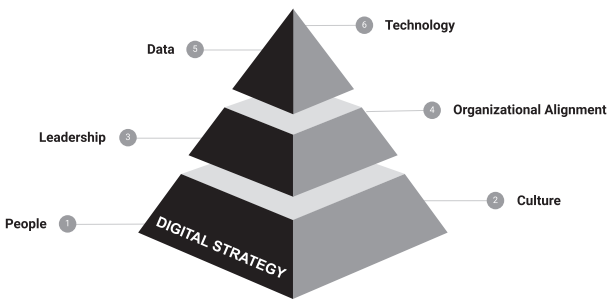
The Key Elements of "Successful" Digital Strategies

As with the Apollo program, successful digital strategies are first and foremost human-centered. They continually focus on solving human problems at both broad and narrow scales. They imbue teams and stakeholders with the mindsets, skills, and authority needed to solve those human problems. Successful digital strategies address organizational and incentive structures, organizational culture, communication, processes, and systems. Only upon these non- or pre-digital foundations can digital strategies successfully leverage digital data and technologies to enable and transform people, knowledge, organizations, and society.

During the course of our research, a clear set of characteristics of successful and unsuccessful digital strategies emerged from the examination of digital transformation, digital maturity, organizational change management, and strategic planning and visioning. We identified the following elements which frame a successful

digital strategy: people, culture, leadership, organizational alignment, data, and technology.

When it comes to digital strategies, people often focus on making decisions around technology or data. In fact, these two themes are only the tip of the iceberg. As Professor Gerald Kane, an expert on digital strategy, explains, "How an organization implements technology is only a small part of digital transformation. In cases where digital transformation does involve implementing new technologies, the technology is only part of the story."[5] The most successful digital strategies are the ones that are designed first and foremost with people and culture in mind. Leadership and organizational alignment then act as the bridge from the foundational layer of people and culture, to the most visible layer of data and technology. Only when people, culture, leadership, and organizational alignment are in place can the data and technology elements of digital strategy truly succeed.



These themes are porous and interrelated, but thinking of digital strategy in this way leads not just to digital transformation, but to "digital maturity." In 2017, Kane and his co-authors defined digital maturity as "how organizations systematically prepare to adapt consistently to ongoing digital change."[6] This concept is useful for its understanding of digital transformation as a spectrum and *an ongoing process*, rather than a destination. Organizations in Kane's research are clustered into three maturity groups: "early," "developing," and "maturing." The authors defined the latter as those organizations "in which digital technology has transformed processes, talent engagement, and business models."[7] We propose carrying that definition even further to "*organizations which have successfully leveraged* digital technologies to transform processes, talent engagement, and business models," thus emphasizing the primary activism required by an organization for digital technologies to actually and meaningfully transform processes and models.

Kane et al.'s 2016 survey of digitally maturing companies found the following common characteristics:

- Creating an effective digital culture is an intentional effort: Digitally maturing companies are constantly cultivating their cultures
- Senior-level talent appears more committed to digitally maturing enterprises
- Digitally maturing organizations invest in their own talent

- Soft skills trump technology knowledge in driving digital transformation
- Digital congruence is the crux: To navigate the complexity of digital business, companies should consider embracing what we call digital congruence—culture, people, structure, and tasks aligned with each other, company strategy, and the challenges of a constantly changing digital landscape[8]

This concept of "digital maturity" is similar to what Phipps and Clay describe in a 2018 white paper as the "post-digital." That is, the post-digital environment is one in which "the digital environment is taken for granted, and 'digital' is no longer the most interesting aspect of a particular practice."[9]

Whether called "maturing" or "post-digital,"—and regardless of the type of organization—there is a clear need for understanding the opportunities and overall success that digital transformation can bring. When studying the "digital maturity of French companies," researchers "found that the more digitally mature companies grew revenue at six times the rate of their less mature counterparts. Beyond this financial impact, employees in the digitally advanced companies also reported a 50% higher index of well-being at work."[10] Digital transformation impacts every aspect of an organization, and the importance of integrating people and culture into the design of a digital strategy cannot be overstated. Above all, it is clear from the academic and

industry literature and from our interviews, that achieving any sort of transformation—digital or otherwise—is the product of regular, diligent thought about what an organization wants to be and wants to achieve. Michael Edson, former strategist for the Smithsonian, perhaps put it best when he said, "Success in digital transformation is about being very clear about the type of value that you want to create. The organization needs to think about civic value, social value, in a disciplined way every day."[11]

People

It is worth emphasizing that in our themes, "People" are the foundation of any successful digital strategy, rather than "Technology." This is because every aspect of an organization comes back to the individuals that it consists of—an organization's employees as well as the people that it serves. Individuals, both internally and externally, are the ones who influence an organization's culture, fulfill leadership roles, and keep an organization running. They are the ones who will implement and use data and technology. As a result, digital strategies should be designed with the human experience in mind—how they can support, foster, and inspire the people they're created for.

> **"Digital strategies should be designed with the human experience in mind—how they can support, foster, and inspire the people they're created for.**

Continuously Develop Digital Literacy and Skills

Fostering digital mindsets and skills across the entire organization is an indicator of digital maturity. In any context or organization, this involves a combination of investing in continuously expanding employees' skills and attracting new talent. These are not mutually exclusive. Kane et al.'s research into digitally maturing companies indicates that investing in *developing* digital skills in *existing* staff is more likely to be successful than *replacing* those staff. They found that "more than 75% of digitally maturing organizations surveyed provide their employees with resources and opportunities to develop their digital acumen, compared to only 14% of early-stage companies."[12]

Preparing and "up-skilling" faculty, staff, and students for working in a digital environment is best accomplished with an ongoing plan to support digital literacy and skills development. This is not—nor can it be—a "one-off" series of trainings, but needs to be a constant and consistent activity. This type of continuous learning is also not simply about acquiring digital skills and capacities, but about a more comprehensive approach to digital literacy. The more that digital practices are embedded—and digital policies integrated into an organization—"the less of a separate identity the issue needs to have."[13] This mirrors what Kane calls "digital congruence"[14] or Knight refers to as the "post-digital."[15]

In 2017, Jisc—a UK organization that provides digital solutions for education and research—created a series

of case studies in digital capabilities which offer several different models for implementing staff development and training. While derived from the research and education sectors, these case studies are widely applicable to many types of organizations. One of the most effective models offered in Jisc's case studies is offering regular, small activities, updates, and reminders to staff in a common time frame, but which they can complete in their own time. A representative from Anglia Ruskin University, one of the Jisc case study participants, said, "An effective way to raise the capabilities of a whole cohort of staff is to offer bite-sized activities that they undertake voluntarily, in their own time (e.g. 'five minutes a day, for five days'), but in the same time frame (e.g. during the same week). This offers a good compromise between personal flexibility and the cohort effect."[16] This is also one of the models supported by digital literacy expert Monica Bulger, and is evidenced in her "Crash Course in Media Literacy" series on YouTube, which provides a series of "bite-sized" lessons in media literacy.[17] These models offer the opportunity to implement continuous learning around digital literacy that is achievable for both the organization and the individual, while remaining flexible as technology continues to evolve.

Regardless of the delivery method, "digital literacy projects depend on professional development being strategically valued, and properly resourced. That means 'people viewing their own professional development as important… just as important as their research.'"[18] Investing in digital literacy requires a commitment on both

institutional and personal levels, but comes with a high degree of success.

Set Bold Goals

Supporting and promoting "boldness" of thinking and action was another topic that arose frequently throughout this research. In 2017, two researchers surveyed more than 2,000 companies across all major industries and countries and found that digitally maturing organizations are bold in their digital ambitions: "The bolder the digital strategy, the more likely the company is to have a successful digital transformation. In our dataset, bold corporate strategies were associated with significantly superior performance on all counts."[19] This sort of boldness (also discussed in the Leadership and Culture chapters) provides a clear, shared vision to everyone in an organization and inspires a sense of co-ownership and participation—particularly when they can connect the vision to their day-to-day roles.

The ability of bold, audacious goals to inspire achievement in people is well-known across many disciplines. In a 2018 BBC interview, plant geneticist Professor Dame Caroline Dean mentions the importance of setting a bold goal for mapping the genome of a particular plant (Arabidopsis) important to the plant research community. It was one of the first organisms to have its genome mapped and the first *complex* organism to be mapped. Complicating the effort was the fact that this was an international collaboration involving multiple labs. At a 1990 meeting at the Denver

International Airport, the director at the time of the John Innes Centre, a plant and microbial science research institute, challenged the team with a bold, audacious goal to finish the sequence by 2000—even though they had not yet started mapping it. Despite the daunting nature of the task, setting such a bold goal actually enabled its achievement. Dean explains, "Everybody said 'Oh, I don't think we can do that.' But...the fact that we had that goal galvanized everybody—funding bodies, scientists, everybody. And we reached it. So that was a real lesson to me, that if you set big enough long-term goals, you can achieve them."[20] The project was hailed as a triumph of international collaboration.

Another way of characterizing bold digital strategies is as "offensive" versus "defensive." Bughin and Zeebroeck define "offensive strategy" as creating new demand, new supply, and a new business model versus "defensive strategy," which is about improving what you already do[21]—or what some may call "incremental improvements." Bold digital strategies are usually considered offensive strategies, and focus on true transformation rather than alteration or survival.

Be Agile and Adaptive

Successful digital strategies enable the people implementing them to adapt to the changing environment. This applies both inside and outside of an organization—that is, allowing people inside an organization to change and grow into a digital mindset, while also allowing the organization itself to become adaptive and agile to local,

national, or global trends. For this reason, the University of Bergen's (UiB) digital strategy is structured around interconnectedness and ecosystems, recognizing that students and faculty engage in a range of ecosystems that may overlap with the university. The university acknowledges that "much of this interconnection takes place beyond UiB's control and with tools not owned or governed by UiB. New cultures are being established, along with organizational, technological and professional platforms and ecosystems in which students, employees and the university participate. This creates opportunities as well as challenges."[22] For the University of Bergen, the relevant ecosystems that may impact their digital strategy are as ubiquitous as Facebook and Google, or as obscure as the networks of government departments, research institutes, and publicly traded companies that all need to share data privately and securely.[23] By crafting an agile digital strategy, it allows the university to participate in and take advantage of ever-evolving networks, no matter where they exist.

The California Digital Library even more directly addressed the need for adaptiveness to external ecosystems by creating a "Future Trends" document that accompanies their strategic vision and identifies recent trends in higher education and technology that may impact the organization and its services.[24] These "Future Trends" provide an external framework for the California Digital Library's strategy, allowing the organization to periodically check in and see if they need to adjust their strategy based on changes in these

trends. This is similar to a scenario-planning exercise that provides a modular structure of variables that makes it easy to reassess trends and how well the organization is adapting to the trends. Both methods provide the opportunity for organizations to continuously evolve and adapt rather than setting their strategy in stone, which could hinder progress and put the institution at risk of falling behind, particularly in regards to technology.

From the business literature, researchers at McKinsey have identified that people across agile organizations "individually and proactively watch for changes in customer preferences and the external environment and act upon them. They seek stakeholder feedback and input in a range of ways... [They] identify new opportunities to serve customers better, and gather customer insights through both formal and informal mechanisms...that help shape, pilot, launch, and iterate on new initiatives and business models."[25] As described here, user-centered cultures seem, by nature, to be *agile* cultures. This was true for all successful examples of digital transformation that we encountered in our research and interviews. All agile cultures, however, are not necessarily user-centered by nature.

Be Service- and User-Oriented

Whether talking about government-funded aerospace, business, or academic institutions, in our complex, digital era, the clear trend is that organizations that are user-oriented and service-oriented are more successful in digitally transforming themselves. Research done at PwC

> **"Organizations that are user-oriented and service-oriented are more successful in digitally transforming themselves.**

over the past decade confirms this: "What we've learned, both through our surveys and in our own experience with clients, is that the human experience is vital to raising an organization's Digital IQ. Businesses must think critically about how their digital initiatives will affect the experience of customers and employees, as even the most well-intentioned initiatives can have unforeseen impacts on people…Top performers in our survey…have a better understanding of the human experience that surrounds digital technology. These companies prioritize user experience specialists and [create] better customer experience through their digital initiatives."[26]

Just like learning a new software or technology, people need to be taught the skills to support organizational digital transformation and digital maturation in a user-centric way. Organizations are well-served by investing in growing the digital literacy of their staff, and a key part of this is teaching the skills needed to provide user-focused services: "Achieving the potential of digital transformation requires public bodies to have new skills. These are not simply existing people with new awareness, but genuinely new skills including user research and analysis…[and] user experience skills."[27]

Lancaster University in the UK also recognized that alongside promoting the development of digital skills

among staff and students, they needed to change the overall culture in support of a user focus. Within IT Services, "there has been a change in the culture of IT support so that service desk staff see themselves as coaches first, and as technicians second. When someone has a problem, instead of just fixing it, we are encouraging the service desk to help people to work out how to help themselves, such as where to look for online help, recognizing good websites, etc. Then the next time that person has a problem they will be able to search for a solution, recognize what is a good or bad solution, and analyze the problem before they start."[28] By putting the end users at the center of their digital strategy, Lancaster University successfully shifted the culture of IT support from being focused on a problem to solve or a computer to fix, toward supporting and teaching a person to help themselves and develop new digital skills.

Summary

People are at the foundation of any successful digital strategy. Digitally maturing organizations support a people-first approach, both with their employees and their end-users. They foster digital mindsets that enable:

- **Continuously Developing Digital Literacy and Skills**
- **Setting Bold Goals**
- **Being Agile and Adaptive**
- **Being Service- and User-Oriented**

Culture

Culture is often the difference between new digital solutions being successfully adopted or rejected. Culture clearly overlaps with People (above), but while the latter is about addressing individuals, this section focuses on changing the culture of the organization as a whole. Changing culture is notoriously difficult, and many organizations focus on the more tangible aspect of technology deployment rather than influencing the culture affecting *adoption* of new technologies by their intended users. The importance of culture to digital transformation is true across all organizations, including those in research and higher education: "The digital university is not just the same organization with more skilled people in it. Digital capability is an organizational change agenda."[29]

Changes to policies, procedures, and organizational culture should be discussed and planned for up front, as part of the business planning process. This leads to a more successful embrace of any technologies deployed because the communication of the projects acknowledge the need for a change in process and culture, not just in systems or software.

There is often a division between "IT projects" (which tend to be technology-led and focused on implementation) and "business projects" (which acknowledge the changes in process, procedures, and culture that are needed for a successful project), but this unfortunate separation points to the different cultural silos that can

> **Projects that focus on the implementation of new processes or changing business processes, rather than the implementation of new technologies, have a higher chance of succeeding.**

exist. Projects that focus on the implementation of new processes or changing business processes, rather than the implementation of new technologies, have a higher chance of succeeding. InBloom was a $100 million educational technology initiative that aimed "to improve American schools by providing a centralized platform for data sharing, learning apps, and curricula."[30] Largely funded by the Bill and Melinda Gates Foundation, it is a well-known cautionary tale to those who work in educational technology. On the surface, the initiative had everything—lots of funding, a great team of programmers, and the backing of several states eager to see it succeed—but rolling out a centralized platform required changes in culture, processes, and behavior, not just in software and hardware. The project was treated as a technology project, not as an education project, and that focus on IT was one of the main reasons for its downfall. As Monica Bulger, an expert in digital literacy, said about the reasons for the failure, "IT needs to have a seat at the table, but they should not be leading the discussions or making the decisions."[31] InBloom overlooked the importance of influencing the existing behaviors, workflows, ecosystems, and cultures that they aimed to improve with technology, which are necessary in order to see that technology succeeds.

Daniel Greenstein, the Chancellor of the Pennsylvania State System of Higher Education, suggests promoting and supporting culture change by fostering inclusion. He states, "Culture of inclusion is very important. Shared governance is there to be part of the fabric of the institution. If one of the things that you are trying to accomplish is a degree of culture change, you can't do it without a consultative approach… So inclusivity in the goal-setting and planning process is taking on a greater importance—recognizing how deeply the culture stands in the way of the transformation."[32] Enabling people to be heard and represented during change creates a culture that is more invested in and open to transformation. Because they had a seat at the table throughout the process, they are more invested in building what will be new.

> **"Enabling people to be heard and represented during change creates a culture that is more invested in and open to transformation.**

Support Well-Being During Change

Although the digital maturity of an organization depends upon changes in culture, little of the general *strategy* literature provides guidance for supporting staff through times of change (although we recognize there are other areas of research which do). The Jisc *Digital Capabilities Framework* is an exception, and provides a section on the support of "well-being" of staff and students during periods of significant culture change. The University of Lincoln, a participant in the Jisc case studies, recognizes

the difficulties that arise from change: "Digital change generates anxiety and stress, as well as interest and excitement—and both need to be acknowledged before personal development can happen." The university suggests engaging directly with these issues, as "digital identity and well-being are effective routes to engage staff and students. They address people and their real-world practices, rather than roles and ideal behaviors."[33]

Enable Cross-Functional Collaboration

When looking at examples of successful culture change in support of digital maturity, two topics emerge repeatedly. The first is that of cross-functional teams. Rather than reorganizing the structure of an institution, implementing cross-functional teams that can address specific problems, and design and implement solutions, help both to move digital transformation forward and to change culture. This is also an ongoing topic in the business and strategy literature: "Organizations usually do not change their internal structure as a part of digital transformation and so the teams working on these transformations get slotted into the existing structure. Where the team actually 'sits,' both physically and in the organizational chart, can affect their ability to influence the cross-functional groups integral to real digital transformation."[34] Creating "virtual" cross-functional teams came up repeatedly in our research, but there was also evidence that physically co-locating staff can be useful. The University of British Columbia (UBC) created the Learning Technology Hub, a virtual organization for faculty and staff to learn and experiment with technology and learning tools, but they

physically co-located the IT app team members and technology-focused pedagogy team in the same room. As a result, "this made it practically impossible for them not to collaborate. It's a physical drop-in space for faculty and students, and now they are tightly integrated. We have projects staffed by mainly IT people, but headed by a pedagogical person and vice versa."[35] Physically co-locating team members effectively changed the team's communication, eliminating any pre-existing silos and leading to increased collaboration and a change in culture.

Decentralize Decision-Making

A second common practice that we see in digitally maturing organizations is the ability to decentralize decision-making. The delegation of authority and resources is essential for the success of cross-functional teams, but also for supporting innovation and digital transformation across the organization. Libert et al. explain, "Many leaders are hesitant to relinquish control and rely on a network that lies outside of their chain of command. Working with these external groups requires new, co-creative leadership styles, but also can allow organizations to tap into enormous pools of capabilities and under-utilized resources."[36]

Digitally maturing organizations empower individuals and groups to make decisions at the local level, so they can iterate and innovate more quickly. This was part of the success of the University of British Columbia's Learning Technology Hub, wherein they made sure

that "the accountability sits with the decision maker."[37] By implementing "thresholds for different levels of decision making," the staff are able to make a decision, such as purchasing a software license, at the level that software is actually needed.[38] This enables organizations to avoid slow approval processes and empowers the individuals who are most familiar with the situation to make the decisions themselves.

Expect a Marathon, Not a Sprint (But Celebrate the Sprints!)

Digitally maturing organizations recognize that transformation is a long, arduous process. They expect a marathon, not a sprint. The research indicates that preparing for a long journey is essential, as is recognizing the successes and failures along the way.

John Kotter has written extensively—and for decades—on the need for perseverance in any organizational change: "Real transformation takes time, and a renewal effort risks losing momentum if there are no short-term goals to meet and celebrate. Most people won't go on the long march unless they see compelling evidence within 12 to 24 months that the journey is producing expected results. Without short-term wins, too many people give up or actively join the ranks of those people who have been resisting change."[39] When the overall goal is a marathon or a long-term effort, setting these smaller benchmarks

> **"Expect a marathon, not a sprint.**

can help maintain motivation and build momentum. Celebrating the short-term wins is a way to acknowledge what you've already achieved while keeping the larger goal in sight.

Support Risk-Taking, "Failure," and Continuous Learning

Digital transformation at any stage requires an organization to accept a certain level of risk. When the opportunity to experiment, fail, and iterate is built into the culture, it creates an environment more conducive to successful transformation. At California State University Channel Islands (CSUCI), the Teaching and Learning Innovations (TLI) program was developed to "prepare faculty to teach in a digital era." According to Jill Leafstedt, Executive Director of TLI, one of their biggest successes has been "creating a space for faculty to feel safe to fail.... When you're iterating, you have to embrace failure and move on. I've had to learn that myself, and teach my team that it's okay and to move on."[40] With dedicated space for risk-taking and support at the institutional level, organizations such as California State University Channel Islands are fostering a culture that is able to learn and innovate at a higher rate.

Risk, like change, can be managed. Successful risk management can allow an organization—and the individuals in it—to take calculated and supported risks. In many industries, companies commonly have risk management teams, whose job is to identify and calculate risk. Continuous learning—and the resulting change—

can only come from recognizing, addressing, managing, and allowing risk.

Summary

An overall recognition of the need for culture change in an institution's digital strategy is essential. In short, successful digital strategies enable, or are complemented by, changes in culture that:

- Support Well-Being During Change
- Enable Cross-Functional Collaboration
- Decentralize Decision-Making
- Expect a Marathon, Not a Sprint (But Celebrate the Sprints!)
- Support Risk-Taking, "Failure," and Continuous Learning

Leadership: Knowledge, Vision, and Communication

Recognizing that digital transformation is about supporting people and changing culture is essential, and the research indicates that both of these require strong and clear leadership. This is the case in the business sector, where leadership is discussed in terms of setting overall agendas and road maps: "Without the right road map and the management mindset needed to follow it, there's a real danger of traveling in the wrong direction, traveling too slowly in the right one, or not moving forward at all."[41]

In order to lead an organization down the right path towards digital transformation, it is vital that those in leadership positions are equipped with certain skills. As with staff across the organization who need to be "upskilled" to prepare for digital change, leaders, too, need to be digitally savvy; however, the "soft skills" are as or more important than deep technological skills. Professor Gerald Kane studies digital transformation across business and industry, but he also teaches business school students at Boston College. As he describes, leaders and managers "can't be devoid of tech knowledge, but the requisite digital literacy is accessible to everyone. I find it easier to teach the executive the tech skills that they need, than to teach the Millennials the leadership and strategic skills that they need."[42] It is just as important to develop digital literacy skills among leaders and executives in addition to staff, but leaders need only a high level understanding of digital literacy rather than in-depth knowledge or a degree in computer science. Technology can always be taught, but the soft skills inherent to a leadership role are crucial when leading an organization through digital transformation.

> **"Leadership needs to understand a culture before trying to change it.**

Know the Organization Before Attempting to Change It

Leadership needs to understand a culture before trying to change it. Culture change is a daunting undertaking, but before you can start to change an organization's

culture, you need to know what is currently present in your organization—and what it is missing. By recognizing aspects such as individual roles and skill sets, you can identify the strengths that can support culture change, as well as the gaps that need to be addressed. According to staff at Nottingham Trent University, "Digital capability is a whole-organization agenda, but how it gets taken up depends on local factors such as departmental cultures, management styles, and how innovators are supported."[43] There is not one single approach that will work for every organization. Every organization's culture is different—and so changing the culture of your organization will look different than changing that of another organization. Finding the right way to go about changing the culture first requires leaders to get to know and understand the organization as it exists.

There are at least two different forms of successful leadership around the implementation of digital strategy, emphasizing the need to understand an institution's existing culture before trying to change it. More common of the two approaches is one where the leadership "supports" and advocates for change, but does not force it: "Digital innovators have to gain trust and credibility with academic staff. This can be done by ensuring that approaches are flexible and adaptable rather than rigidly imposed, and that academic staff can initiate ideas and projects, and requests for support."[44] This is in contrast to an approach where trust is important but specific changes are not optional. In the latter case, a clearly stated and "over-communicated" vision paves the way for the

embrace of digital change. This can be further facilitated by longer lead times, allowing for repetition of messaging, and by regular project status updates to stakeholders. The visible availability of the perceived implementers of change to hear concerns, whether from internal teams or end-users, results in less resistance to change. When respect, transparency, and collaborative openness are utilized, "imposed" changes can become an opportunity for culture change, bringing along those that may be more reluctant to embrace change.

Bring Together the Right People

Getting to know the culture of an organization before embarking on change also means identifying the people in the organization who can help facilitate change**.** As a respondent from University College London (UCL) says, "Invest in comfortable shoes. Achieving change in a large organization requires you to explore it and understand the different staff and student experiences within it. So walk around, see what's going on, talk to people and provide opportunities for them to connect with each other."[45]

Michael Edson similarly emphasizes the need to find, and bring together, the right people: "A big problem is that in institutions, in the boardroom, the people who are wise on these matters are too often absent from the boardroom day to day. Boards seem to be full of older people, less tech-savvy, and they are just not comfortable or confident in their decisions in these matters. Therefore, they devolve to the 'let's just keep the servers running' mentality. These are not the people who are going to

lead these changes."[46] But Edson also acknowledges that the reverse can fail as well, when one "tech wizard is given the job of developing something new on their own, without the rest of the board or leadership team really getting on board or understanding what is happening."[47] By bringing together the right people in the right places, leaders can facilitate changes that are more likely to succeed.

Define a "Moon Shot": A Bold Purpose

We described earlier why aiming for a "moon shot" is important for the whole organization, and it is the role of leaders to define (or to lead the effort to collectively define), to emphasize, and to communicate the "moon shot." Setting a bold agenda has been a key factor in successful leadership of digital transformation across industries, including education. The Bill and Melinda Gates Foundation partnered with McKinsey in 2015 to try to understand key themes for successful change in higher education. They interviewed more than 100 people in higher education and found that of primary importance was the need to do something different or bold. They argue that "institutions must define a differentiated value proposition...While almost all colleges and universities are experimenting and tweaking their models, few institutions have radically restructured their postsecondary experience."[48]

The look and feel of a "bold goal" or "moon shot" will vary depending on the time and place of the "moon shot" and the overall culture of the organization.

> **Often, an organization's boldness of purpose comes from recognizing their overall responsibility and relationship to broader society.**

Often, an organization's boldness of purpose comes from recognizing their overall responsibility and relationship to broader society. This approach to setting a bold goal ultimately seeks to answer the question of why the organization exists and how it can serve the interests of society as a whole. At the University of Bergen and the California Digital Library, both higher education institutions take some ownership in advancing society as part of their strategies. The University of Bergen's digital strategy is boldly titled "Digitalization that Shapes Society" in recognition of their broader agenda and commitment to the world outside their university.[49] For the California Digital Library, strategic vision is about "respond[ing] to society's need for unfettered information access to confront the critical problems of today and tomorrow."[50] While it's a risk to think beyond your immediate field when setting such a bold goal, it allows an organization to demonstrate leadership and differentiate themselves by identifying a greater purpose.

Setting a clear, bold, and differentiated goal is an important role of leadership, but the research indicates that having focus and purpose is equally important. Digital transformation must be purpose-focused: "The organization must identify the specific quest that will lead to greater value generation… the ongoing digital revolution does not itself constitute a transformation—it is a means to

an end, and you must decide what that end should be."[51] Having a clear focus and purpose to your goal enables you to identify not only where your organization is headed, but also what you'll need to achieve in order to get there.

Daniel Greenstein describes lack of focus as one of the primary causes of "initiative fatigue." He argues strongly for institutions to have bold but focused goals that play to an organization's strengths and also take advantage of an opportunity. A big goal or vision is needed in order to evaluate all of the possible opportunities available to an institution. But once you have identified the opportunities you want to take advantage of, you need to quantify your objectives in order to stay focused. Greenstein states, "How you stack, rank, compare or evaluate [opportunities], absent a 'big goal,' that is really hard [to do].... I would take it one step further. It is not just enough to have an audacious goal; I think it's really important to have it be *quantified*. If you have it quantified, you can have the conversations about what it takes to get there and what you will have to sacrifice."[52] It's important to remember that focusing and quantifying your objectives are an iterative process. Holding workshops around prioritization and gap analysis can help you not only get started, but continually evaluate your goals and the progress you make.

Establish a Common Language

Digitally maturing organizations draw a picture of what success looks like, and communicate it widely. Defining success and the metrics for measuring it help everyone

in an organization align. Communicating the goals and methods of a digital strategy enables stakeholders to have a clear, shared mental model.

Frameworks for digital capabilities and digital literacy can be helpful in communicating a shared understanding and vocabulary to a wide range of stakeholders. According to Nottingham Trent University, a participant in the Jisc case studies, "A digital capabilities framework is not an end in itself but it can provide a common language for development, a benchmark for individuals to aspire to, and a checklist for staff" support.[53] Such frameworks can also be useful for helping communicate an organization's place in a wider ecosystem. However, they should avoid being too rigid or prescriptive. As another Jisc participant stated, "It is challenging to devise digital capability statements and levels that work across a wide variety of settings....[one] approach has been to offer generic 'missions' that individuals can make relevant to their role and subject specialism."[54] Having a flexible framework brings different departments and people together under the same mission, but enables them to uniquely adapt and apply that framework to their respective roles—ensuring that the framework is actually meaningful and useful.

Continuously Communicate to All Levels of the Organization

A leader's vision of what a successful digital transformation looks like needs to be communicated to, and to be *inclusive* of, all levels of an organization. This means planning and creating strategies that

> **A leader's vision of what a successful digital transformation looks like needs to be communicated to, and to be *inclusive* of, all levels of an organization.**

are meaningful for the people who work within the organization on a daily basis, not just for the board members or donors. Edson states, "Unless the mindset of the planning process is about recognizing and catalyzing and harnessing the collective genius of a community, it is not going to work. Or, put positively, if the process is about supporting and harnessing local talent and talent in the broader community, everyone will want to work on it."[55]

It is important to communicate experiences alongside vision. As one Jisc case study participant stated, "Examples from practice, shared through communities of practice, can be more persuasive than detailed requirements: 'It's the stories about practice that are most powerful.'"[56] Sharing these stories keeps the emphasis centered on users and their experiences, and is a reminder that people delivering and receiving services are the foundation of any successful digital strategy.

Ultimately, communication needs to be recognized as the responsibility of a number of people at different levels of an organization, between the leadership and the staff, in both directions, and between departments or skill sets. But it can also become core to someone's responsibilities. It is worth identifying and recognizing

those individuals who are naturally "connectors" in an organization, and explicitly defining "connecting" responsibilities that will ensure the success of complex, multi-stakeholder projects.

Summary

Our research has indicated that leaders of successful digital transformation enable adoption by all levels of an organization when they:

- **Know the Organization Before Trying to Change It**
- **Bring Together the Right People**
- **Define a "Moon Shot": A Bold Purpose**
- **Establish a Common Language**
- **Continuously Communicate to All Levels of the Organization**

Organizational Alignment

Organizational alignment in a digitally maturing organization is ultimately about ensuring that the vision set out by leadership is fully adopted and incorporated into working practices and into authority and responsibility structures. It is about who makes decisions, how decisions get made, and how new initiatives get resourced. While there is no "perfect" model for achieving organizational, process, and strategic alignment, we have identified best practices that support this alignment at any given institution.

Align Digital Strategy with Organizational Strategy

Digitally maturing organizations put into place the structures that will enable their success, establishing the guidelines that help them align with their overall strategy, and that bridge between long-established organizational processes and structures with new objectives. In order to do this, "the first step managers need to take is to assess their organization's purpose and vision. *What are the organization's goals? Why does it need digital transformation to achieve them?*"[57]

One way to answer these questions while also implementing a culture of inclusion is to ask members of the organization themselves. Glasgow Caledonian University in particular recommends surveying key stakeholders: "Running a survey of digital capabilities is a good way of bringing key stakeholders together and building a shared understanding of the issues, quite apart from the value of the evidence collected. It also communicates to participants how the organization describes and values digital practices."[58]

Sometimes the alignment between digital and organizational strategy is literal. The University of Bergen's digital strategy was designed alongside the university's strategy: "The two strategies were created in parallel, with the digitalization strategy as an extension of the larger university strategy."[59] Whether crafting a digital strategy at the same time as an organizational strategy or afterwards, ensuring the two are in alignment will ultimately strengthen both.

Align Talent Management with Digital Strategy

One common successful practice of alignment is supporting innovators and changemakers who already exist inside an organization. Aligning an organization around a strategy does not mean putting into place strict rules or structures to which everyone must adhere, but finding the people who are already doing great work in the organization and figuring out how to support and scale their efforts. One Jisc participant explained, "Many parts of the organization will already be working on digital capability [even if they don't call it that]. The key with any new initiative is to draw on that rich expertise and help it to become better articulated."[60]

> **"Support innovators and changemakers who already exist inside an organization.**

Particularly when recognizing the need for organizational change, supporting and cultivating those who can move culture change forward should be a priority. One way to do that is by spreading individuals throughout the company. Kane et al. explain, "Many companies are adopting new talent models in response to digital trends. Employees engage in two- to three-year 'tours of duty,' engaging in one project or role for a certain period of time, at which point they transition to a new role inside the company or outside in order to continually develop different skill sets. These efforts are clearly and intentionally designed to allow the company to cultivate diverse talent in a rapidly changing digital world, but they

don't involve implementing or using new technology at all."[61] When these individuals take on different roles and are exposed to different aspects of the organization, they are able to teach those around them and translate between departments, which facilitates culture change. In fact, the very nature of their movement across departments enables these individuals to accelerate and lead culture change.

Promoting experimentation within an organization can provide an institution with the innovation required for digital transformation without needing to look to outside talent. The business literature recognizes the need for experimentation, finding that "digitally maturing businesses are 2.5 times more likely than early-stage companies to be conducting both small experiments and large enterprise-wide initiatives."[62]

Michael Edson talks about innovation and experimentation in terms of "making small bets, often" and encourages organizations to "think big, start small, and move fast." By "start small," he means experimenting and making decisions early.[63] Going through quick, small iterations helps organizations get results quickly and see progress while working toward a larger goal. This reinforces the idea of digital transformation as a marathon—not a sprint—while raising morale for everyone involved.

This also includes ensuring that changemakers receive support from outside an organization: "Innovators need

external networks, especially the opportunity to share with people in similar roles but different institutional settings."[64] The establishment of cross-functional teams as a means to support overall culture change, as mentioned previously, is also relevant to achieving alignment between strategy and process and to supporting innovation and experimentation. While the establishment of teams that bring together many *functions* or *roles* from across the organization can help expose people to many parts of an institution, bringing together—and supporting—the "right" personalities is an important part of supporting experimentation.

Align Organizational Reporting and Accountability with Digital Strategy

Implementing a matrix-style organization as described earlier means aligning staff, structure, and resources to user needs, rather than requiring new programs and initiatives to fit into existing structures**.** The creation of "virtual" structures also accommodates agility and flexibility—service or project-focused teams can be created and dissolved much more quickly than trying to formally reorganize a department or whole organization. The success of cross-functional teams depends upon aligning authority with responsibility. That is, ensuring that teams given the responsibility for a project or program actually have the authority to make the required decisions.

> **"The success of cross-functional teams depends upon aligning authority with responsibility.**

Align Digital Strategy with Funding and Resource Allocation

Accomplishing any organizational priority requires allocating proper resources to it, including funds, people, and time. It is vital that these resources are aligned with the organization's digital strategy. Some organizations formalize the process of funding and the reallocation of resources, requiring that a department must prove how their request aligns with the organization's digital strategy any time they ask for funds or other resources.[65] This ensures not only that resources are dedicated for organizational priorities, but also that resources are not drained by things that are not organizational priorities. For example, if 15% of an organization's IT budget is being spent on software that no longer serves the end users—or is no longer even used by them—then the resources and strategy are in misalignment. Identifying and redeploying these resources to organizational priorities enables the organization to better carry out the goals set through their digital strategy.

Summary

When done successfully, organizational and process alignment both support and perpetuate digital strategy: "Direct integration with the strategy puts digital at the center of the business, fostering natural forms of internal collaboration as well as corporate governance that places digital topics alongside other business requirements. Strategic priorities and investment decisions are now part of the same process."[66]

Alignment is key to the success of digital strategy and digitally maturing organizations:

- **Align Digital Strategy with Organizational Strategy**
- **Align Talent Management with Digital Strategy**
- **Align Organizational Reporting and Accountability with Digital Strategy**
- **Align Digital Strategy with Funding and Resource Allocation**

Data

Related to the need for leadership to stay focused on end-users and for a wide variety of people in an organization to develop user-experience skills (both discussed previously) is the need for an organization to have data about users to inform its digital strategy. With that data in hand, decisions can then be made about how best to support these evolving research practices.

At the departmental or organizational level, data is also important for gauging the current state of digital capabilities of the staff, or digital maturity of the organization—both are about gathering data to support digital transformation.

Support Prioritization and Decision-Making

Designing internal and end-user facing systems to provide usage data is essential to understanding needs at both the individual and organizational level for the intelligent

evolution of digital services. With the changing nature of the digital systems that support all types of organizations today, and the data made available via open web social media platforms, large quantities of data can be made available about staff and end-users that can help shape decision-making about digital systems and services.

As a concrete example in higher education, Daniel Greenstein is a strong advocate of data-enabled predictive analytics: "I think there are huge opportunities going forward for universities and colleges to achieve vastly better efficiencies *and* improve student outcomes, when using predictive analytics in doing capacity planning. If I'm asking my students… what their degree plans are, I can actually forecast demand for course sections and size, and staff, and building space, three and four years out. If I do that semester by semester, I will actually learn how good my predictions are. So you can imagine that, combined with the academic preparedness of the students and demographic data, I'm going to be able to view the pipeline and mitigate the risks of [courses with a high student failure or withdrawal rate] a few years out."[67] Greenstein goes on to discuss the benefits of the analytics enabled by iPASS (student identity management) system implementations. The cost of increased student retention through interventions enabled by analytics "is going to be way less than whatever it is going to cost to implement the iPASS system and even to hire new advisors. The data we have on the return on investment of iPASS suggest that it may take three to five years to recoup investment, but eventually it's revenue positive,"

and it can take less time for some institutions with higher per student revenues.[68]

While the jury is still out on the long-term success of iPASS, it has galvanized higher education to think about the usefulness of student data and made it clear that such data can change practices at an institutional level. Other examples have shown us how careful data analysis can also change practices on a small scale. At Boston College, Gerald Kane has been using social media in his classes for more than a decade. His students are asked to tweet and blog, and to review each other's work. Several years ago, he stopped giving tests. Kane reasoned, "I have so much data about what students actually do, I don't need to wait for the old instruments—tests—to know what they are knowing. Because of that monitoring, they do more work and better work rather than cramming for a test. I have 250 data points on every student." Kane checked the efficacy of this sort of assessment system for several years. He found a 90% correlation between his own assessment of students' work and the assessments of students by their peers, and "if there was a deviation, it was because [he] undervalued a student's work." He is still the final arbiter "to make sure the system doesn't get gamed," but overall he has found this use of data very efficient and effective.[69]

This is an example of best practice in the use of data by an individual, and could be scaled and rolled out more substantially across the organization. Data, however, should not be seen as always being about the

> **Data, however, should not be seen as always being about the organization monitoring the individual. It can also be used to empower the individual to understand more about themselves.**

organization monitoring the individual. It can also be used to empower the individual to understand more about themselves. At South East Regional College, for example, "staff and students are seeing the benefits of having learning-related data at their fingertips. Learners can monitor their progress, timetables and issues such as attendance; staff can monitor key metrics relating to their learners and courses."[70] When an organization manages its data well, that data can be useful not only on the organizational level, but also to the individuals that the organization serves.

Once an emerging field, learning analytics have become mainstream in higher education, but how much an institution should try to "know" about its students—and how much they should use that data to try and predict behavior—is still a very open question. In other industries, innovation is outpacing transparent discussion of the ethics of collection, use, security, and access of data about our lives and behaviors.

Promote Data Literacy Among Specialists and Non-Specialists

While we encourage people to use data to make decisions, this requires a certain level of data literacy, and awareness of the ethical implications of collecting and

using personal data. Use of data should be accompanied with appropriate data literacy training for data specialists and non-specialists alike. As outlined in the inBloom case study discussed earlier, failure to do so can lead to disaster. Monica Bulger explains, "A major failure was not understanding that data is a mystery to most people. This gap in knowledge allowed fear to take hold and undermine the project."[71] Data literacy training can mitigate these fears and bolster confidence at all levels of the organization.

> **"People need to comprehend the role and implications of data in our personal, professional, and social lives, as well as in our organizations and societies.**

Not everyone needs to know how to work with data, but organizational leaders need to understand how to interpret data, and a wide range of people need to comprehend the role and implications of data in our personal, professional, and social lives, as well as in our organizations and societies. In particular, there is a need for education around the data collection practices of companies. As one example, countless educational institutions use Google Apps for Education, but Google is not transparent about what data they are collecting about students or about users of any of their products. What is clear, though, is that anyone engaging with Google or its products makes everyone else on a shared device vulnerable to Google's data collection. Bulger explains, "Everyone is tracked, even after they are logged out. There remains confusion about when someone gets

tracked. When they're on the regular Internet, including Google's sites, everyone is tracked."[72] This lack of transparency creates ethical and security concerns at both the individual and institutional levels. Data literacy education can help empower people to make decisions about data at both personal and organizational levels.

> **"One way of promoting data literacy is to practice and communicate ethical behavior in data use.**

One way of promoting data literacy is to practice and communicate ethical behavior in data use. The University of Bergen's (UiB) digital strategy confronts data privacy and ethics head-on, asserting that "UiB must ensure that all digitalization and use of information technology takes place in an ethical and lawful manner which protects privacy." The University of Bergen even takes a stand against the political use of illicit data collection: "Technological and political developments have led to increased monitoring of activities in digital forums. UiB must prevent electronic monitoring or the fear of such from impeding academic activities or restricting academic freedom."[73] By incorporating these policies into their digital strategy, the University of Bergen not only takes on the responsibility of educating others about ethical behavior around data, but sets an example by practicing these ethics themselves.

Particularly in public, financial, and medical contexts, promoting literacy around the ethical (and legal) management and use of personal and research data

is urgently needed in an increasingly complex digital landscape. Tore Burheim, the Director of IT at the University of Bergen, describes the need for data literacy amongst researchers: "When we talk to research groups, they are not always aware of law and regulations. We try to educate and inform them about legal requirements, and provide a user-friendly solution for lawful data handling."[74]

In order to address data literacy in the research practice, the University of Bergen's digital strategy includes a goal of "introducing standards and procedures conducive to the secure handling of all research data at UiB."[75] Two major initiatives at the university address this goal. The first is a research data infrastructure called SAFE. Based on the Norwegian Code of conduct for information security in the health and care sector, it provides a service to employees, students, and external partners that "ensures confidentiality, integrity, and availability are preserved when processing sensitive personal [research] data."[76] The second initiative involves a laboratory equipment inventory and new laboratory equipment maintenance service. Burheim states, "It's a comprehensive task, but necessary to ensure security. Some of the equipment was not designed to be standing on the open web…But it's also to [help] provide a good service for people to collect and protect sensitive data from the lab equipment. People are working with DNA and that is quite sensitive data."[77]

Beyond training in the ethical (and legal) management and use of sensitive data, many institutions offer courses in data science, data curation, maintenance, analysis,

and visualization. Training in these areas is becoming increasingly popular across all fields. Strong open source data science curricula exist via The Open Source Data Science Masters and DataCamp that can be implemented at any organization that has identified a need for data literacy.

Define Guidelines, Policies, and Best Practices for Ethical Data Governance, End-Use, Privacy, and Security

Without clear and well-communicated policies and procedures, the use of data can inhibit digital transformation and even cause a backlash. This was the case for inBloom, whose launch was met with public backlash from parents and advocacy groups protesting the collection of students' data by the initiative. This pressure from the public and inBloom's lack of transparency around the policies and procedures for data collection eventually led to the initiative's failure. Though the inBloom case study highlights the need for clear communication about data with external parties, internal transparency is just as important within an organization in order for staff members to get on board. For example, recent extended industrial labor union action in higher education institutions across the UK set up a dynamic described by one interviewee as "management vs. faculty." They explained, "In times of industrial action, IT may suffer from being seen as a tool of 'the managers.' Colleagues are less keen on us collecting data when it might be seen as control or monitoring rather than helping with decision-making."[78]

In the forced remote work and learning situation brought about by the COVID-19 pandemic, the case for clarity around data collection practices has become even more pronounced.

Use of data by institutions should be accompanied by appropriate use and privacy policies, as well as accompanying measures to keep data safe. But as digital literacy expert Monica Bulger points out, this shouldn't scare people off from using data: "There is a need for clear privacy policies and transparency about how the data is used, [but also] more discussion of the history of, and benefits of, data use. We need rhetoric around benefits [of data] in higher ed. Medicine and tech are benefiting from analytics. Higher ed can architect how tech is being used."[79]

Design Systems and Data to Support Interoperability and Portability

When it comes to designing systems for data collection, conscious architecture is needed to maximize efficiencies and effectiveness. The best and most ethical practice for handling any data is to ensure that the data is not trapped in the system in which it is created or stored. That is, that the system uses open, common standards that ensure data is not tied to a particular piece of software, database, or project. Rather than being designed in an idiosyncratic way, there should be a secure and interoperable repository of data that can be used across the organization by different people and tools, and for different purposes.

The University of Bergen's digital strategy is a key example of this, by covering data use comprehensively and promoting the use of open standards for research data: "The handling, processing and publication of such data should be based on the principle of open access, within strict ethical frameworks. Open access to research results should be the norm."[80] At the University of Bergen, the library has taken the lead on providing open access to the research output of the university.

> **"There is a need for interoperability in order to support a seamless user experience for students, staff, and faculty.**

The University of Bergen's digital strategy also addresses the need for interoperability in order to support a seamless user experience for students, staff, and faculty. Their goal is to build "connected value chains from data collection, through storage, processing and access, to publishing and evaluation,"[81] which will support their goal of a "self-service university administration" that promotes the reuse of data, "so as to avoid asking users the same thing multiple times and to ensure consistent information in all systems."[82]

Many universities are also exploring the need for the interoperability of data and systems in order to create a better student experience. Lancaster University used digital technologies to provide a seamless registration process for incoming students. This required interoperability between their online registration

platform and several other applications, and the work put into improving both online and face-to-face elements of registration meant vastly improved student satisfaction with the process because students weren't being asked repeatedly for the same information.[83] By thoughtfully designing data systems and data collection processes from the beginning, the redundancy and fatigue of data collection is reduced while greatly improving both efficiencies and the user experience for everyone involved.

Summary

When used to support decision-making and improve services, data can be a powerful tool to understand the workings of an entire organization as well as to advocate for change. Digitally maturing organizations:

- **Support Prioritization and Decision-Making**
- **Promote Data Literacy Among Specialists and Non-Specialists**
- **Define Guidelines, Policies, and Best Practices for Ethical Data Governance, End-Use, Privacy, and Security**
- **Design Systems and Data to Support Interoperability and Portability**

Technology

Technology comes last on this list of characteristics of a successful digital strategy not because it lacks

> **Technology should be implemented for a *human purpose* and not for its own sake. Equally, technology should not drive the culture of an institution, but support and promote it.**

importance, but because it should first and foremost be led by strategy and function. That is, technology should be implemented for a *human purpose* and not for its own sake. Equally, technology should not drive the culture of an institution, but support and promote it. The IT systems that institutions invest in should fit the mission, vision, and purpose of the organization.

Develop Technology for (and with) End-Users

Mission, vision, and purpose ultimately come from placing end-users at the center of everything. At the Teaching and Learning Innovations Center at California State University Channel Islands, they focus on teaching above technology. Executive director Jill Leafstedt explained, "We didn't want to train people on *tools*. We wanted to prepare people *to teach*...Because our campus hadn't had a big focus on technology, the tools were exciting, but the teaching, learning and student engagement [were] why people stuck around."[84]

Working not just for, but *with* end-users is an important part of developing successful digital services. Jisc now uses a "co-design" approach in developing their tools and services whereby they "work closely with potential users and potential bill payers of services, right from the earliest stage so they are involved in designing and

building them up."[85] This approach promotes adoption of technologies—in part through providing a sense of investment in the end-product—and has been adopted by several universities in the UK.

Putting technology at the service of users, particularly in educational settings, also means recognizing the relationship between the digital and the physical. User-centered design of technology acknowledges that universities no longer have control over all of the technology in the classroom. Students, faculty, and staff come equipped with a slew of personal digital devices, and this, too, should be recognized in the design of the intersection of technology and spaces. The ever-evolving nature of technology requires a flexible approach to integrating it within physical spaces: "The learning environment isn't fixed and technology is far from static, so instead of developing new bespoke digital learning spaces, universities may be better off embedding digital technologies across the spaces they already have."[86] For this reason, digital and physical experiences of the university should be thought of, and planned for, simultaneously. Physical and virtual design should seek to create environments that both enable

> **"Digital and physical experiences of the university should be thought of, and planned for, simultaneously. Physical and virtual design should seek to create environments that both enable people to innovate and enable technology to evolve.**

people to innovate and enable technology to evolve. This simultaneous design process requires creating good digital experiences that are not dependent upon a particular space, as well as creating spaces that are not dependent upon technologies that can quickly become obsolete. As remote work and remote learning increase in practice, digital learning environments should also be able to easily transition from an in-person experience to a virtual one. Throughout the design process, it is important to remember that "the physical and virtual environment are critical for giving staff and learners confidence in their digital practices. It helps if the people responsible for digital capabilities are closely involved with space design and with IT planning."[87]

Get the Basics Right: Support Process Improvements and Efficiencies

Because of the anxiety surrounding change (as discussed earlier), it is important for organizations to "get the basics right." Core IT systems should facilitate, not impede, the day-to-day work of an organization: "It's important to address infrastructure as well as people's skills. You can't get people to try stuff if the technology won't actually let them do it."[88]

> **"Core IT systems should facilitate, not impede, the day-to-day work of an organization.**

Few organizations' digital strategies speak directly to getting the basics right, but several universities' digital

strategies address this idea using different language. The University of Bergen's digital strategy, for example, calls for a "self-service university administration." It states, "New administrative services shall be user-friendly and designed to be accessible to all where they need them. Processes shall be automated wherever possible and existing information shall be reused. Self-service in administrative processes and services shall be pursued wherever this is possible and tenable. The potential for the realization of quantitative and qualitative benefits shall form the basis of prioritization."[89] This is similar to the University of Leicester's proclamation that "simple things should be automated and delivered as quickly as possible"[90] and to Lancaster University's "'dot. everything' approach, whereby all processes—from student admissions and assessment to requesting travel and managing payroll—are carried out online."[91] This focus on automating processes illustrates a common theme of using IT to make everyday tasks as efficient and accessible as possible.

Other organizations speak to the design of IT systems—not just individual processes or tasks—as a way to get the basics right. The University of Edinburgh has a significant program of works that runs parallel to, but intertwined with, their Digital Transformation. Called their "Service Excellence Program," it constitutes a series of initiatives to replace or implement core IT systems across the organization for human resources, student administration and support, finance, and student recruitment and admissions.[92] Similarly, the South East Regional College

(SERC) states that, "the development of reliable, robust, standardized IT systems has many benefits in terms of administrative efficiency, and staff confidence in the systems they need."[93] Getting the basics right is an important step towards getting an organization to buy into digital transformation.

> **"Interoperability plays a key role in designing seamless user experiences.**

As mentioned above with regard to data, interoperability plays a key role in designing seamless user experiences. Such experiences require interoperability, flexibility, and modularity from often dissimilar systems. It is important to remember the end-user's experience of technology, particularly when it functions differently from the internal-facing experience: "IT architecture and, in certain cases, the IT organization itself essentially function at two different speeds. The customer-facing technology is modular and flexible enough to move quickly—for instance, to develop and deploy new microservices in days or to give customers dynamic, personalized web pages in seconds. The core IT infrastructure, on the other hand, is designed for the stability and resiliency required to manage transaction and support systems."[94] Keeping the end-user in mind when designing system interactions is needed to ensure the overall integrity of the user experience, but also to foster the patience needed to work through complicated interaction design.

Balance Basics (Infrastructure) vs. Innovation ("Moon Shots")

At the University of Edinburgh, Digital Transformation is seen as just one of the strands to improve the way the university and its people work. Their Digital Transformation initiative balances work on replacing and upgrading core systems (as mentioned earlier with regard to the Service Excellence program) with a "sprinkling" of innovative projects. Melissa Highton, the Director of Learning, Teaching and Web Services at the University of Edinburgh, is clear that one would not happen without the other: "There was considerable technical debt…So many old, home grown systems." She describes the need to balance and intertwine the infrastructure replacement projects ("the basics") with more innovative initiatives. Infrastructure projects "are not sexy, because they are replacement projects. It is challenging to communicate those core infrastructure projects under the name of 'Digital Transformation.'" While the core systems provide basic functionality to improve and facilitate people's day-to-day work, "you have to have a sprinkling of innovation" in order to provide the organization with a sense of progress. Highton states, "Colleagues need to see something positive to begin to buy-in to change. When MOOCs were new, we put a lot of effort into developing a lot of them, which means many people got involved, and enjoyed the new digital ways of learning. And they are very visible. Sometimes it is about seeing new things happening. Inspiring people."[95] This balance between innovation and infrastructure, as Highton describes, also

parallels our recommendation to expect a marathon (infrastructure replacement) but celebrate the sprints (the "sprinkling" of innovation).

Daniel Greenstein argues that part of the importance of creating a digital strategy is to ensure you prioritize the infrastructure needed to support your goals. He states, "Digital is in service to the goal. An important part of digital transformation is the infrastructure. Without good infrastructure, you can't do predictive analytics, you can't do data-driven decision-making. If you are going to move significantly into digital learning, then you need to have the right infrastructure, a coordinated one, in place.... Whatever your goals are, they are going to have an impact on your IT infrastructure."[96]

A worldwide survey of academic institutions by the International Council for Open and Distance Education also acknowledges the need to balance innovation and "the basics." Their survey indicates that in order to be adopted, "new tools must easily align to the core functions of a higher education provider" and further that "tools that can be more readily added-on to core functions, but do not require wholesale organizational change, are more likely to be used frequently."[97] While seemingly arguing against innovation, these findings indicate that innovation will be more successful in designing within the context or the core mission and function of the organization.

Finding that balance between "the basics" and innovation is an important part of success in digital transformation.

> **"Finding that balance between "the basics" and innovation is an important part of success in digital transformation.**

If implemented using appropriate and well-communicated business change procedures, new software or IT systems can facilitate efficiencies and create seamless and positive user experiences for staff, students, and faculty.

Summary

When implemented with a people-first approach, technology can greatly advance an organization toward digital transformation. However, technology can also be a *barrier* to successful digital transformation, when it disrupts, rather than enables, human engagement, creativity, and productivity. To ensure that technology facilitates, rather than hinders, the user experience, those organizations that have been successful in digital transformation can be characterized as understanding how to:

- Develop Technologies for (and with) End-Users
- Get the Basics Right: Support Process Improvements and Efficiencies
- Balance Basics (Infrastructure) vs. Innovation ("Moon Shots")

Why Digital Strategies "Fail"

> *Only those who dare to fail greatly, can ever achieve greatly.*
> Robert F. Kennedy, June 6, 1966

Perhaps due to the sensitivities around "failure" (or, more accurately, the *perceptions and judgments* that something or someone has "failed"), it is as, or more, difficult to find fully transparent examples of "capital 'F' Failures" than it is to find examples of "capital 'S' Successes." Our research and interviews brought us to some good discussions and examples of both successes and failures of digital *projects or initiatives*, but with the exception of the inBloom case study, few examples of "Failed" *digital strategies*. Arguably, inBloom was not a digital strategy at all, but instead a "moon shot" technology initiative *without* a thoughtful digital strategy, therefore lacking attention to the existing digital literacies, behaviors, workflows, and ecosystems of its intended users and stakeholders, and to the cultures it intended to disrupt. We would argue that a good *digital strategy*, incorporating the considerations described in

this book, might have actually *saved* inBloom from its very expensive and public failure.

Perhaps more common than the "Failed" digital strategy is the dusty, neglected, or altogether abandoned digital strategy that lacked the leadership, vision, and/or commitment to the long journey of digital transformation. Vision and commitment from leadership can result in a well-written digital strategy, but *without* the cultural or operational *alignment and integration*, even a beautifully-crafted strategy will likely fail. Making a digital strategy relevant to the day-to-day lives of the people doing the work of the organization is essential, and breaking the gravitational pull of behavioral and cultural inertia requires far more than offering a "new" technical solution to an existing problem.

Neglect of the Primary Importance of People and Culture

A repeated cause of failure of digital initiatives, and ultimately of some of the digital transformations identified in the academic and industry research literature, is the neglect of the primary importance of people and culture in the adoption and use of technology. As Gerald Kane states, "Perhaps the most common understanding—that digital transformation is about the implementation and use of cutting-edge technologies—is likely the most misguided. It's not hard to find a company that has implemented a new digital tool or platform just to have it remain unused by employees or unable to deliver the intended transformative impact on the business."[98]

At both the macro scale of *digital transformation*, and at the micro scale of the development of *digital services*, people, culture, leadership and organizational alignment are key factors for success. *Not* addressing the complex factors of people and culture can be the difference between a highly successful digital strategy or digital initiative and a failed one. A digital strategy might have many of the right elements described earlier in this book, but the neglect of even just one element can present immense obstacles to the intended adoption or transformation. In the words of one researcher, it is risky to put "too much focus on technology rather than willingness to address deep change and rethink how people work."[99]

Multiple interviewees identified instances of "failed" rollouts of new technologies at their institutions, and more often than not, it was due to basic human resistance to change. Even the most flawlessly executed technology deployment can become a waste of resources if it is not adopted by the people for whom it is intended.

Lack of Vision

Lack of vision is not entirely uncommon in the higher education technology landscape. We encountered as many, or more, IT plans labeled as "digital strategies" in our research as we encountered substantive, comprehensive digital strategies. Perhaps it is perceived as easier and safer, for institutions lacking resources or confidence in their ability to predict the future, to focus on the more *tangible* aspects of IT projects than to plan for

the emergent social, economic, and technological trends that could influence their business and service models, and possibly even their missions. McConnell cites one of the major obstacles to digital transformation being the "inability to prove business value of digital through traditional ROI calculations, resulting in lack of senior management sponsorship."[100] Kane urges against this narrow focus on the familiar and the easily quantifiable in favour of a forward-looking vision: "To use a sports analogy, you throw the ball where the receiver is going, not where they are now."[101]

Kane further argues that leadership needs to commit to the difficult work of thinking and planning for the future because it can actually reduce waste and unnecessary cost, rather than increasing costs, as leaders may fear. He explains, "A great example is autonomous vehicles. Some form will be mainstream within 10 years, so it is silly for Boston to be talking about spending $3 billion on subway extensions, when an autonomous vehicle network is imminent. I would encourage them not to invest in a subway as that will be obsolete by the time it is done."[102] With the rate that technology evolves, organizations that place too much focus on the present state, rather than the potential future states of technology, run the risk of becoming outdated in any industry or field. Scenario planning for potential futures enables organizations to create a strategy that is still relevant when the future becomes the present. Kane advocates for envisioning 10 years ahead to best enable meaningful digital transformation.

Imbalance Between Infrastructure and Innovation

If avoiding the future is a contributor to failure, another is being overly seduced by new, alluring, "innovative" technologies without full consideration of the larger contexts of integration, adoption, and use. A *Harvard Business Review* report on reasons for failed change management initiatives cites being "seduced by the wrong quest." In other words, "the chosen quest misfires because it was not the product of deep deliberation or shared conviction or it fails to address the central issue."[103] Sometimes high-profile investments in new or innovative technologies are made at the expense of maintaining or upgrading infrastructure. That being said, innovation should neither be feared nor avoided. It should, however, be placed firmly within the context of an institution's vision and mission. Without that direction, fear can take over, and those in charge of technology can fall back on a "let's just keep the servers running" mentality, devoid of any innovation.

Finding the right balance of focus and investment between infrastructure and innovation follows more easily from a deeply-considered vision that reflects the context of the organization and its internal and external ecosystems. As acknowledged by numerous interviewees for this research, prioritization of resources against infrastructure vis-à-vis innovation will never be easy, but it can be easier. A well-articulated vision can be translated into meaningfully-ranked priorities when resources are being allocated, as is the case with the University of Bergen's technology planning, where

potential new initiatives are scored on different aspects, but mainly on their relevance to university strategy and quality in research and education. This provides a way to talk about and evaluate projects in the context of the university mission in addition to the normal economy, risk, and operational needs.[104] Conversely, the absence of such vision more frequently results in the "insufficient funding and competing priorities" that Deloitte UK describes as two of the "most significant barriers impeding [e-government] digital transformation."[105]

Though commonly characterized by a number of our interviewees as being thought of as "boring" or "un-sexy" to their organization's leadership, IT infrastructure can be viewed as an opportunity and a foundation for more visibly innovative and interesting investments. When thought of as "getting the basics right," future-looking and thoughtful infrastructure investments can provide a strong foundation for more visible and helpful future innovations. Communicating the value and relevance of "getting the basics right" to accomplishing the "moon shot" appears to be key to organizational commitment.

Lack of Commitment to the Marathon

Another common theme of failed digital initiatives and digital transformations is unrealistic expectations of the effort, cost, and duration required for success, which are often followed by a lack of will and commitment, once those expectations are tested. Michael Edson argues, "Where it comes off the rails is where the senior leadership team doesn't believe their own strategy.

And they don't have the collective skills, will, and wisdom to pull that off. Staff can sense that lack of commitment, consistency, and clarity, and when they sense it, it leads to complete and utter failure."[106]

> **"Ultimately, "failure" comes from unmanaged risk, but can transform itself into learning, with the right people, culture, and structures in place to support it.**

Ultimately, "failure" comes from unmanaged risk, but can transform itself into learning, with the right people, culture, and structures in place to support it. As was the case with NASA's Apollo program, failures *within* a digital strategy can actually lead to even greater successes, if the organization actively supports risk-taking, continuous learning, agility and adaptiveness, deep collaboration and communication, and data-driven and decentralized decision-making. As noted by psychologist Carol Dweck, "organizations that embody a growth mindset encourage appropriate risk-taking, knowing that some risks won't work out. They reward employees for important and useful lessons learned, even if a project does not meet its original goals."[107] This realism about both the costs and the value of embracing the future is essential to the endurance required for the long-term success of digital transformation efforts.

Stalled Decisions and Momentum

As described earlier, having decentralized decision-making protocols that enable teams directly involved

in digital transformation to maintain momentum is an important factor to success. McConnell describes the first barrier to digital transformation as being "slow or stalled decision-making caused by internal politics, competing priorities, or attempting to reach consensus."[108] Without clearly delegated authority or quick decision-making from leadership, even the best strategies can languish and eventually fail.

Indeed, bridging agile technology development methods to slower moving, more entrenched decision processes and structures can prove challenging for even the savviest diplomats. The key is to anticipate such conflicts, and preempt them with new protocols.

McConnell cites a "lack of understanding operational issues at the decision-making level and difficulties when going from theory to practice" as another major obstacle to digital transformation.[109] This can be true at the basic systems level in complex organizations, but also in modeling complex business and process dependencies. Resources need to be invested in understanding the connections between the systems in order to understand the implications of the changes. There are conceptual models and tools that can assist with bridging such operational and communication gaps or misalignments. One such tool is the Benefit Dependency Network, which "seeks to get managers to identify and map all the changes that they will be required to make if expected benefits and outcomes are going to be delivered. It also illustrates very clearly how this change will be enabled

and shaped by digital technologies. The resultant network shows how each of the expected benefits will be delivered through a combination of technology and business changes and how these are related to each other."[110]

Summary

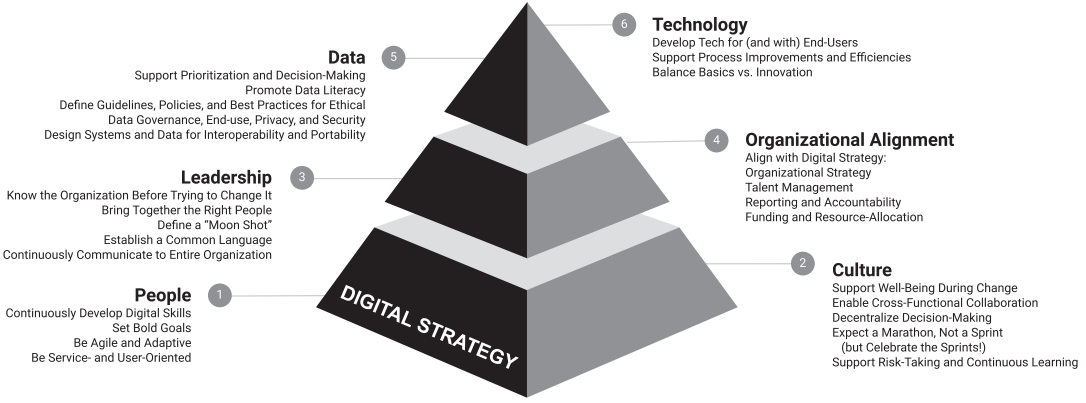
In our literature review, research, and interviews, as well as in our own experiences and first-hand observations of dozens of organizations, "failed" digital initiatives and digital transformations suffered from one or more of the following issues:

- Neglect of the Primary Importance of People and Culture
- Lack of Vision
- Imbalance Between Infrastructure and Innovation
- Lack of Commitment to the Marathon
- Stalled Decisions and Momentum

Conclusion

As noted throughout this book, bold aspirations are key to digital transformation and digital maturity. Boldness comes with inherent risks, of course, but digitally maturing organizations find success in mitigating those risks and changing the way they work through:

- Investing in people and culture
- Putting users at the center of their efforts
- Involving users in the collaborative, cross-functional development of new services
- Being agile and adaptive
- Taking risks iteratively and learning along the way
- Scaling up thoughtfully
- Understanding that transformation is a very long journey
- Being data-driven in their decisions
- Establishing clear policies and practices
- Leveraging open standards and supporting interoperability


6
Technology
Develop Tech for (and with) End-Users
Support Process Improvements and Efficiencies
Balance Basics vs. Innovation
5
Data
Support Prioritization and Decision-Making
Promote Data Literacy
Define Guidelines, Policies, and Best Practices for Ethical
Data Governance, End-use, Privacy, and Security
Design Systems and Data for Interoperability and Portability
4
Organizational Alignment
Align with Digital Strategy:
Organizational Strategy
Talent Management
Reporting and Accountability
Funding and Resource-Allocation
3
Leadership
Know the Organization Before Trying to Change It
Bring Together the Right People
Define a "Moon Shot"
Establish a Common Language
Continuously Communicate to Entire Organization
2
Culture
Support Well-Being During Change
Enable Cross-Functional Collaboration
Decentralize Decision-Making
Expect a Marathon, Not a Sprint
(but Celebrate the Sprints!)
Support Risk-Taking and Continuous Learning
1
People
Continuously Develop Digital Skills
Set Bold Goals
Be Agile and Adaptive
Be Service- and User-Oriented
DIGITAL STRATEGY

By getting the basics right, strong digital strategies provide highly relevant guidance to navigate the foreseeable traps of so-called failure. They place people and culture at the foundation of their efforts, and use strong leadership and organizational alignment to better connect the human aspects to the data and technology they implement and utilize. By taking this user-first approach, well-conceived digital strategies can help organizations turn such obstacles into successful and enduring digital transformations.

Next Steps

To approach digital strategy within your own organization using this framework, start by reconnecting to your mission—whom you serve and why. Ask yourself—and others throughout your organization—some key questions:

- What are you doing, and why?
- What is your vision for the future?
- What do your users want and need today? Are their needs evolving?
- Can your services better align with those needs?

You can begin your visioning and strategic planning process with these basic questions. Simultaneously, begin to identify your resources and activities through a set of inventories around skills, services, and systems. Enlisting teams to create shared inventories of services and systems can help focus conversations around

priorities and the most strategic allocation of limited resources. Such conversations ultimately lead to collective understanding of the "gaps"—where resources are most and least effectively being used, or where they are lacking entirely. Questions to guide these conversations include:

- Do your current activities actually align with your organization's mission and vision, and with your users' current and projected needs?
- Are your resources most effectively being deployed to support the mission, vision, and needs? Where are the gaps?
- Is your organization lacking critical skills to evolve with its users' needs?

As you work through these questions and challenges, continuously reflect on the human center of your "why"—the users, team members, and people at the foundation of your organization and strategy. It can also be helpful to perform market research and environmental scans to see what others are doing and how to better position your organization and its services. Finally, just as technology is at the top of our digital strategy pyramid, only once you've worked through these foundational elements can

> **"Continuously reflect on the human center of your "why"—the users, team members, and people at the foundation of your organization and strategy.**

you fully and meaningfully address the question: How can your technology infrastructure better support the organization's and users' needs?

Digital strategy can be a challenging, time-consuming process, but it doesn't have to be. By working through the framework presented in this book, it is our hope that you gain clarity for yourself, your team, and your organization's stakeholders. Help and support is also available no matter where you are in this process. Taking the time to plan a digital strategy from a people-first approach is key to ensuring organizational alignment, improving efficiency and optimization, staying agile and responsive to change, and ultimately paving the way to successful digital transformation and continued organizational excellence.

Notes

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About the Authors

Megan Hurst and Christine Madsen are co-founders of Athenaeum21 Consulting (A21), a human-centered strategy and technology-planning consultancy serving higher education, arts, cultural heritage, publishing and media organizations worldwide. A21 facilitates the development of forward-looking organizational visions and roadmaps to deliver excellent user experiences, increase efficiencies, and implement change. We help our clients derive greater value from their data, information, and organizational knowledge (and from the systems that support them) by consciously architecting and managing them as strategic assets.

Christine is the head of Athenaeum21's UK operations. She has 25 years' experience designing and implementing sustainable and scalable digital and organizational improvements for world-leading academic and cultural organizations, including Harvard and Oxford universities. Her aim is to help build excellent knowledge organizations of the future, inspired by the greatest cultural organizations of the past.

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If you would like to learn more about Athenaeum21's digital transformation work with a variety of organizations then please visit our website: www.athenaeum21.com.