

# Driving adoption in digital transformation

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Back in the early 1990s, William Gibson, the science fiction writer, author of *Neuromancer* and originator of the term “cyberspace”, stated that “the future is already here – it’s just not evenly distributed”. This predates the widespread consumer adoption of the internet, the cloud, much of machine learning and the rise of the FANG companies (Facebook, Amazon, Netflix and Google). Gibson neatly summarizes the reality of innovation, which, like evolution itself, can operate at different speeds within different



environments and in response to different stimuli. The “unevenness” of the future creates the possibility for all but the trailblazers and inventors to observe what has already been tried and tested in an alternative domain, and to learn lessons from the leading edge.

Unfortunately, this learning opportunity is all too often ignored. Time and again we see examples of organizations applying approaches

and technologies that have already been superseded or discredited by true digital leaders, with all-too-predictable consequences. In the post-mortems carried out on these failed, or at best sub-optimal initiatives, the focus tends to be on failures within the technology domain. However, we believe that this is often a lazy hypothesis.

A significant proportion of failures to realize the anticipated value from digital transformations can be directly traced to failure to appreciate and address human behavior associated with the transformation. Arthur D. Little believes that when driving digital transformation, human behavior should be paid at least as much attention as the technology itself.

When it comes to delivering effective digital transformations, human behaviour is often overlooked in favour of a focus on technology. Based on our experience and research, we outline how organizations can truly engage their people by understanding their behaviors, and consequently, ensure that they undergo successful digital change.

## Why does digital transformation fail?

Digital is now proving to be genuinely transformative – even within companies that were originally skeptical. For example, roughly two-thirds of industrial companies are now discovering the untapped potential of digital innovation, with approximately the same number stating that they believe it will have a bigger impact than traditional innovation (Source: Arthur D. Little Global Innovation survey<sup>1</sup>).

However, genuinely transformational change is hard. Recent studies show that 84 percent<sup>2</sup> of digital transformation initiatives fail, often despite the rigorous application of “best practice”. Assuming the right digital technology has been identified, which can successfully create the potential for transformation (see “The, human-to-technology,<sup>3</sup> language challenge”), there are still significant hurdles to overcome, including:

### 1. Inadequate attention to human behavior

The last 20 years have seen the identification and explanation of a wide range of insight into human behaviour, and especially our “predictably irrational” reactions to external factors. Unfortunately, much of this insight has not yet become common practice when businesses undertake transformation, with people often still perceived as ultra-rational, calculating “machines”. Some common oversights include:

- a. Inadequate attention being given to the people directly affected by the change and their psychological journeys.
- b. Underlying organizational challenges that lead to the proposed change not being sufficiently communicated or understood, so people fail to understand the damaging consequences of protecting the status quo.

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1. Arthur D. Little Global Innovation Survey 2017

2. Bruce Rogers, Forbes, 2016: Why 84% Of Companies Fail At Digital Transformation: <https://www.forbes.com/sites/brucerogers/2016/01/07/why-84-of-companies-fail-at-digital-transformation/#31e0f308397b>

3. Prism H2 2017: <http://www.adlittle.com/en/insights/prism/human-technology-language-challenge>

- c. Resistance to change for individual and often deeply personal reasons – for example, the change may impact processes and ways of working that have delivered them successful careers (i.e., it impacts their professional “defensible turf”).
- d. People not being adequately or effectively supported during the transition as they give up the old ways and adopt new ways of working. In fact, the need to “stop doing something old to start doing something new” is still often overlooked, despite Voltaire’s perceptive observations over 250 years ago.

## 2. Uneven delivery focus and inappropriate controls to deliver technology enablers

While we believe that mastering human behavior is the biggest determinant of success in digital transformation, there are still a number of significant issues in how we deliver the technology enablers, which are the foundations that can be leveraged as part of transformation:

- a. Over-reliance on waterfall methodologies and milestone tracking – not all problems are known or even knowable during upfront planning, and as the military has known for over a century, “no plan survives first contact with the enemy<sup>4</sup>”.
- b. Misrepresenting agile, or not correctly applying the principles originally defined in the “Agile Manifesto”<sup>5</sup> – but instead focusing on the hype and ceremony of agile, which can lead to well-intentioned teams following superficially agile processes, but ultimately failing to deliver.
- c. Working towards a single “gold-standard” technology release at the end of the project, on the assumption that people will automatically use it, and then declaring premature victory. This is often accompanied by limited or non-existent interaction with actual users or customers during development or configuration.

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4. [https://en.wikiquote.org/wiki/Helmuth\\_von\\_Moltke\\_the\\_Elder](https://en.wikiquote.org/wiki/Helmuth_von_Moltke_the_Elder)

5. [https://en.wikipedia.org/wiki/Agile\\_software\\_development](https://en.wikipedia.org/wiki/Agile_software_development)

- d. Assuming that initial specifications are accurate and immutable, when the reality is that they are an imprecise estimation of needs at a point in time, which will inevitably evolve and adapt during the project's life cycle.

### **3. False assumptions**

The foundations of many corporate transformations are often fundamentally flawed from the outset, due to the pervasive adoption of false assumptions, which can cause projects to persist long after all rational evidence is pointing to failure:

- a. The proposed solution is treating superficial symptoms, with delivery teams believing they are "right" and not curing the underlying root cause (which generates constant frustration with directly impacted staff and people on the ground).
- b. A culture in which "failure" is unacceptable rather than being seen as a learning opportunity.
- c. Initiatives and projects that become "too big to fail", especially when they are tied to personal career aspirations of senior executives or internal politics.

### **So where should organizations start?**

Over the last 25 years, a large body of excellent research and published approaches and methodologies has identified key enablers to deliver successful change. Arthur D. Little has reviewed and synthesized a wide range of these frameworks and concluded that the following six enablers are critical to driving successful digital transformation efforts:

- Empowerment to action – we have authority to do what is needed.
- Aligned vision – we understand and are committed to what needs to be done.
- Engaged leadership – we are supported, guided and protected.

- Tolerance for failure – we accept that to achieve success, sometimes you need to fail fast, fail smart and keep going.
- Tangible incentives – we have appropriate reward systems in place for success.
- Belief it can be done – we know we can get the job done.

At face value, these enablers do not, of themselves, provide a roadmap for success. Many of them only address part of the challenge. However, we feel that they can be unified into a powerful toolkit to facilitate successful transformation, when assessed against three specific personas and observed through three distinct lenses. The three key personas we identify are:

- those who provide the transformation vision (executive)
- those who deliver the transformation vision (transformation delivery team)
- those who instantiate and operationalize the transformation vision (user community)

The three lenses are based on fundamental aspects of human behavior that operate at all levels, from individual to organizational:

1. **Agency:** Ensures that the change actors have both the belief and the authority to enact change. Agency provides the empowerment, motivation, capability and priority to make a difference, at both the individual and organizational levels – *We know “what” we need to do.*
2. **Pathway:** Provides a credible route map to delivering the change journey. Even if all points on the journey are not fully known at the outset, the pathway is plausible and there is a belief that clarity will emerge as progress is made. The pathway also takes into account that the journey is unlikely to be direct and accepts the need to adapt – *We know “how” we need to do it.*

- 3. **Capability:** Understands and develops the abilities needed to undertake the transformation. This encompasses existing skills, experience and talent, together with training, development and support, and needs to be evidenced at all levels, from the individual to the organization – *We “have the ability” to do it.*

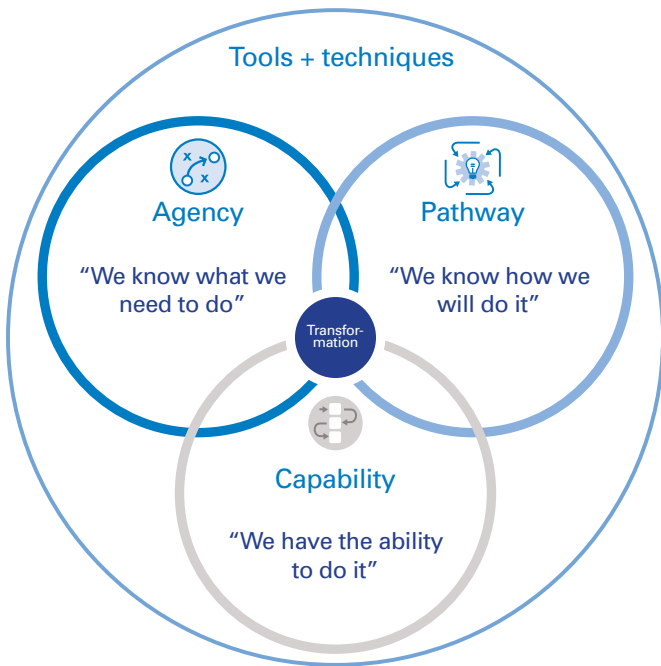


Figure 1: **ADL Digital Problem Solving, Adoption Engineering Framework**

Combining these two perspectives, we can use a simplified “real-world” example to help explain the underlying concepts. The example below looks at a typical technology implementation:



Figure 2: **Example of a typical technology implementation**

When business change initiatives fully harness the power of agency, pathway and capability at all levels of the organization, we see the emergence of endogenous, behavior-driven transformation, which, at ADL, we describe as “adoption engineering”. In many ways adoption engineering brings into the corporate domain the mind-sets and behaviors that are endemic in our personal interactions with technology, and moves organizations away from top-down, decree-driven, classical change management approaches.

### Enabling patterns

Each of the three lenses has its own distinct set of change-enabling tools. However, true breakthroughs are achieved when the three lenses are continuously kept in balance and managed holistically.

Overall, our experience shows that there is no single technique or approach to successfully managing digital transformation projects – every change challenge is unique and intertwines situation, organization and culture. We therefore focus our approach on balanced application of the most appropriate tools and techniques throughout the transformation journey. Below, we highlight some of the change patterns which help us to do this.



## **1. Insight into agency – *We know “what” we need to do***

### Issue tree + jobs to be done (JTBD) analysis

Any transformation, digital or otherwise, starts with a clearly defined vision, strategy and roadmap. A new strategy is often a response to a particular challenge or opportunity. While the organization may agree there is a challenge, we find that subtle, often unspoken nuances, based on individual and departmental perspectives, drive lack of consensus on what the root causes of the challenge are.

To overcome this hurdle, we always start by clearly defining and challenging the issues. This involves reframing the question to ensure we are answering the right question for all stakeholders. Traditional issue analysis will stop at this phase. However, at ADL we have combined traditional management consulting techniques with design-thinking frameworks – for example, we express the “issue tree” from the perspective of personas (see Figure 3 for definitions), which we find is a powerful approach to plot the logical journey through the problem based on shared perspective.

Personas, user journeys, and jobs to be done (JTBD) are also instrumental in helping to curate specific change messages for distinct groups of stakeholders across the organization, ensuring that problem statements are salient, relevant and clearly communicated so that all individuals understand why the status quo needs to change.



**Personas** – represent clusters of users (customers or internal) who exhibit similar behavioral patterns, motivations, and attitudes. We use personas to capture key insight into users’ “pain and gain points”, as well as their use of other linked products, processes and technology.



**User journey maps** – a visual representation of the touch points and interactions of a user with the change output. We use them to help further our understanding of the individual user experience and the emotional journey they take through transformation.



**Jobs to be done (JTBD) analysis** – defines the ultimate outcome of a job rather than the means of achieving it. We use this to provide clarity on what the core desired action and outcome are. Jobs to be done analysis helps remove the impediment of how people have worked before to open up new ways to tackle old problems.

Figure 3: **Personas in the “issue tree”**

We recently worked with two business units of a train operating company to help define a visualization and decision-support tool to manage operational disruption. Due to local differences (train size, route scale, frequency of operations and job titles), as well as one operating company being a concession and the other a franchise, the teams felt they had completely different issues and requirements when managing disruption. Systematically working through the issue tree and JTBD analysis helped the teams to realize they were actually doing the same job, for similar customers, and with fundamentally the same issues, albeit with local variances. Creating an impartial consensus allowed each of them to define a common set of requirements, which, in turn, allowed the definition of a common roadmap on how to move forwards.

**Key takeaway:** Clearly defining issues, building a logical journey from a user perspective, and building consensus provides delivery teams with the agency to deliver authoritative messages throughout the digital transformation.

## 2. Insight into pathway – *We know “how” we need to do it*

### Experimentation + validated learning

Strategy often leads to a delivery roadmap and business case with a set of assumptions. All too often, a *post mortem* review of the initial business case reveals that the expected business benefits have not been delivered. Business case assumptions are hypotheses that should be tested during delivery; however, more often than not, the focus on milestone delivery overpowers the sense to test whether:

- 1) initial assumptions are still valid
- 2) the strategy may need to pivot to deliver a successful digital transformation

The ADL Digital Problem Solving team, inspired by *The Lean Startup*, 2011 and *The Startup Way*, 2017<sup>6</sup>, as well as its own science-rooted heritage, believes in continually running experiments to gain validated learning during the transformation journey and ensure that strategic objectives remain on track. We therefore believe in the concept of *strategy as a verb, rather than strategy as a noun*; that is, strategy emerges and is validated by constant testing, rather than being set at the start of the project as an immutable artifact.

From a technology perspective, this means that products need to be “shown early and often” to potential users of the solution and hypotheses constantly challenged and tested. We find this approach is a powerful way for users to feel ownership and help ensure their requirements are built into the solution. It also provides an opportunity to test “persona”-related messages and engagement techniques, and to react accordingly.

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6. Eric Ries, *The Lean Startup*, Crown Publishing, 2011 and Eric Ries, *The Startup Way*, Currency, 2017

To successfully run experiment-driven transformations, the team needs to:

1. Develop clear hypotheses that can be proved/disproved
2. Run the experiment with actual potential users
3. Use the validated learning from the experiments to inform invest, pivot or stop decisions (for further info see “Tackling the digital hype”<sup>7</sup> )
4. Be careful to avoid falling into the trap of not listening to the experimental data, and instead relying on internal “(anecdotal evidence based on personal observations or opinions but presented as fact)”

Experiments have the additional benefit of deriving early learnings on behaviors, which can be used to help embed the strategy through carefully curated change messages.

For a medtech start-up company, we recently defined a new strategy that identified “blue ocean”<sup>8</sup> revenue opportunities. While the strategy was positively received and signed off by the board, there were key assumptions that needed to be tested to prove the way forward. Therefore, during the following six weeks, ADL created working prototypes for a new user experience and interviewed 200 patients and carers in four countries. The results validated that the strategy had the anticipated demand, and also provided key, specific learnings that were rapidly iterated into both the value proposition and the development roadmap.

**Key takeaway:** Experiments build pathway, ensuring an optimal route is taken and considering emerging situations. Experimentation is key to aligning strategy with human behavior and helps to bring people on the journey. However, organizations also need to understand the nature and value of experimentation, and develop tolerance for failure or unexpected outcomes, in order to successfully incubate the capability within their cultures.

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7. Prism 2016 H2: <http://www.adlittle.com/sites/default/files/prism/Digital%20hype.pdf>

8. Renee Maubourgne and W. Chan Kim, Blue Ocean Strategy: How To Create Uncontested Market Space and Make The Competition Irrelevant, Harvard Business Review Press, 2005

## **Agile + transition states**

Traditional project management best practice focuses predominantly on requirements delivery, time-line adherence, and cost management. Once the benefits have been agreed within the business case, as discussed above, they are rarely revalidated during the transformation journey, which is always months, and often years. There is no ability to assess and adapt to demonstrable change or emerging events. Additionally, we commonly find that traditional project management over-focuses on financial metrics and technology delivery milestones. We believe a more successful overall outcome is achieved by applying three core concepts to the transformation program:

- 1) Apply the Agile Manifesto
- 2) Prioritize leading indicators
- 3) Define clear transition states

ADL applies the underlying principles of the Agile Manifesto, which originally focused on software development, to the delivery of transformation programs. The agile approach ensures work is broken down into a manageable backlog, allocated efficiently to the best resources by empowered and autonomous teams, and delivered through short sprints, with demonstrations of working products at the end of each sprint. The regular “show me; don’t tell me” approach helps align human behaviors and reactions and creates common ownership.

KPIs focus on “leading indicators” and are a blend of financial, empirical and behavioral metrics. An example of a behavioral metric could be active use of a product four weeks after trial launch, or movement in user sentiment/confidence. These early indicators provide powerful insight into the likely wider adoption, and also give opportunities for course-correction to increase the likelihood of success.

Agile helps us to manage the day-to-day activities, and transition states help to manage the longer term and ensure delivery of the broader transformation objective. All too often, we see change teams becoming paralyzed by indecision due to the scale, complexity and duration of the transformation required, and this inability “to see the wood for the trees” is a significant cause of failure, especially in very large programs.

Transition states work by focusing change teams’ output, effort and attention towards specific short-term delivery objectives, which collectively deliver successful transformation journeys. Each transition state, which is typically three to six months in duration, has its own core purpose (although multiple may run concurrently). This is used to manage, compartmentalize and prioritize activity. Following delivery of each transition state, we use the learnings to validate, amend or even pivot away from the next proposed step in the transformation journey. This ensures that we are always aligned to the overall transformation goals, even though we might be taking a very different path to the one originally envisaged.

A global airline was facing significant reputational and financial risk due to repeated failures in recovering airline operations following disruption from adverse weather. The executive publicly committed to urgently tackling the problem, and demanded to have a solution in place before the start of the following winter. However, when solution proposals were received, all estimated time frames of at least 15 months to deliver, and required the replacement of complicated legacy operational systems as prerequisites. Embracing agile ways of working through transition states, we quickly proved value by creating a working prototype within 10 weeks, and had a minimum viable solution (MVS) operationally ready and in the hands of trained users by the start of winter operations. Both agile delivery and transition states were critical to overall success, as they helped focus and validate the pathway and allowed what seemed initially to be an unrealistic deadline to be met. The approach also maintained organizational engagement throughout.

**Key takeaway:** Applying Agile Manifesto principles, leading indicators and transition states together to help harness agency, pathway and capability. They allow us to focus on behavior as well as financial reward, and also keep the organization focused, yet flexible, to deal with the inevitable emerging delivery hurdles.

### 3. Insight into capability – We “have the ability” to do it

Behavioral economics + social psychology

Throughout the journey from formulated strategy to delivered transformation, organizations need to constantly prioritize human behavior, both individually and holistically. When the human side of change is considered as an afterthought, significant rectification efforts are almost always required.

Fortunately, recent advances in behavioral economics, social psychology and cognitive studies can all be applied to help organizations better understand and then harness human behavior to drive successful digital transformation. At ADL, we believe there are now a number of frameworks that can be successfully applied to change, even though they originate in disparate disciplines. Some of the frameworks we regularly apply include:

- **SCARF**<sup>9</sup>  
*- Status - Certainty - Autonomy - Relatedness - Fairness*
- **MINDSPACE**<sup>10</sup>  
*- Messenger - Incentives - Norms - Defaults - Salience - Priming - Affect - Commitments - Ego*
- **Prosci ADKAR**<sup>11</sup>  
*- Awareness - Desire - Knowledge - Ability - Reinforcement*

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9. SCARF model: a brain-based model for collaborating with and influencing others, David Rock (2008)

10. Institute for Government and UK Cabinet Office, 2010

11. Prosci ADKAR Model, Jeffrey Hiatt (2006)

All of these frameworks build upon the “predictably irrational” nature of individual human responses to change and uncertainty. They allow us to anticipate and better respond to what is still too often perceived as a “behavioral problem”, when in reality it is often a perfectly understandable individual response to a stressful situation.

A leading global education company was looking to deploy new end-user desktop services and collaboration tools to its 45,000 staff; however, the plans were estimated to take at least 2.5 years, and the implementation team was already facing significant user resistance. By giving people a choice of new tools, but insisting that they choose one, we tapped into a cognitive bias based on optionality, which engendered commitment and led to full adoption in less than 18 months. We identified early on that although the different tool sets had different benefit cases, the biggest benefit arose from everyone migrating to one of the new tools. The traditional approach the organization had been applying aimed at forcing universal compliance to a single “best solution”. Unfortunately, though, very different communities of interest and job roles within the organization meant that agreement on a single “best” solution could not be reached. Optionality was introduced by allowing departments to choose their preferred tool sets, and by ensuring seamless interoperability between departments, regardless of tool set. Our approach created momentum for change and a strong feeling of user participation in the decision.

**Key takeaway:** The examples described are illustrative of the many behavioral models and frameworks that are now emerging as we better understand human behavior and decision-making. Critically, any approach needs to be flexible and tailored to meet an organization’s culture and individual need. Attention to the human side of change must also begin at strategy formulation, continue through delivery of the change, and persist into the subsequent realization of benefits. Some techniques assist with creating *agency*, while others address *capability*.



## Culture + language

When people, or departments, have built successful careers by practicing (and protecting) old ways of working, there is a natural fear of change and the unknown, and a deep-seated protection of the status quo. Compounding this mind-set are negative language sets typically applied when projects do not proceed to plan – “failure” is rarely regarded positively within organizations. Yet, the advancement of science and philosophy shows us a different way forward – incessant experimentation, repeated failure, and Isaac Newton’s apposite description of “standing on the shoulder of giants”. *(Thomas Kuhn<sup>12</sup>’ found similar attitudes and blockers when looking at the organization of science rather than the practice of science, which clearly demonstrates a primal, behavioral cause of much of “our” resistance to change).*

The “Tackling the digital hype<sup>13</sup>” Prism article discusses the impact language can have in an organization on culture. The article does not, however, address the clear financial benefits to be derived from an experimental, failure-tolerant approach: teams that run experiments to test hypotheses, and then use the validated learnings from these experiments to quickly pivot or stop investments that were heading in the wrong direction, help the company better utilize funding and efficiently apply scarce resources to more promising opportunities.

A leading FTSE 150 entertainment company wanted real-time communication with customers during major sporting events to offer personalized content. However, existing tools were constrained, as the company only offered *post hoc*, rear-view-mirror capabilities.

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12. The Structure of Scientific Revolutions, Thomas Kuhn (1962)

13. Prism H2 2016: <http://www.adlittle.com/sites/default/files/prism/Digital%20hype.pdf>

ADL created a side-by-side team environment which helped change ways of working to be more collaborative and experimental; that is, it celebrated success and understood failure was a path to success. A trivial, but powerful, example was the use of “The Gong to Glory” to celebrate releases, which created a positive cultural impact in the team and beyond. The end result was a capability released in eight weeks, delivering a real-time marketing capability and significantly changing how the company engaged with its customers.

**Key takeaway:** Language associated with *agency* and *pathway* needs to respect validated learnings, so that people feel empowered to make decisions which may sometimes, or even often, fail. Within these failures can actually be the beginnings of a huge success story, as they help organizations better allocate funding and resources for higher-impact initiatives.

### Insight for the executive

Much of what needs to be done to digitally transform our organizations has already been delivered somewhere, in a similar context and addressing similar challenges. The roadmap to success for digital transformation is available to us, if we understand where to look and how to read it. However, the main impediment to transformation is increasingly not the how or the what, but the who – or, perhaps more accurately, the “with whom”.

Our recent Global Innovation Survey demonstrates the significant potential value of digital, but much of it is currently being wasted as organizations knowingly fall into well-trodden traps. (Indeed, 89 percent of companies feel that successful digital innovation will require a new approach to innovation management<sup>14</sup>).

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14. Arthur D. Little Global Innovation Survey 2017

We believe that many of these traps are caused by failure to address or acknowledge the human elements fundamental to digital transformation, despite the fact that textbooks on change management generally talk about little other than people's values and motivations. In our experience, such "classical" change management approaches are good up to a point, but they don't address the key individual dimension: how to ensure that any person, at any step of the way, knows what to do and how to do it, and has the capability and motivation to do it. Importantly, most traditional change methods do not properly integrate lessons learned about new technology deployment and how digital solutions and human behavior can be aligned and "engineered for adoption". Instead, they tend to be overly concerned by the achievement of predefined outcomes that may or may not still be relevant by the time transformation concludes.

In a technology-focused world, agility, experimentation and the ability to accept failure as a validated learning opportunity helps empower organizations to transform. It allows them not only to focus on the technology, but just as importantly, to truly engage their people by understanding their behaviors, in order to deliver successful digital transformation. We believe the ADL Digital Problem Solving approach to adoption engineering is a key differentiator to help manage the alignment of capability, agency and pathway throughout.

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