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Why We Need to Change The System

It is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself.

—Leon C. Megginson on Darwin's *On the Origin of Species*

It is not necessary to change. Survival is not mandatory.

—W. Edwards Deming

The techniques that worked so extraordinarily well when applied to sustaining technologies, however, clearly failed badly when applied to markets or applications that did not yet exist.

Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies*

—Cause Great Firms to Fail

The strategic role of IT has increased greatly in the last number of decades due to the impact of digital technologies at both a business and a social level. The old model of IT as a support center or an order taker is outdated in today's complex digital business world, where pace, adaptability, creativity, innovation and collaboration are fundamental to succeed in both existing and new business endeavors. This requires a new IT operating model. One that can contribute to digital exploration and the discovery of new opportunities but at the same time can maximize and exploit the performance of an incumbent business model.

This chapter begins with an examination of the impact that new technology, rising customer expectations, and an adaptive competitive set have had on the business landscape and why it is now often characterized as a volatile, uncertain, complex, and ambiguous environment. This context explains the complex and unpredictable

challenges the business, and therefore IT leaders, will face. This uncertainty requires a change in how we operate, as the characteristics and approaches to these new problems are very different to the traditional ways of working formed many decades ago. But at the same time, we must understand what has not changed. IT leaders still face the same problems of supporting an organization's need to scale in a cost effective and secure manner.

To understand how best to manage challenges in support of these two extreme ends of business need, and everything in between, we will leverage the Cynefin decision framework. The framework will aid your situational awareness, helping you to categorize problems based on observable characteristics. Through this categorization of problems, you will learn of the most appropriate methods of approaching them, which will give you a greater chance of succeeding in solving them.

The bottom line is that we need an adaptive IT operating model that is fit for purpose for today's complex and volatile business environment, one that can innovate and cocreate but at the same time provide scalable and efficient solutions to exploit the organization's current model and maximize value.

The Age of Digital Disruption

Software is eating the world, it is the rise of the knowledge worker, and according to Davos World Economic Forum, we are in the Fourth Industrial Revolution. Call it what you will, but the speed at which technology has impacted our lives, from both a business and social context, has focused the need for a more strategic IT leadership. This digital disruption is important to understand as it is the fundamental reason IT leaders, and businesses, need to change the way they lead and make decisions. The factors causing this disruptive business landscape are faster and cheaper technology, evolving customer expectations, adaptive organizations, and new business models.

Disruptive Technology

Access to cheap, pay as you go, infinite cloud computing power and storage, means low cash flow startups that can't afford large capital investments are no longer prohibited from launching into, and disrupting, established markets with speed. Managed cloud services for databases, infrastructure, and machine learning allow companies to focus on value-add activities such as innovation and experimentation by building upon a rising platform of leading-edge capabilities rather than focusing on keeping the lights on. The adoption of mobile technologies, voice-activated assistants, and connected homes has meant that technology is penetrating every aspect of our lives, and businesses have been keen to capitalize on being able to reach customers 24/7.

As technology became cheaper and more powerful, so did data storage and the tools to analyze it. This, coupled with the explosion in the amount of data that was available on customer behaviors due to the always-on connected devices and IOT, enabled companies to start creating powerful and relevant experiences for end users. Digital companies are now able to make better choices on how to evolve their products and services by analyzing the mass of information gained from customer behavior. Data visualization and analytics platforms are easier to use than ever before to gain deeper insights and understanding; furthermore, these platforms are made directly available to the teams that run business departments and make decisions, vastly reducing the lead time from insight to action.

The Rise of Customer Expectations and Influence

Perhaps the single biggest impact from the advances in technology and new value propositions is that of the shift in expectations and the influence of customers on today's business environment. Customers have high expectations for an immediate response to service requests and the fulfillment of purchases 24 hours a day and seven days a week. Personal time by end users is increasingly spent in the cloud on highly polished user experiences with high levels of customer service. This results in customers, both internal and external, having much lower tolerances and higher expectations, when it comes to user experience than before.

Consumer influence is now greater than ever due to the wide adoption of social media platforms, which enable customer networks to have a direct impact on brands. Because of the power of customers, there has been a shift to how organizations are selling and positioning themselves. Customer-first and customer-centered strategies are now the norm due to the value customers place on service and product experience. This is heavily influenced by the large tech companies such as Amazon and Google.

Adaptive Organizations

Companies that have thrived in the digital era have been those that have been able to adapt their ways of working. Highly collaborative, customer focused businesses who learn and adapt at pace, are far better positioned to remove constraints and exploit opportunities. Traditional methods of having a strategy with a fixed three-year detailed plan is no longer as useful as they once were due to the rapid pace at which competition and customer expectations are moving. Companies that have embraced and pushed down a learn-and-adapt feedback cycle to employees versus a command-and-control mentality are finding that they can innovate far more effectively. Pushing down accountability and autonomy to highly skilled and talented employees that are close to the problem, and aligned to the company strategic need and vision, is proving

to be an effective way of working. Empowering workers to analyze data to identify patterns and trends to make more informed choices and better decisions when determining what to do to achieve goals is reaping rewards. Embracing the reality of the sometimes-chaotic rate of change and unpredictability in the business context rather than trying to control it is really the only strategy.

Innovation has proved to be ever more essential for businesses to adapt and transform. Because of the art of the possible that new digital technologies afford, organizations should challenge long-held assumptions around business model propositions, test hypotheses through fast and inexpensive experimentation, and be comfortable with making mistakes along the way to learn. Cloud-based technology has made it much faster to test ideas without committing to large upfront costs. To avoid being disrupted, progressive businesses are disrupting their own business models. This ruthless focus on innovation and self-disruption through continuous learning, all enabled by a culture that values experimenting and not being afraid to fail, is now a fundamental capability that is needed to succeed.

New Business Models

The convergence of technology, shifting customer expectations, and the rise of highly adaptive organizations has led to a tremendous amount of business model change, not only through the digitalization of existing value propositions but also through the creation of new business models. This evolution has been powered largely by a move from products to services and platforms. Products are increasingly moving from an ownership model to an access model, and customers are valuing experiences that evolve daily over waiting for the next version of a product. We no longer buy music; we rent it. We don't own films; we stream them. We buy smart devices connected to the Internet along with subscriptions to services. Free models, subscription, on-demand, and freemium are just some of the new ways to sell products as services that have helped to disrupt the incumbent business models.

In addition to services, there has been an explosion of platforms, perhaps the most notable being Amazon's marketplace, Apples app store, Etsy, Facebook, Uber, and Airbnb. These platforms rely on partners to drive value, with their value proposition being the connection between partner and consumer on a global, secure and highly polished user experience platform.

Operating in a Volatile, Uncertain, Complex, and Ambiguous Business Environment

In today's digital world, the size of a company is no longer an advantage, and neither is a history of dominance in a market. Businesses that have sat on their laurels are ready

for disruption, and not just from known competitors but also by tech-savvy startups and entrepreneurs that have identified untapped customer needs in the market. Access to data and analysis on customer behavior and the commoditization of technology capabilities has leveled the playing field and enabled new competitors to enter a market at pace. These new entrants, who hold the customer central to the business model, can move at pace, adapt, and embrace new ways of working to quickly take market share from the slow-to-react incumbents. All these changes are happening on a global scale due to the ease of the delivery of new digital services. The pace, widespread scale of changes, and inability to predict the next industry disruption has made for a chaotic and unprecedented business environment.

VUCA is an acronym that originated at the US Army War College to describe the volatility, uncertainty, complexity, and ambiguity of the world after the Cold War and geopolitical instability and to reflect on what military operations are increasingly faced with, especially with the rise in extremism and terrorism. However, since the turn of the century, the term has been adopted by business leaders to describe the pace of unpredictable change and evolution in the business environment.

VUCA applied to the business environment can be thought of as follows:

Volatility There are no longer any untouchable business models; no industry is exempt from disruption. Change is impossible to predict, but it is now the norm—the market is volatile.

Uncertainty There are no longer any certainties; investments and big bets based on ideas and plans that take years to develop are extremely risky.

Complexity Cause and effect are not linear in a global market that has high customer expectations of digital services and products. It is difficult to understand what will succeed and what changes (your own and competitors) will have undesired effects.

Ambiguity Interpreting meaning, analyzing trends and spotting patterns is extremely difficult in an ever-moving business environment.

As new business models are created, while others evolve beyond recognition and some become irrelevant, we find that three-year plans are too rigid and result in slow reactions to competitors and changing customer expectations. Companies without the skills and the ability to sense and adapt to changing markets will struggle in the VUCA environment and will cease to be relevant to customers.

IT is now central to all businesses, and the role of IT leaders is more demanding than ever in an increasingly VUCA business world. IT leaders must learn to embrace this new reality and adjust operating models accordingly. They must place a focus on

collaborative learning and adapting to customer needs at pace to manage initiatives in increasingly hard to predict and complex problem domains. Without the ability to adapt ways of working and other operating model components based on the problems they face, IT leaders run the risk of being the very blockers to their enterprise's digital future.

Leading IT in a Complex and Adaptive World

As previously discussed, the business environment is more volatile than ever due to technology advances, greater access to data, higher customer expectations, the speed of business model evolution, and competitors challenging from across the globe. In this new and more challenging environment, IT leaders no longer only face simple problems that can be solved through best practice and by following a plan. Instead, we are seeing more complex and complicated problems and opportunities that require a different type of approach to solutions.

IT leaders need to accept the uncertainty of working in complex and unpredictable problem domains and avoid behaviors that at best give the illusion of control and predictability. You can certainly plan in complex adaptive problem domains but you need to accept that your plans are likely to change as you receive feedback on your actions. The unescapable fact is that the way we make sense and understand a complex system is by interacting with it, not by analyzing it. This is achieved through experimentation of ideas and hypotheses. Leaders need to manage the expectations of the enterprise and be comfortable with the fact that because teams need to validate ideas and hypotheses there will be failures. These failures should be viewed as learnings, and through these learnings a deeper understanding of the problem domain and its underlying system and patterns will emerge which will result in the discover of actions that will result in the desired outcomes.

However, not all businesses are startups, and not all problems are within the complex and unpredictable domain. To fund digital transformation and exploration, there is a need to exploit and maximize the profits of existing business models. While these problems are still challenging, they are based on proven value propositions and therefore more knowable. They need a different approach to how we might tackle something new with more unknowable unknowns.

What this requires is an IT operating model that can adapt to consider the context of the problem domain and apply the most appropriate method of dealing with it. Operating in high levels of uncertainty requires new behaviors and ways of working—and not only for IT but for the entire enterprise. However, we should not apply these same ways to problems that are more straightforward and predictable. We must apply a

fit-for-purpose way of working that's dependent on context. By explicitly understanding the context of a problem domain, IT leaders can apply an appropriate and relevant solution strategy. There is no such thing as one size fits all and no magic frameworks. IT leaders will need to create an operating model that can manage the various problem contexts that are in play in modern businesses. This requires a high level of situational awareness and the ability to make the most appropriate decisions on which methods you use for each problem you face.

Decision-Making with the Cynefin Framework

The Cynefin framework, shown in Figure 1.1, is the work of David Snowden and his research network Cognitive Edge. The framework helps leaders to understand what context they are operating in and therefore how best to make decisions and lead efforts within.

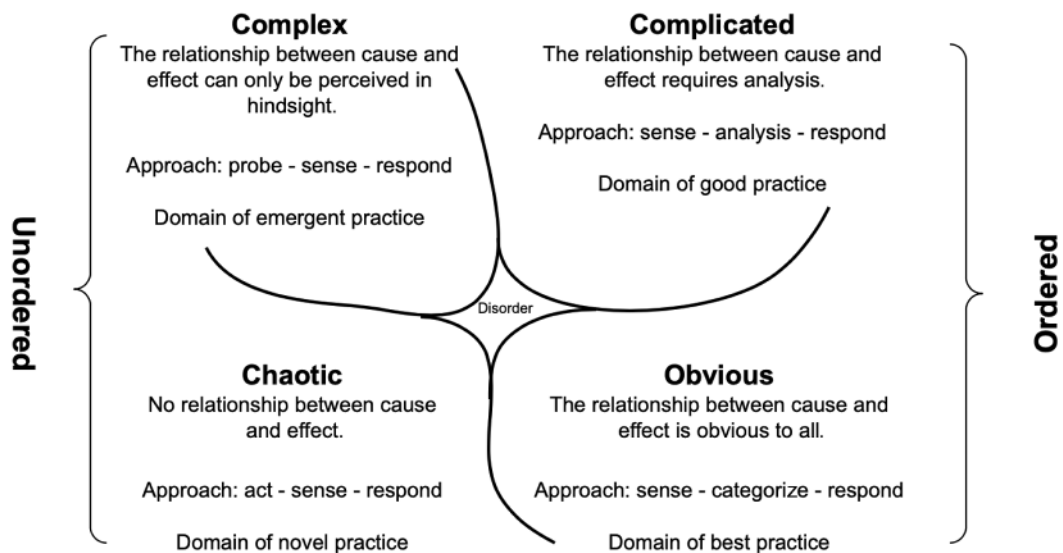


Figure 1.1: The Cynefin decision framework

The framework is composed of five sections that help leaders understand the context of the problem domain and how best to approach solving them:

Obvious Contexts Leaders should follow best practice solutions in the context that is defined of known knowns and avoid reinventing the wheel. Problems in

this context are linear in nature and have a clear cause and effect that present an obvious solution approach. Leaders should be able to recognize the problem domain through sensing and categorizing and then select an appropriate response to deal with it. Problems that are typically handled by a service desk will likely be in the obvious context, where there is a set procedure to identify and resolve. Problems in this context are great candidates for automation.

Complicated Contexts Complicated contexts are made up of known unknowns, and as with an Obvious context, there is a correlation between cause and effect, but it requires analysis. In this context, the framework recommends to sense and analyze the data before responding with a solution. Leveraging expert knowledge to analyze the data is a good practice to quickly getting to a suitable solution. An example of a complicated problem domain is that of building an extension on a house. It is a difficult task with challenges but one with known unknowns that with the help of expertise can be overcome.

Complex Contexts Complex contexts are full of unknown unknowns, and cause and effect are only clear in retrospect. To manage problems in Complex contexts, you will need to test assumptions and hypotheses by probing and using feedback to make choices on the best course of action. An example of a complex problem domain would be a market, company, or ecosystem where a tiny change can have a big unpredictable impact.

Chaotic Contexts Chaotic contexts are characterized by the need for a rapid response based on gut and instinct before sensing and responding. These contexts are often experienced in times of crisis. There is no relationship between cause and effect, and there are unknowable unknowns; therefore, leaders should act quickly and be decisive, only sensing and responding with next actions when there is more understanding of the situation. A critical incident or disaster such as a building collapse or a fire would be an example of a chaotic context. In those situations, you act first and reflect later.

Disorder Contexts When you cannot make sense of the situation and you don't know the best way forward, you are likely in the Disorder context—that is, you are unaware of which context you are in. The best course of action is to distill the problem into subproblems and understand the relative context of each in order to move forward. The Disorder context highlights one of the underlying principles of the Cynefin framework—the importance of understanding the context of the

problem domain you find yourself in. With an understanding of context, you can adapt your problem-solving skills accordingly.

IT Needs to Operate in Both the Ordered and Unordered Problem Spaces

The obvious and complicated domains in the Cynefin framework relate to problems in ordered systems. We can predict cause and effect in these problem domains with relative confidence. Software development in ordered problem domains should be straightforward, in that you can determine what to do; it may be challenging, but you have a good understanding of the way forward. Ordered systems are good candidates for off-the-shelf software as they tend to be systems of record, highly evolved or commodity capabilities in areas such as HR or finance (assuming that these are not your business's areas of differentiation). You can also apply traditional project methodologies and perform upfront planning by leveraging best practice or analysis model patterns when the problem domain is obvious and well understood.

However, due to the need for more creative and innovative business solutions brought on by the factors that are causing digital disruption, IT leaders are increasingly finding themselves tackling problems within the unordered spaces. Trying to obtain predictability for problems in these contexts is impossible – in that you don't know what you don't know. Instead, leaders should allow teams to propose a hypothesis and then run experiments to discover, learn, and adapt their plans. This may be uncomfortable, but it is nevertheless the reality. Trying to lay out a detailed road map and plan beyond the shortest of timescales will not be worth the paper it's written on and will ultimately be a waste of time. Leaders should empower teams to deliver in small chunks and deliver often, allowing for fast feedback and the ability to correct their course, rather than trying to predict the future with detailed and fixed plans.

IT leaders will face problems that land in both the ordered and unordered space as businesses need to innovate and explore at the same time they are exploiting incumbent business models. As shown in Figure 1.2, this means that the operating model of IT needs to be able to support and contribute to both of these objectives. Therefore, we need an adaptive mode of operating, one that complements the reality of the complex and challenging environment within which businesses exist, one that is comfortable in managing problems in both problem spaces.

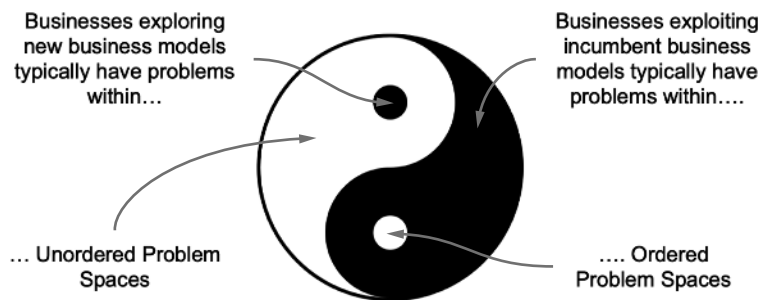


Figure 1.2: IT needs to operate in both the ordered and unordered problem spaces to support business exploration and exploitation.

Summary

This chapter examined the underlying factors behind digital disruption, namely technology and data, customer expectations, adaptive organizations and new business models. These have converged to create a volatile, uncertain, complex, and ambiguous business landscape, requiring a new way of working that encompasses collaboration, customer centricity, fast feedback cycles, and the ability to quickly adapt. And as IT is more central than ever to business strategy in this digital environment, these complex and adaptive business problems are IT leaders' problems.

However, not all problems are complex. It is essential that IT leaders can coauthor a business exploring new digital opportunities, but at the same time they need to be able to support organizations exploiting incumbent and mature business models to maximize value. These different problems require very different approaches.

To help understand the different ways IT leaders will need to adapt their thinking and ways of working, we looked at the Cynefin decision framework, which shows the different characteristics and the approaches required to solve the problem contexts that exist in modern organizations. The conclusion we can distill from this is that IT needs to move to a new adaptive and balanced operating model that can manage problems in both the ordered and unordered spaces. In Chapter 2, "Philosophies For A New System", we will look at the underlying set of principles and values that will guide us in designing an operating model that will contribute to both business exploration and exploitation.