IT’s role in staying adaptable amidst disruption

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Introduction

It’s obvious to everyone that we live in interesting times. In Australia and New Zealand, the last 8 or 9 months have thrown up massive challenges to the existing operating environment for all organisations, and there is every sign that these challenges will continue into future. The impacts of this year are clear to see – although perhaps less clear to predict – and late last year, Australia for example, experienced severe bushfires which tested the ability of many organisations to conduct emergency responses and raised pressing questions about the impact of climate change.

We can’t attempt to deal with all those topics here, but what we can do is look at some of the common themes arising from these challenges and how organisations can face them effectively.

There is a common mantra that floats around the pundit-sphere that “change is the only constant”. Whilst this is broadly true, it understates that magnitude of change that we have experienced recently. It would be better to describe the current environment as ‘volatile’, a word that captures the rapidity and potential impact of change more evocatively.

Throughout 2020 we have seen this volatility impact almost all organisations in several ways:

• Existing work environments are no longer fit for purpose;
• Demand for services is changing radically and quickly, as the movement of people is curtailed or restored.

As a result, organisations need to become far more flexible:

• Decentralising operations to minimise in-person contact to comply with regulations on social distancing and other safety needs.
• Adapting products and services to align with these same distance and safety requirements.
• Altering internal business processes to support the new products and services.
• Scaling organisational capability up and down to meet the changes in demand.
As significant as these changes are, it is also clear that this volatility will not abate any time soon. According to the DXC Beyond Disruption 2020 Business Pulse, half of all Australian and New Zealand organisations expect significant changes to their operating environments for the next one to three years. What to do?

**Strategic impacts**

While it’s clear that we are not actually beyond disruption, it’s also clear that for any organisation to succeed it must able to adapt to the impact of severe disruption as economically and nimbly as possible.

The study highlighted some interesting points:

- Technology spending is on this rise
- Business modernisation is being fast tracked
- Organisations are open to new and emerging technology
- Organisations are shifting their focus from customers to employees

These first three should not come as any surprise.

A key feature of modern technology solutions is that they are heavily reliant on software. Since software solutions are not based on a fixed physical form, they tend to be more flexible. The state of the art in technology is for solutions that are almost entirely software defined, and this can provide a great deal of flexibility when dealing with challenges, like social distancing, that originate in the physical world. We use the term “cloud” technologies as a shorthand for these software defined solutions.

For example: secure remote access to corporate resources would once have required specialised hardware at both the corporate office and the remote site. Now not only is there no need for specialised hardware, the concept of corporate resources residing at a centralised office is no longer necessary. Technology enables an organisation to decouple many of its business functions from physical locations. Little wonder then, that technology investment and adoption are on the rise as physical locations become more difficult to manage.

The last point, however, is troubling. It’s clearly important that organisations focus on their personnel during periods of rapid change – change is inherently a human process. However, switching focus to the internal, when it is clear that volatility is rampant both within and without, is to miss a key point: the changes organisations are being forced to make are driven by both the needs of their personnel but also the changing behaviours of their customers.
Almost all organisations exist to serve the needs of external clients, so to reduce focus on the external drivers that originate from that reason that is dangerously short-sighted. Organisations need focus on the external and internal, equally and constantly. Studying the fluidity of one’s clients will likely provide some insights that can be applied internally.

**But what does this mean for an organisation’s strategy?**

Organisations must orient themselves to a view that change is to be expected and accepted, not resisted. Processes, systems and solutions at both the technological and human levels need to be formulated with change in mind. Simply put: “design for change”. Resisting change can be a useful trait, but in the face of the sorts of volatility we have seen in recent months, resilience for an organisation or an individual cannot come from resistance. It must come from acceptance and adaptation.

Acceptance of change does not imply a chaotic relationship with reality. Instead, business processes need to deal with change with discipline and work outputs need to be crafted to function in an environment where one day may look quite different from the next.

**What does the new strategy require from IT?**

What does a new business strategy require from an organisation’s IT functions? What does the acceptance of change mean for IT delivery?

In order to increase the ability to accept change, one must avoid becoming attached to change inhibitors. This sounds, and probably is, quite trite. However, as the recent rush to remote working has shown, change inhibitors like an office can be incorrectly perceived as a bedrock of a business.

IT functions need to be decoupled from an organisation’s physical location as much as possible. This is not news for remote working capability, but it is equally true for IT functions that workers use. These also need to be decoupled from an organisation’s place of business both in terms of the location of the IT function and the mechanisms used to reach the IT function. A switch to remote working was much easier for organisations whose offices were merely a place to congregate, rather than also being where their IT functions were housed.
IT also needs to ensure that the solutions it provides are adaptable to changing circumstances. This can take a few forms.

Firstly, ensuring that the designs of solutions are flexible. This is not a new problem; indeed, it has existed as a key factor in the success of IT for decades, however it requires special mention in the context of a decentralised IT function. Special care needs to be taken to ensure that decentralised solutions, with components potentially provided by third-party cloud services, are not assembled in a tightly coupled and rigid manner.

Secondly, IT functions need to be scalable both in terms of increasing capacity to meet demand, but also ensuring the capacity can be decreased as needed with consequent decreases in cost. It is inevitable that some areas of a business will shrink over time and ensuring that fixed costs are minimised in such areas is important.

Lastly, all of this needs to be done without compromising the quality and security of these solutions. This is also not a new requirement, but legacy approaches to these key topics will increase the resistance of an organisation to change. New methods for governing and delivering IT solutions are needed to maintain flexibility, quality and security simultaneously.

How can IT meet the new requirements?

It may seem that such radically different circumstance will require entirely new approaches and for some organisations this may appear to be the case. However, the building blocks for success already exist both in terms of theory, technology and processes.

Modern IT delivery methodologies contain a concept of "shifting left". This term originates in the field of functional testing, where shifting left means testing features as early in the development and delivery process as possible. In a broader context, shifting left means dealing with focus areas as early in the IT lifecycle as possible.

For example: security is often thought of as a separate layer or concern from the rest of an IT solution. This worked well enough in the legacy world, but in a decentralised IT scenario it is simply impossible to wrap security around an IT solution. Instead, security has to be "shifted left" in the IT lifecycle so that it is catered for in the design of the solution. That is, each component of a solution must have its security capability built in and integrated into the overall solution’s security posture.

The same approach needs to be taken with the availability and resilience of IT solutions. Legacy approaches in this area might take an application and attempt to retrofit fault tolerance through clustering or similar tactics, which can have significant cost impacts. Modern application design assumes that applications will fail, and designs mitigations into the applications themselves.

Similarly, other key features of an IT solution should be shifted left as much as possible. Typically, this is done using the adoption of modern continuous integration/continuous delivery (CI/CD) pipelines and processes that provide the ability to rigourously test solutions automatically and very often. This provides assurance to the organisation that the IT functions are continuously validated as being fit for purpose across any number of attributes: functionality, performance, security etc.

All these approaches will create solution components that are fit for purpose in and of themselves in terms of functionality, security and resilience. That they are complete as stand-alone elements is important when thinking about facilitating change.
For an IT solution to be flexible we must minimise the amount of effort required to realise a change. If each component of a solution depends on, say, a security solution wrapped around it, then the security solution becomes a point of friction that inhibits change. In constrast, if each component of the solution is secure in its own right, then the elements added or subtracted for the solution will be sources of risk for the solution.

The key concept here is one of building blocks. IT solutions need to be comprised of building blocks that are known to be good. Constructing IT solutions then becomes an exercise in governing the assembly of these building blocks. The most famous application of this thinking is Bezos’ API memo of 2002, mandating that all teams in Amazon will expose their capabilities through an API. It is fair to say that this memo was fundamental in the creation of “Cloud Computing” as we know it today.

Successful utilisation of a building block approach is, of course, more complex than just creating some APIs. Organisations also need to create a workable model for governing the use of the building blocks, decide when to create new building blocks and possess the means for consuming the functions of these building blocks. This is no trivial task; it requires careful analysis of the organisation’s capabilities and objective and subsequent formulation of an operating model for the organisation.

Utilising building blocks requires careful selection of technology. It is true to say that innovation in IT is predominantly offered through cloud technologies but selecting the appropriate technology can be a difficult task. Similarly integrating the technologies into solutions usually requires the use of integration technologies that are an entire field to themselves.

**How then, to navigate in this uncertainty?**

One thing is clear from the Beyond Disruption survey: organisations recognise that the future will be challenging and that a key part of meeting this challenge will be investing in and adopting the right technology. To be successful, organisations must come to grips with these challenges, from taking initial steps on a modernisation journey, to deciding on how to build a solution, to driving down the costs of managing the solution.

To paraphrase Darwin, it is not the biggest organisation that survives over the long run, but the organisation most adaptable to change.