

Disaggregating digital disruption

A GovLab report
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Digital disruption in Singapore

Although the reverberations of digital advancement can be felt in all aspects of our daily lives, the idea of digital disruption refers not to the incremental or marginal improvements that technology affords, but the up-ending of entire, well-established systems. At times, it does so by introducing direct alternatives; other times, it does so by rendering legacy systems completely redundant. This description may sound stringent at first blush, but digital disruption is more widespread than most people realise.

Everywhere we look, unicorn companies, or tech-based start-ups that have achieved valuations of over a billion dollars based on fundraising¹, are becoming increasingly commonplace. Then there are exponential organisations, or companies that are designed to leverage the abundance of resources afforded by exponentially advancing underlying technologies². Now, there are even what are known as cockroach companies, or businesses that build slowly and steadily from the get go while keeping a close eye on revenues and profits³. Established incumbents across various industries face the perpetual risk of getting disrupted by new entrants using new technologies, business models, or approaches to capture marketplace leadership. Yet many of these organisations feel unprepared for the change ahead.

In a 2015 global survey of managers and executives conducted by the MIT Sloan Management Review and Deloitte, nearly 90% of the respondents anticipate that their industries will be disrupted by digital trends to a great or moderate extent, but only 44% say that their organisations are adequately preparing for the disruptions to come⁴.

A similar trend is evident in Singapore. In a firm-level survey conducted by Deloitte earlier in May 2016, we found that even though 82% of Singapore-based companies consider digital disruption to be important, highly important, or extremely critical for their businesses, 46% of them considered themselves to be laggards or late adopters of such disruptive digital technologies (see Figure 1).

The proliferation of cheaper and more powerful technologies have lowered and, in some cases, nearly eliminated barriers to entry in many sectors. Businesses are now faced with the impetus to reconsider their core modus operandi. Furthermore, by viewing their operations in a digital form – that is, as a set of constituent parts that can create independent data and processes and then be reassembled – a myriad of opportunities to add value can be developed.

During his recent National Day Rally speech on 21 August 2016, Prime Minister Lee Hsien Loong singled out disruption as the defining challenge among the economic issues Singapore is dealing with, and outlined how the Government and people can work together to overcome such hurdles⁵. He noted that every industry is getting disrupted differently, and thus government agencies will work with industries one by one to develop specific programmes to help companies use new technologies and invest in skills.

¹“Patterns of disruption: Anticipating disruptive strategies in a world of unicorns, black swans, and exponentials”. Deloitte University Press. 12 November 2015. <http://dupress.com/articles/anticipating-disruptive-strategy-of-market-entrants>

²“Patterns of disruption: Anticipating disruptive strategies in a world of unicorns, black swans, and exponentials”. Deloitte University Press. 12 November 2015. <http://dupress.com/articles/anticipating-disruptive-strategy-of-market-entrants>

³“Forget unicorns – Investors are looking for ‘cockroach’ startups now”. Business Insider. 3 April 2016. <http://www.businessinsider.sg/cockroach-tech-startups-unicorns-venture-capital-2016-4/#8WIX5Zp05DiCt8W0.99>

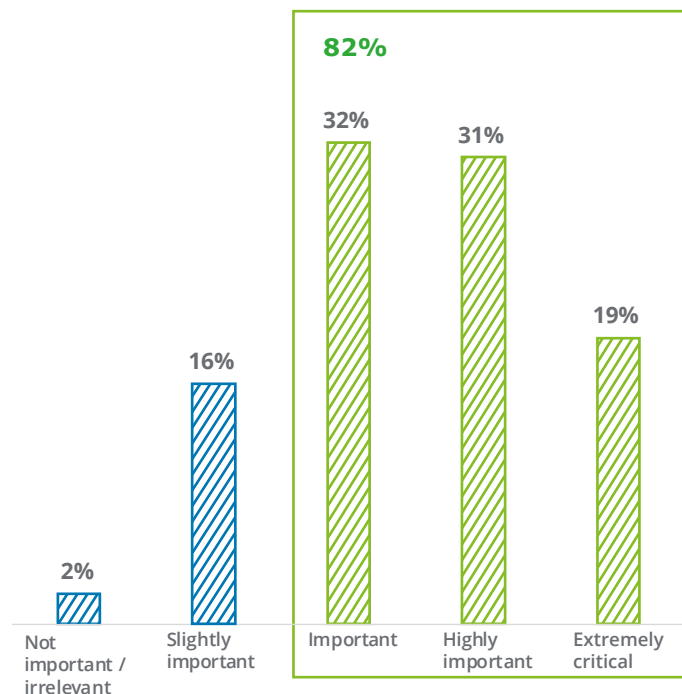
⁴“Aligning the organisation for its digital future”. Deloitte University Press. 25 July 2016. <http://dupress.com/articles/mit-smr-deloitte-digital-transformation-strategy>

⁵“NDR 2016: Disruption the 'defining' challenge to the economy, says PM Lee”. Channel NewsAsia. 22 August 2016. <http://www.channelnewsasia.com/news/singapore/ndr-2016-disruption-the/3061588.html>

Figure 1: Survey of Singapore-based companies on readiness towards digital disruption

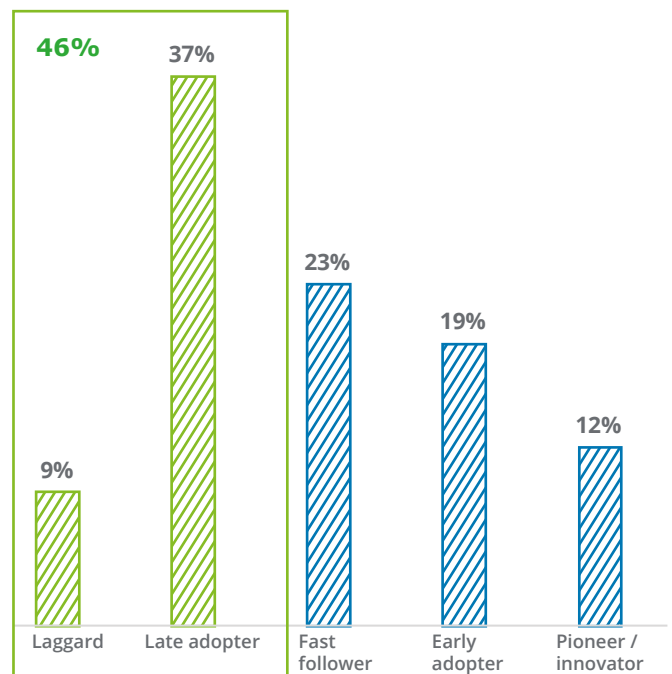
Impact of digital technologies and business models

How important or relevant are disruptive digital technologies and their underlying business models to your organisation?



Readiness towards digital disruption

Where do you think your organisation stands vis-à-vis global best-in-class organisations with respect to innovation and adoption of disruptive digital technologies?



Source: Monitor Deloitte

But within industries, companies with different business models also face very different questions. And even within one business, different business units will find themselves more or less exposed to digital disruption – both in terms of threats and opportunities.

In this publication, we present a framework to help governments and industry players understand and measure the extent of digital disruption in various sectors of the economy. This framework was then applied to the context of Singapore, with digital disruption to 15 of its key industry sectors measured along two dimensions: the magnitude of change the sector can expect to witness in the near future, and the imminence of this change.

The results revealed that while these sectors are likely to experience digital disruption in the future at differing points in time, their repercussions remain significant, and must be pre-emptively managed. It is our hope that this report will provide you with some insights into the various considerations that will need to be made in the face of the impending digital disruption so as to harness its full potential.

Methodology

In order to examine the impact of digital disruption on Singapore's economy, Deloitte embarked on an endeavour to measure the extent of its impact on 15 key sectors. This impact can be measured along two dimensions: the magnitude of change a sector can expect to witness in the near future, and the imminence of this change.

Using our methodology, we evaluated the Digital Potential, Digital Impact and corresponding Fuse Length of 15 different industry sectors. These two dimensions give us an idea of how much the different industries will be impacted, and the timeframe that we can expect to see this happen.

Measuring Digital Impact

To quantify the impact along the first dimension, that is, the magnitude of change a sector can expect to witness in the near future, we contrasted its Digital Intensity with its total Digital Potential.

The Digital Intensity refers to the extent to which the sector has already been reshaped by digital disruption and its accompanying innovations in business models, and the relevance of such technologies to its operations at this point in time. Digital Potential, on the other hand, captures the maximum future Digital Intensity that the sector is capable of, based on existing knowledge and technologies. The difference between Digital Potential and Digital Intensity gives us the Digital Impact, an indication of the extent of further disruption the sector can reasonably expect to witness.

Four areas were examined in detail to evaluate the Digital Intensity and Digital Potential of each sector:

- **Products/Services:** This parameter evaluates the level of digitisation of products/services in the particular sector.
- **Customers:** This parameter evaluates the propensity for customers/consumers to use digital channels, and the degree to which they feel engaged with companies in the particular sector via social media/digital channels (such as forums, blogs, social networks).
- **Business Processes/Infrastructure:** This parameter analyses the value chain and its level of digitisation across assets, systems and business processes. In addition, it takes into account the extent to which data and information is transmitted, collected, analysed, and shared via digital means.

- **Workforce:** This parameter evaluates the impact on jobs (automation of simple, repeatable tasks) and the requirements for a future workforce (new skills and capabilities).

Measuring Fuse Length

The second dimension refers to the imminence or timing of that disruption. We term this the Fuse Length, with a Short Fuse Length referring to a disruption that is expected to materialise within the next 2.5 years, a Medium Fuse Length referring to those from 2.5 to 3.5 years, and a Long Fuse Length referring to those from 3.5 years onwards.

To obtain an estimate of the Fuse Length, five areas are examined in detail:

- **Regulatory:** This parameter evaluates the government's involvement in enabling innovation with favourable regulations, policies and schemes.
- **Industry Structure:** This parameter gives an indication of the intensity of competition in a sector, which determines the need for companies to differentiate themselves and drive competitive advantage (such as investing in new technologies and pioneering new initiatives).
- **Core and Exponential Technologies and Business Models:** This parameter evaluates the awareness and subsequent prevalence of advanced technologies and business models in a particular sector.
- **Funding:** This parameter indicates the availability of a strong public and/or private funding ecosystem targeted at accelerating the development or adoption of new technologies and business models.
- **Organisational Legacy and Flexibility:** This parameter measures an organisation's openness to adopting new technologies and its culture of innovation, such as the existence of a younger (vs. older) workforce, flexible (vs. rigid) decision-making abilities, and modern (vs. legacy) systems.

Contact us

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