Welcome to the EY Disruption Index™ bulletin for Q3 2018. This is the first edition of a regular publication sharing key insights from how disruptive technologies are penetrating and impacting key industry sectors.

Advances in technology have been disrupting business models for centuries. In our lifetime, successive waves of IT revolution (PC, online, mobile, social) have democratised data, empowered consumers and spawned scores of new industries. Technology advancement is accelerating and the next waves – the internet of things (IoT), virtual reality, artificial intelligence, robotics, blockchain, etc. – promise to be even more revolutionary.

Our response is to help organisations navigate the technology landscape and find the opportunity in this challenge. Therefore, we have developed the EY Disruption Index™ that each quarter analyses over 500,000 events across 330 subsectors, tracking the rate of change of disruptive technologies.

The EY Disruption Index™ can help you:

► Understand which technologies are impacting your sector today and their stage of adoption
► Benchmark your adoption of these technologies against peers in your sector
► Develop a strategic response as to how you may need to adapt to be on the front-foot with disruptive technologies

This bulletin summarises some of the emerging trends across technologies and sectors based on the results we have seen from data collected between December 2017 and September 2018.

As the amount of data collected increases over time, we will expect to develop further, more detailed insights across emergent technologies, which will be shared in subsequent editions.

We hope you will enjoy reading it and we look forward to your comments and questions. If you would like to get in touch, please contact us on EYDisruptionIndex@uk.ey.com
The top five sectors with the fastest rate of technology change are also the sectors which have traditionally had the lowest rates of overall technology adoption.

Travel & leisure is the sector undergoing the fastest rate of change from disruptive technology, driven by artificial intelligence and virtual reality.

Currently, the most disruptive technology spanning across all sectors is artificial intelligence, closely followed by blockchain which is focused largely on financial services.

Blockchain, autonomous vehicles and robotics have seen the greatest rates of acceleration within certain sectors this quarter.
Context

How we can help

The EY Disruption Index™ can help you:

► Understand which technologies are impacting your sector today and their stage of adoption
► Benchmark your adoption of these technologies against peers in your sector
► Understand how you may need to adapt to be on the front-foot with disruptive technologies

Key questions to ask your business

► What are the technologies impacting your sector today and how far are you with adoption?
► Where are you in relation to your competitors?
► How do you respond?

Our approach

Each quarter, we analyse over 500,000 events across 330 subsectors, tracking the rate of change of disruptive technologies.

Disruptive technologies follow an adoption curve in each sector: slow adoption, rapid deployment followed by decelerating maturity. These adoption rates vary for technologies in each sector. For example, blockchain is more prominent within financial services than in travel and leisure. Similarly, artificial intelligence is more widely used in healthcare than it is in construction and materials.

The EY Disruption Index™ rating explained

► All the technologies in each sector were baselined as 100 at the start of the index in December 2017
► Each quarter, we look at the technologies that have been increasingly deployed in each sector and reflect this as an increase on the baseline
► So, if an index rating goes from 100 to 150 in Q1, this represents an average of 50% increase in the disruptive technologies deployed in a sector during Q1
► The 50% increase in an average of all technologies can be driven by multiple emerging technologies, the details of which can be found in each of the technology S-curves in a sector and sub-sector
► The S-curves are currently under development and will be depicted once more data becomes available in subsequent quarters

By tracking the adoption rates of technologies each quarter, we can see where a technology lies in the curve for your sector. By understanding your own adoption of the technology, you will have the insight of whether you are ahead of the curve.

As new technologies emerge and commercialise, these will start to emerge on the Disruption Index outputs.
Emerging findings

Index ratings for September 2018

We analysed over two million data points relating to disruptive technologies in various sectors to assign a rating for each sector for September 2018, which signifies the rate of adoption from a baseline of 1 (established December 2017).

The current index rating for each sector are shown in Exhibit 1. The size of each sector shows the absolute levels of technology adoption, which are distinct from the rate of adoption.

Sector index ratings for September 2018

Travel & Leisure: 347
Power & Utilities: 254
Oil & Gas: 251
Real Estate: 235
Services: 219
Media & Entertainment: 217
Government & Public Sector: 199
Automotive & Transportation: 193
Telecommunications: 160
Construction & Materials: 152
Retail: 151
Health & Life Sciences: 147
Financial Services: 142

Sector index changes

The fastest rates of disruptive technology adoption are in the sectors where there has been traditionally a lower penetration of technology. This is shown in Exhibit 1 where the sectors with higher index ratings also have smaller sector bubble sizes (which shows the absolute technology adoption for September 2018). This is somewhat expected because fastest growth is likely to come from the sectors that are late adopters. Similarly, the sectors with the largest adoption of disruptive technology (i.e. financial services, telecommunications, automotive & transport and retail), sit in the lower half of the index list.

Artificial intelligence (AI) and virtual reality (VR) are among the prominent technologies in the sector. AI allows hotels to respond in real-time and provide greater personalization of the guests’ stays through knowledge of past and stated preferences. Smart hotels are providing voice-activated technology to control lighting, temperature, mood, and even fragrance. VR, in the form of virtual travel, hotel tours and booking processes, provides an improved customer experience to attract more customers.
Emerging findings

**Disruptive technology penetration**

By looking at nine commercialised disruptive technologies, we are able to analyse their overall penetration across the market and also their penetration across individual sectors.

**Disruptive Technologies - Penetration across all sectors**

- Artificial Intelligence: 24.6%
- Blockchain: 15.4%
- Internet of Things: 10.9%
- Robotics: 3.9%
- Autonomous Vehicles: 5.1%
- Augmented Reality: 10.2%
- Virtual Reality: 7.0%
- Drone: 8.7%
- 3D Printing: 2.4%

Since the start of the Index, AI has continued to dominate as being the most profound disruptive technology. The prominent sectors that AI is impacting includes financial services, automotive & transport (A&T) and retail. Blockchain has been catching up but remains largely focused in the financial services sector. This was exemplified recently by more than 75 of the world’s biggest banks turning to the blockchain to fight the threat of new payments rivals, making it the regulated banking industry’s largest application of the distributed ledger technology underpinning cryptocurrencies.

- **Exhibit 3**

**Disruptive technology acceleration**

By observing the acceleration in adoption of individual technologies, we are able to compare the relative rates of deployment across the various sectors.

- **Exhibit 4**

Blockchain adoption has accelerated in the automotive and transport sector, reflecting the potential use of the technology to underpin shared ownership as well as the promise of verifiable, paperless trails in shipping and logistics. Internet of things (IoT) has also accelerated in the A&T sector, reflecting the increasing number of sensors and connectivity in modern day vehicles.

Autonomous vehicles, whilst on the rise in A&T, has seen a sharp acceleration in the services sector — in particular as part of the sharing and on-demand services sector.

Finally, robotics has accelerated in the media and entertainment sector. Combined with artificial intelligence, it is being used in news media for a multitude of tasks, such as accumulating and speeding up research, cross-referencing data, automatically tagging media, searching transcripts and identifying faces.
Application and what next

How we have recently used the EY Disruption Index™ to help clients

We helped a food retailer understand which technologies are impacting and changing the nature of customer behaviours when it comes to buying daily lunches and snacks. We started by understanding the key technologies impacting the retail sector. We then drilled down into the food and beverages sub-sector to get a more granular view on how technologies such as artificial intelligence were being used across the retailer’s value chain: from automation of ordering, robotics for sandwich making and artificial intelligence for customer menu recommendations. We defined a high-level strategy for the retailer to integrate these technologies across their value chain to future-proof the business.

We helped a PE firm with several investments across a portfolio of companies understand which assets were the most exposed to technology disruption. We used the EY Disruption Index™ to identify the key technologies impacting specific sectors and their stage of adoption. We then carried out benchmark analysis to assess our client’s assets in relation to its peers. The client is now using these insights to engage with its most risky assets to define a strategy aimed at protecting and maximising companies’ value.

Calls for actions

► Future-proof your business by identifying and planning to integrate the technologies that are in the horizon
► Identify cross-sector opportunities and understand the technology synergies between your sector and target sectors

Contact us

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