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Developing a Digital Entrepreneurial Mindset for Data-Driven, Cloud-Enabled, and Platform-Centric Business Activities

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Published in:
 Digital Entrepreneurship

DOI:
[10.1007/978-3-030-53914-6_1](https://doi.org/10.1007/978-3-030-53914-6_1)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
 Publisher's PDF, also known as Version of record

Publication date:
 2020

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Soltanifar, M., & Smailhodzic, E. (2020). Developing a Digital Entrepreneurial Mindset for Data-Driven, Cloud-Enabled, and Platform-Centric Business Activities: Practical Implications and the Impact on Society. In M. Soltanifar, M. Hughes, & L. Göcke (Eds.), *Digital Entrepreneurship : Impact on Business and Society* (pp. 3-21). (Future of Business and Finance). Springer. https://doi.org/10.1007/978-3-030-53914-6_1

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Developing a Digital Entrepreneurial Mindset for Data-Driven, Cloud-Enabled, and Platform-Centric Business Activities: Practical Implications and the Impact on Society

Mariusz Soltanifar and Edin Smailhodžić

Abstract

The term ‘digital’ concerns not only technology but also people. This chapter emphasises the necessity of adopting a digital entrepreneurial mindset when operating in a digitised world. The chapter proposes a definition of a digital entrepreneurial mindset that is rooted in cognitive psychology, organisation theory and entrepreneurship literature. We also focus on the five trends that are shaping the digital future: mobile computing, cloud computing, social media, the Internet of Things and Big Data. The chapter discusses the challenges and opportunities that pervasive digitalisation offers for designing new digital business models and changing interactions with customers. Discussing the success stories of Domino’s, Tesco and Tate Art Galleries helps to examine data-driven, cloud-enabled, platform-centric business activities, for which developing a digital entrepreneurial mindset is the first step towards success in the digital age. Collectively, the aforementioned cases suggest that businesses that rely on a digital entrepreneurial mindset enjoy better financial performance. Both managers and employees in these companies have shown the inclination and ability to discover, evaluate and exploit opportunities emerging from digital technologies. This chapter also provides a practical guide for entrepreneurs on the steps they can take to encourage a digital entrepreneurial mindset throughout their entire organisations. Finally, we elaborate on the practical implications of adopting a digital entrepreneurial mindset and its impact on society.

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M. Soltanifar et al. (eds.), *Digital Entrepreneurship*, Future of Business and Finance,
https://doi.org/10.1007/978-3-030-53914-6_1

1 Introduction

To be successful in the modern era, businesses need to consider online reservations, online reviews, online discount coupons, automation of order processing and many other technology-related aspects. Going digital is important for success, not only for the restaurant trade but for many other industries. For instance, transport companies have to gain and retain passengers by positioning their services high in search results and by providing a smooth booking process. The emergence of digital technologies has transformed how businesses and entrepreneurship work (Nambisan et al. 2019). Distant communication, content overload and big data are just a few of the many consequences of digitalisation with which entrepreneurs need to cope today. Today, entrepreneurs need to be aware that they can be disrupted not only by competitors but quite possibly by consumer interaction with other similar digital products and services. Such constantly evolving integration has led to the creation of new digital and responsive business models. The manner in which businesses operate has been disrupted. Reacting promptly to the demands of continuous product innovation, providing added-value services, improving the customer service experience and moving towards successful omnichannel marketing have become the new standards for doing business in the digital age.

Businesses must navigate five significant trends that are shaping the digital future: mobile computing, cloud computing, social media, the Internet of Things (IIoT) and Big Data (Valacich and Schneider 2018). These trends are transforming individuals, organisations and society for several reasons. There has already been a significant shift towards the use of mobile technologies for all transactions, from searching for product information and comparing alternatives all the way through to completing the purchase. The number of mobile device users worldwide is expected to reach 7.26 billion by 2023 (O’Dea 2019). Social media use has developed beyond enabling family and friends to connect by allowing businesses to operate or advertise products through their own social media pages. The proliferation of social media platforms has enabled entrepreneurs to better connect with their customers and to engage them in the development of new products and product launches. For example, Aral and Dellarocas (2013) and Roberts et al. (2017) have indicated this fact. The IoT is often used to sell products, automate workflows and engage with consumers (Valacich and Schneider 2018). Cloud computing and applications, such as data storage, servers, databases, networks and software, are widely utilised by modern entrepreneurs and often lead to cost savings, increased productivity, greater efficiency, higher financial performance and better security. It is notable that insight from big data analytics tends to influence companies’ strategic decisions to introduce new products and services (Arnason 2017).

Overall, data-driven, cloud-enabled, platform-centric business activities deliver crucial insights for improving financial performance (Caldwell 2018). However, this pervasive digitalisation is not only opening new windows of opportunities; it also brings new challenges. These range from changing methods of communication to shifting business models to an entirely digital environment. Adopting a digital

mindset and analytic capabilities may be a crucial means of dealing with these challenges as an enabler of data processing. Entrepreneurs wishing to remain competitive in a digitised business environment need to overcome the challenges and grasp the opportunities of the changing digital market.

This chapter discusses how companies can adopt a digital entrepreneurial mindset for data-driven, cloud-enabled, platform-centric business activities.

2 Conceptualising a Digital Entrepreneurial Mindset

There are many definitions of ‘entrepreneur’. Many of these explain the term in the context of an individual who displays entrepreneurial behaviour. An entrepreneur is usually seen as someone who engages in the process of discovering, evaluating and exploiting opportunities that lead to value creation (Shane and Venkataraman 2000).

2.1 What Does It Mean to Be Entrepreneurial?

The concept of being entrepreneurial evolved simultaneously with the development of the concepts of being an entrepreneur. However, the question remains as to what it means to be entrepreneurial. Entrepreneurship literature emphasises proactiveness, innovativeness and risk-taking as three standard dimensions of entrepreneurial behaviour. As entrepreneurship is the discovery, evaluation and exploitation of opportunities, individuals vary in the extent to which they exhibit these behaviours. Being entrepreneurial is relevant to more than just start-ups; it is crucial for all organisations and businesses looking to progress, regardless of their existing size or intended development. Even though there are many types (and sizes) of entrepreneurial opportunities, this chapter argues that being entrepreneurial requires the creation of value and involves embracing the uncertainty that lies at the heart of discovery, evaluation and exploitation of opportunities (Soltanifar 2016). Being entrepreneurial is the defining characteristic of an entrepreneur whose dreams are greater than their resources (Pinchot 1985). Undoubtedly digitised environments open new possibilities and access to borderless resources. Consequently, following such a path requires a mindset shift and the creation of a digital strategy.

2.2 How Is an Entrepreneurial Mindset Defined?

Before presenting a definition of the digital entrepreneurial mindset, it is important to focus first on defining the entrepreneurial mindset itself. We start by examining the definition of a mindset of an individual and then explain entrepreneurial digital mindsets.

The concept of a mindset comes from the fields of cognitive psychology and organisation theory. According to cognitive psychology literature, a mindset represents the cognitive processes activated in response to a given task (French 2016). As such, a mindset represents the sum of one's knowledge, including one's beliefs about the world. Through our mindsets, we determine how we receive and react to information. Thus, a mindset is a filter for information we obtain. In organisation theory literature, a mindset is quite often discussed in tandem with organisational change, which is an ongoing process in businesses. In line with Gleeson (2019), one of the most critical drivers of organisational change is the mindset of change. Through its effects on behaviour, a mindset also creates the culture of an organisation.

Overall, the mindset of an entrepreneur is a product of histories, and it evolves through an interactive process. An individual's current mindset guides them in collecting and interpreting new information. If the new information is consistent with the current mindset, it reinforces that mindset. From time to time, however, new data appears that is genuinely novel and inconsistent with the existing mindset. When this happens, entrepreneurs either reject the latest information or change their mindset. The likelihood that an entrepreneur's mindset will change depends largely on how explicitly self-conscious they are of their current mindsets; when an individual's cognitive filters are more hidden and subconscious, they are less likely to adapt their mindset.

People's mindsets are commonly categorised into two major types, namely fixed and growth. The mindset refers to the assumptions, notions and methods of a person. While a fixed mindset assumes that talents and abilities are set, the growth mindset believes that skills and abilities can be developed. For example, individuals with a fixed mindset believe that their intelligence is a static trait that can only be present rather than developed further. Meanwhile, people with a growth mindset believe they could change through hard work. Nevertheless, it is essential to point out that a mindset can change (Dweck and Yeager 2019). This typically occurs when an individual develops a greater awareness of their current mindset and takes steps to purposefully start thinking and reacting in new ways. Changing your mindset towards a growth mindset is crucial as it leads to better relationships and interactions with others and happiness (Van Tongeren and Burnette 2018). The shift to a digital business landscape also requires changes in the entrepreneurial mindset. One such example would be if a manufacturing company moves away from the traditional linear model of supply, manufacture and distribution towards a networked and connected model in which all data is stored in clouds and is accessible to the entire value chain at all times. In this scenario, it is not only entrepreneurs but also individual employees who are enabled to observe and influence the whole supply chain process in real time. Such opportunities redefine the decision-making processes of entrepreneurs and making sense of the high volume of available data that has grown exponentially across supply chain. Thus, it is vital that entrepreneurs also embrace a growth mindset and embrace the possibility of changing their approach.

2.3 Putting It All Together: The Digital Entrepreneurial Mindset

Based on the review of entrepreneurship and digitalisation literature, it is possible to define a digital entrepreneurial mindset (DEM) as the inclination and ability to discover, evaluate and exploit opportunities while adopting digital technologies more quickly than a regular entrepreneur.

The process of discovering new digital opportunities involves careful consideration of current products and services in the target market and the role of digital technologies in their provision. This should be considered from the customer's perspective; thus, considering customers' needs and identifying how digitising current products and services may improve a company's ability to meet customers' needs. In particular, this involves understanding current business models that serve the public and generate value as well as considering new configurations of business models that will add more value for customers. In the case of Turo, an American peer-to-peer car-sharing company, customers are looking for ways to solve their transport needs. Turo understood this need and designed its business model to offer short-term rentals of vehicles, which can be rented for a period of just a few minutes up to a few hours by using only an app (Growjo 2018).

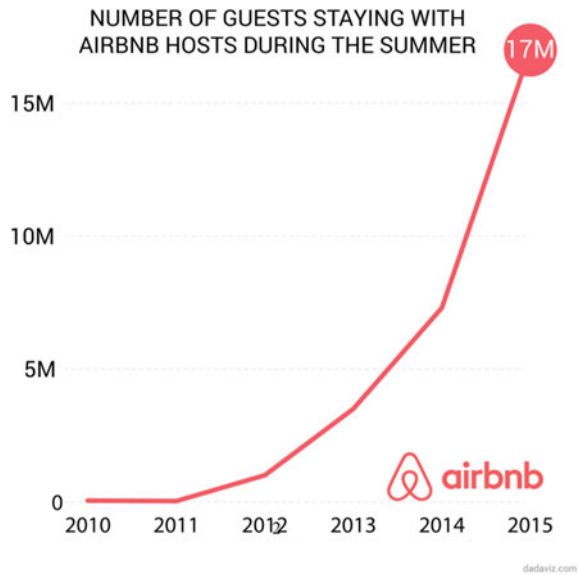
Evaluation concerns careful consideration of a digital opportunity. Particular attention should be paid to the (potential) market size for a digital opportunity. Before exploiting the opportunity, it should be clear that there will be demand for the product or service. Furthermore, entrepreneurs should evaluate whether or not they can deliver the necessary value of this product based on their resources. In this respect, entrepreneurs should also consider factors such as their management skills and their passion and persistence for developing the product. Digital opportunity evaluation may also include the application of the stage-gate process, in which you pursue an opportunity only if it passes all 'gates', including factors such as risk objectives, financial resources and other criteria. Airbnb started when its founders were struggling to pay their rent and started renting their home to strangers. However, before proceeding with their business, the founders evaluated the potential market for their idea.

Once you prioritise digital solutions or technologies, you can exploit the entrepreneurial opportunity. This final step of opportunity exploitation represents an essential step to making a digital business successful. This last step includes activities and investments that an entrepreneur conducts to receive returns from the new digital opportunity by constructing an efficient business system (Fig. 1).

Pervasive digitalisation leads not only to spotting emerging opportunities in the digital environment, but also, more importantly, to prioritising them over other possible products. Implementing a digital mindset should result in a business recognising and exploiting opportunities arising from phenomena such as:

1. Technological developments and advances in infrastructure
2. Artificial intelligence used to enhance the quality of decisions

Fig. 1 Number of guests staying with an Airbnb Host during the summer. *Source Myler (2017)*



3. Augmented reality used to broaden entrepreneurs' horizons
4. Cloud services
5. Borderless connections in exploiting emerging opportunities
6. The sale of digital products or services across electronic networks

Fundamentally, many digital technologies provide possibilities for efficiency gains and customer intimacy. However, if people lack the right mindset to implement change and the current organisational practices are flawed, digital transformation will simply magnify the existing flaws.

The following questions are applicable to entrepreneurs involved in any kind of data-driven, cloud-enabled, platform-centric business:

1. How does the transformation affect the structure and borders of the sector?
2. How are the value chain and its associated competitive activities influenced?
3. What new strategic decisions do companies have to make to secure a competitive advantage?
4. What organisational effects does the new product type have and what challenges are associated with the product? Rödl & Partner (n.d.)

To illustrate the application of such questions in a real-life business scenario, it is useful to consider Airbnb again. Airbnb recognised the right time to expand into other markets outside the USA. Accordingly, it acquired a German competitor, Acceleo, to successfully exploit an opportunity in Europe, which resulted in Airbnb opening its first European office in Hamburg in 2011.

Overall, it can be argued that a DEM relates to more than just the ability to incorporate technology into daily operations and extract value from the technology. Also, a DEM is about much more than harnessing new technologies. It is a collection of attitudes and actions that enable an entrepreneur to foresee possibilities and exploit opportunities accordingly. A DEM is a way of thinking about business and operating in a new networked and connected business environment. A DEM is based on customers and employees. It is not only about the ability to augment entrepreneurial capabilities, but also the capabilities of employees.

Digitalisation means the integration of digital technologies into everyday life and all its activities. From an entrepreneurial mindset perspective, it is about turning interactions, communication, business functions and models into a digital form in order to grasp emerging opportunities. Another aspect of digitalisation is the entrepreneurial environment or area where it takes place, such as a digital workplace or recruiting employees from a digital pool of talent. At its most basic, digitalisation can relate to businesses' efforts to become paperless. However, many other facets occur at the basis for digital transformation to which an entrepreneur is exposed.

Communication is an excellent example of a workplace system that can easily be transformed and improved. Meetings can take place online and files can be transferred much more quickly using online sharing facilities instead of relying on traditional postal methods. Digital transformation is a process through which entrepreneurs seek to improve themselves by making significant changes to their business process through the use of a combination of information, computing, communication and connectivity technologies in their daily operations (Vial 2019).

As discussed previously, digital transformation provides entrepreneurs with the use of a combination of data and mobile technologies that allow faster problem-solving and smarter, more informed decision-making processes. Such decision-making processes empower entrepreneurs and employees to engage more fully with business operations.

As 'digital' becomes a new norm for businesses, entrepreneurs need to develop a strategy to prioritise opportunities emerging from digital technologies and address the impact such technologies have on their businesses and their financial performance. A DEM in business is not only about technology. A company can introduce digital technology in its strategic plans, but that does not mean that it has taken on a digital mindset. Therefore, entrepreneurs, directors and individual employees need to share a strategy to develop an organisation-wide DEM. For example, an open line of communication between an organisation's leadership and its employees, which embraces a growth mindset, a culture of freedom to choose and innovate or a shared vision and purpose, might undoubtedly facilitate an organisation-wide DEM. The implementation of digital squads, virtual meeting rooms and agile methodology is undoubtedly helpful in the process of digital transformation. Through the adoption of these tools, a DEM is more likely to be adopted throughout an entire organisation. The following section focuses on how businesses can shift towards becoming more data-driven, cloud-enabled and platform-centric.

2.3.1 Digital Entrepreneurial Mindsets for Data-Driven Business Activities

A DEM is necessary to better understand whether a company is data-driven. Being data-driven helps companies to prioritise opportunities emerging from digital technologies (Marr 2016). The following questions can be used to assess whether a company is data-driven and makes use of the opportunities arising from considerable amounts of data:

1. Are the CEO and executives ready for change in the company, with the right creative and passionate mindset for data generation?
2. Is the data accessible and democratised for all employees?
3. Are the employees ready for the change and can they decrypt and understand the data?
4. How will the data be managed and how can you avoid a data overload?
5. Does every level of the organisation share the opinion of the top management about adopting a data-driven culture?

These five areas are considered to be five standard features of data-driven companies (Peregud 2018). As such, entrepreneurs running data-driven companies should be able to automate their company's operations to distil data-driven insights and to incorporate those insights into business processes. Such processes certainly help entrepreneurs to discover, evaluate and exploit opportunities emerging from digital technologies, which is the very purpose of a DEM. According to Dykes (2019), being ready to accumulate a variety of data systems and tools and being aware of proper data management, shifting the mindset is crucial for a business to foster a data-driven culture. Turning an entrepreneurial mindset into a digital one requires diligence and patience as managers have to attempt to steer their team in a new direction relying on digital technologies. Although there are some limitations associated with being a data-driven company, such as losing sight of the work beyond the data and becoming driven by the data in a way that does not drive markets and innovation, there is not room in this chapter to elaborate further on such issues.

2.3.2 Digital Entrepreneurial Mindset for Cloud-Enabled Business Activities

Cloud-enabled solutions are seen as the catalyst for digitalisation of all business activities and are designed to store all of a business' information. Clouds enhance the flexibility and efficiency of all kinds of business activities (Rishi et al. 2017), especially those rising from persuasive digitalisation and which are crucial to a DEM. This helps digital businesses to evaluate and exploit emerging opportunities more quickly, as employees, customers and third parties are able to work together and collaborate on projects without slower, unnecessary offline communication (Nulaw 2020). Moreover, systems can interoperate with other systems through the cloud, which simplifies the process of upscaling and downscaling a business (Dynamic Quest 2019). For cloud computing, as an entrepreneur, you only need to contact the

host server of a cloud. Operating in clouds also reduces overall costs because there is no need to rely on big data centres or other kinds of storage (Castillo 2019).

The following five questions help assess a company's readiness for cloud-enabled business activities:

1. Does the business require an increase in the agility of business applications such as reducing IT costs via the use of data centres, tools, operating systems or platform consolidation? (cloud-enabled agility)
2. What tangible benefits (both business and IT) are associated with cloud-based infrastructure, for instance, balancing between customer experience and IT costs? (cloud-enabled infrastructure)
3. What data security and data disaster recovery processes does the business operate currently? (cloud-enabled solutions management)
4. What department leads the cloud transformation? For instance, does the business have its own Cloud Centre of Excellence? (cloud-enabled implementation)
5. What training is necessary for the business and its employees to be up to date with cloud techniques? (cloud-enabled resources)

Procter and Gamble is one of the biggest consumer goods corporations in the world (Norton 2019). The company discovered an opportunity to revolutionise the basic desktop of its employees, evaluated this opportunity and decided to exploit it. The company began to implement a strategy to fully digitise its processes from 2011 (Chui and Flemming 2011). The Business Sphere and Decision Cockpits software enabled the company to implement this solution. Through this program, the company has made analytical solutions available to 38,000 users since the product was launched in 2010. However, Procter and Gamble failed in its goal to become the most digitalised company in the market, leading the CEO to resign (Morgan 2019). The Business Sphere tool was developed with the help of other companies. The purpose of this program was to offer executives predictions about market share and other performance indicators extending as far as up to 12 months into the future. The company has also solved the issues of gathering lots of data from meetings by enabling employees to have data in front of them. For this purpose, the company developed Decision Cockpits, which allows all 58,000 employees to have the same dashboards in front of them, which are linked to current data (Davenport 2013). The Decision Cockpits use a series of analytic models that identify what is happening in a business at that time, why it is happening and what actions the company can take. Further integration of technology, visualisation and information enabled the leaders to drill-down into the data to get answers in real-time (‘Harvard Business School 2018). Therefore, entrepreneurs need to integrate clouds into their daily operations and use their benefits in decision-making processes. Doing so can lead to greater efficiency, which speeds up the process of discovering, evaluating and exploiting opportunities. This would enable businesses to be set apart from regular entrepreneurs. Brynjolfsson et al. (2011) state that companies that embrace data-driven decision-making have output and productivity that is 5–6% higher than regular companies.

2.3.3 Digital Entrepreneurial Mindset for Platform-Centric Business Activities

More and more companies that were originally product-focused are becoming platform-centric. Pursuing platform-centric activities achieves better results in both long-term revenue and growth, due to the greater prioritisation of digital opportunities through the reliance on a DEM. This is evident in businesses such as Uber, which is now one of the most valuable and influential businesses in the world (Rahman and Thelen 2019). Whereas big companies previously focused solely on products, today's world is increasingly being dominated by platforms such as Amazon, Google and Facebook (Cusumano et al. 2019). Such platforms have established new ways to create and capture value. Uber is connecting parties that either demand or supply a service, while Amazon connects sellers and customers. Thanks to their data and algorithms, today's platforms exercise profound control (Rahman and Thelen 2019). Therefore, entrepreneurs need to consider developing and adopting a DEM that recognises these profound changes in our society. The key digital platform trends that an entrepreneur with a DEM need to spot are agility and flexibility offered by microservice architectures (software as a service), the containerised environment (platform-centric programs and applications), serverless computing (using third parties to manage databases, servers and other core business activities) and digital ecosystems encapsulating digital trends (digital partnerships).

According to Srinivasan and Venkatraman (2018), digital platforms and their constant development give companies more operational agility and provide entrepreneurs with a vision for long-term growth and value creation. The departure from short-term value creation to long-term value creation has started with big companies, like Facebook, focusing on customer retention and acquisition over short-term profits. Entrepreneurs with DEMs need to transform most of their business processes into digital platforms, data and new technologies, leading to new digital business models, new digital business strategies and the digitalisation of customer interactions, business operations and workforce processes (Raia 2017).

When paired with digital platforms, all five types of digital trends listed previously will improve over time. The first stage of this process is for businesses to link their services to dominant platforms, which allows them access to a broader market immediately. Such an advantage is not available to a regular entrepreneur. Another advantage is that these platform dominant companies can invest in these entrepreneurs' businesses to help them through the start-up period. The second stage is about making choices and maintaining early success. Businesses must rapidly scale up their operations in order to maintain growth. Keeping up with technological changes and being able to realign knowledge with this technological trajectory is of utmost importance for such businesses. Following the study of entrepreneurship in digital platforms, it is essential to focus on the strategic aspect. Entrepreneurs have to develop and adapt their strategies and business models when providing their products and services across digital platforms.

One of the best examples of a platform-centric business is Uber. Uber has adopted new ways of structuring a firm and expanding industry boundaries. It has shifted business away from selling products towards the facilitation of economic

exchanges between two or more user groups (Täuscher and Laudien 2018). As such, Uber is different from traditional manufacturing businesses that focus on work with a network of suppliers. Instead, Uber mediates interactions between parties and can conduct business at a lower cost, which has affected traditional taxi businesses. As a highly successful platform-centric business, Uber now has 103 million active users, 3.9 million drivers worldwide and more than 20,000 employees (Smith 2020). It operates in more than 700 cities across 65 countries and completes 17 million trips every day (Smith 2020). The platform that Uber has created has had a significant impact on jobs. Twenty thousand jobs are created every month through Uber, and thousands of entrepreneurs are using it to build their small businesses (Kasselman 2014). This shows how well Uber discovered, evaluated and exploited the opportunities.

2.4 Practical Guide for Adopting the Digital Entrepreneurial Mindset

The developments in the area of data-driven, cloud-enabled, and platform-centric activities give rise to the question of how businesses can become digital. Table 1 provides a list of steps that entrepreneurs can use to develop a DEM for their business. It clarifies which sections of a company are key to any such transformation and describes the necessary actions to achieve this. It also offers examples of companies that have been through the process of digital transformation and have adopted a DEM.

By executing the suggested steps, entrepreneurs and all employees are likely to be better prepared for exploiting the opportunities arising from digital transformation and to be more able to adopt a digital culture where DEMs can flourish.

Table 1 Practical guide for adopting a digital entrepreneurial mindset

Dimension	Action/steps	Practicalities/example
Harnessing technology	Make use of mobile technologies to make data and insights accessible to employees to help them make the right decisions	Procter and Gamble’s Decision Cockpits provide a real-time screen enabling all employees to check the current state of its business and relevant trends. As a result, its employees are well informed and can take part in the decision-making process at any time
Interconnectedness	Adapt to the scale of output and accelerate every form of interaction and action. Grasp the impact of interconnectedness	Boeing created an Intranet that enables employees to be easily connected and to receive company news quickly. In this way, employees are more flexible and can easily share their work remotely with colleagues around the globe, thus improving collaboration

(continued)

Table 1 (continued)

Dimension	Action/steps	Practicalities/example
Data use	Make use of data from the organisation or other available data	ASOS found a way to use customer data and their online searches to provide more personalised offers and offer more straightforward website navigation. Thus, its customers are able to find products on the website quickly
Cloud space	Move your data to the cloud and start benefiting from the scale and low-cost infrastructure this offers	Netflix is an excellent example of how a company can move to a cloud space. Netflix understood that its traditional centres for data storage were not large enough. As a result, it decided to turn to the cloud. This decision offered better scalability as it prepared the company for spikes in demand and customers' activity
Learning culture	Facilitate a culture of continuous learning in which all staff are empowered to experiment and shape new technology solutions	Google encourages its employees to spend 20% of their work time on thinking and experimenting with new ideas that will improve the products and services, thus enabling their creativity and innovation. Making the shift from a traditional way of doing business towards digital thinking and acting is easier said than done. Google also uses annual internal surveys to monitor its culture, innovation, autonomy, forward-thinking and teamwork
Customer-centric	Be customer-centric, not cost-driven. Ask, 'how can we use new technologies to enhance customer experiences?' This move will deliver more significant business growth	The US online clothing retailer Everlane is using technology to enable its customers to see and understand the work of the factories and partners that work for it. In this way, the company is taking a customer-centric approach offering high transparency to customers by allowing them to understand how the products are created and priced
Augmented workforce	Consider how you can use automated tools to enable your people, increasing their productivity, skills and value	Pizza Hut is trying to relieve its staff from some basic and routine tasks such as taking orders. Therefore, it uses chatbots to enable its customers to order pizzas, respond to queries and provide offers

3 Digital Maturity Model

A DEM can be adopted in many ways and is determined by various factors. Although this chapter focuses mostly on the DEMs of individual entrepreneurs or start-up businesses, it is also useful to consider them in terms of entire organisations. Each entrepreneur or employee is within certain organisational boundaries; therefore, it is useful to consider a model that potentially accommodates DEMs within existing companies or organisations.

In 2019, Deloitte and MIT Sloan Management Review developed a Digital Maturity Model. Based on a multi-annual survey of more than 3500 executives and managers, the Digital Maturity Model was proposed as a tool to enable digital transformation. Digital maturity refers to the state of being ready for digital transformation. The Digital Maturity Model represents a tool that can enable a digital transformation and represents the first industry standard for assessing digital maturity. There are five business dimensions that are used to evaluate the digital capability of a business: *customers*, *strategy*, *technology*, *operations* and *organisation and culture*.

In this respect, the *customers* dimension accounts for activities such as customer engagement and customer experience. Businesses should strive to achieve a situation in which their customers will see them as their digital partner. The dimension of *strategy* focuses on the management of the brand, ecosystems, stakeholders, innovation and aspects of strategic management. It aims to increase businesses' competitive advantage through digital initiatives that become part of an overall strategy. Another critical dimension is the *technology* itself. This dimension is the crucial foundation of the digital strategy as it facilitates the storage and secure processing of data to meet customers' demands. In this dimension, businesses need to evaluate aspects such as the network, security and applications. The *operations* dimension refers to issues such as agile change management and real-time analytics. As such, it relates to the fostering and execution of tasks and processes using digital technologies to improve the efficiency and effectiveness of the business. The final dimension to consider is *organisation and culture*. Businesses should aim to develop an organisational culture that supports the achievement of digital transformation and flexibility to achieve that goal. The essential aspects of this dimension are leadership and governance. Assessing the Digital Maturity Model according to these dimensions facilitates the assessment of current digital capabilities, decision-making in terms of prioritising skills based on the business' goals and, eventually, measurement of the impact of digital initiatives. Depending on a company's ambitions, it may decide to invest more or less money into some aspects of the Digital Maturity Model. Figure 2 provides an overview of the Digital Maturity Model dimensions and related elements.

The Digital Maturity Model, with its core components of *customer*, *strategy*, *technology*, *operations* and *organisation and culture* spread across 179 digital criteria, is a suitable audit tool to assess the digital maturity of an organisation and to identify the key practices of companies that are developing into more mature

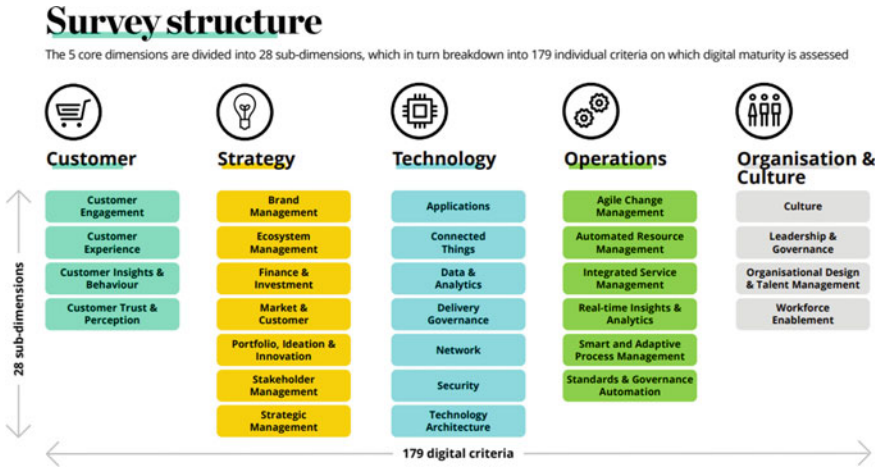


Fig. 2 Dimensions of a Digital Maturity Model

digital organisations (Kane et al. 2017). The Digital Maturity Model provides a useful indication of how organisations should systematically prepare to continuously adapt to ongoing digital change.

4 Examples from Practice/Case Studies

4.1 Domino’s: Embracing Digital Technology to Differentiate in a Highly Competitive Market

Domino’s is an American multinational pizza takeaway chain. Domino’s has a tremendous and proven track record of success. In 2018, its franchised and corporate stores generated \$13.5 billion in global retail sales, which is an increase of \$5.5 billion per annum from five years ago. Domino’s operated 16,500 stores in 85 countries in 2018, having operated approximately 8500 in 2008 (Domino’s 2018). Domino’s is an excellent example of a business that has experienced explosive growth due to embracing a DEM and prioritising digital technology to differentiate itself in a highly competitive market. Over the last few years, the company has faced the challenges of standing out in a crowded market and appealing to the new breed of digital-age consumers. To cope with this challenge, Domino’s decided to leverage technology to transform the pizza-ordering experience and to build a highly available, scalable and secure IT backbone to support digital transformation.

In 2012, the company decided to design a new strategy to strive for hyper-convenient pizza ordering. The new mindset was to become the most accessible pizza delivery service and, thus, stand out from the overcrowded market. By using a digital entrepreneurial approach, the company was able to connect

14,000 stores to a common platform and collect data relating to customers' pizza-purchasing habits. As a result, the company can predict customer behaviour by developing a 360° view of the customer that offers to:

- Bring the best value and experience to the customer;
- Use a Snapchat channel for offering discount codes; and
- Offer American customers the possibility of ordering by sending a pizza emoji to @Domino's on Twitter.

Adopting a DEM and using the advantages of technology innovations has helped Domino's to drive a 2000% increase in stock price over the past 10 years. Additionally, digital ordering, data insights and better in-store experience have driven more sales. Domino's has seen double-digit growth for several consecutive quarters. By harnessing technology and a DEM, Domino's has embedded itself into the lives of its customers by delivering a better experience. The firm also took all the steps that we have described in this chapter, from being data-driven to being platform-centric and cloud-enabled.

4.2 Tesco: Building the Virtual Store for Non-ordinary Customers

Tesco, a British multinational company that sells groceries and general merchandise, is the third biggest UK retailer in terms of gross revenue. It currently operates 6800 stores worldwide across several sectors. Tesco operates supermarkets, hypermarkets, super-stores and convenience stores. The company earned a net income of £1674 million (Tesco 2019) and has 450,000 employees worldwide. Tesco wanted to infiltrate the South Korean market, a market where consumers have no time to do traditional grocery shopping. This meant that Tesco had to come up with new ideas and techniques to make its business profitable in the new market. Fortunately, digitalisation had opened a window of opportunity of which a grocer with a DEM could take advantage.

Tesco discovered that South Koreans generally use a large amount of technology as part of their daily routine, have long working hours and have a longer commute than most Europeans. Therefore, Tesco created a 'virtual store' called HomePlus, demonstrating its inclination and ability to discover, evaluate and exploit opportunities emerging from digital technologies. HomePlus stores are set up in public spaces like subways and bus stops. Consumers download the HomePlus app on their smartphones. They use their smartphones to scan the codes at the virtual stores and purchase their orders online. The products can be stored in a virtual shopping basket and paid for online as well. Customers can also schedule a home delivery. This means a busy person can buy their groceries in a more convenient manner. The virtual store has been a considerable success in South Korea. The app has already been downloaded 900,000 times, and online sales have risen by 130% since its introduction. There are several HomePlus virtual stores across South Korea, and the

brand is the country's top retailer, making the HomePlus app the most popular shopping app in South Korea.

4.3 Tate: Organising Digital Events with Live Streaming of Art Performances

Tate runs a collection of four major art galleries in the UK, including the Tate Modern. The Tate Modern gallery was visited by almost 5.9 million people in 2018. Tate was also the first online art gallery with a website that offered basic functionalities. Later, Tate created extensive online databases so that people could search for all the objects in its collection. However, to further its online presence, Tate began creating an online gallery that would operate as Tate's fifth gallery. Tate wanted to enable everything from viewing the gallery online to being able to participate in fundraising and public programmes.

Tate launched its new website in 2012. Tate wanted to create a rich experience for its customers and to offer new content. It also wanted to create a platform that would allow user participation by allowing users to comment on posts and join online communities. As a part of these efforts, Tate created digital events in which it enabled a live stream of art performances. To further streamline the experiences of visitors, Tate moved from traditional audio guides to interactive guides, which allowed visitors more flexibility. This new site was focused on being customer-centric, which is one of the steps in the practical guide to digital entrepreneurship in Sect. 2.5 (Table 1).

John Stack, Head of Tate Online, was a key person in the process of creating Tate's new online presence and building its web strategy. By conducting this process, John Stack exhibited an excellent DEM by harnessing technology, interconnectedness, data usage, learning culture and a customer-centric focus. He managed to turn Tate's online presence into a virtual world with exciting and engaging activities and content. Another important factor in the success of this shift was the support provided by the company's management. They provided Stack and his department with the resources and freedom necessary to carry out the digital initiatives (Avery 2017). This exhibit of a DEM by Stack and his team achieved positive results including a better connection to customers, increased ticket sales and higher revenues.

5 Conclusion and Implications

Mobile technologies, social media, IoT, cloud computing and big data have disrupted and continue to disrupt the business world today, permeating every aspect of business and life, including the lives of customers. 'Digital' is becoming all-pervasive. Everything now needs to be plugged in and the lines separating the physical from the digital are becoming blurred. This has begun to influence the way in which entrepreneurs think and act. Sharing economies are on the rise and embed businesses in a rapidly changing landscape of exponentially exploding data,

information and algorithms. At the same time, the existence of a networked society necessitates a significant shift in organisational strategies, structures, leadership, processes and policies as disruptions become a new way of living and acting as an entrepreneur. Thus, adopting a DEM is no longer a choice but a necessity. A DEM is required to reimagine an existing business model and convert it into a digital one. By applying a DEM, an entrepreneur may reconsider the infrastructure they use, the type of insurance they require or the marketing activities they plan.

Data-driven, cloud-enabled, platform-centric business activities dominate the business world today. By presenting the three success stories of Domino's, Tesco and Tate, in which developing a DEM was the first step to succeeding in the digital age, this chapter has demonstrated the value of responding to opportunities created by digitisation. Both managers and employees in these companies have shown the inclination and ability to discover, evaluate and exploit opportunities arising from digital technologies and convert them into concrete actions that have led to better financial performance. Digital transformation, to which every business is exposed today, has replaced the cost-focused operating model of the past and looks set to develop into a fully networked digital business model in the future. Thus, entrepreneurs need to adhere to the new reality where adopting a digital entrepreneurial mindset is the key. This chapter has provided some tools and examples of how entrepreneurs have prepared their businesses to cope with new digital challenges and turn them into opportunities. However, it is important to emphasise that the presence of DEMs in these companies has not led to changes in decision-making processes but has had a tremendous impact on the society around us.

Acknowledgements We acknowledge, with much appreciation, the many constructive insights that Lars Meijburg has provided for this chapter. Thank you for your input, commitment and passion, which have increased the quality of this work. We are looking forward to seeing your digital entrepreneurial mindset in action.

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