

White Paper

# Digital Transformation Initiative: Unlocking B2B Platform Value

In collaboration with Accenture

March 2017



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The Digital Transformation Initiative (DTI) is a project launched by the World Economic Forum in 2015 as part of the System Initiative on Shaping the Future of Digital Economy and Society. It is an ongoing initiative that serves as the focal point at the Forum for new opportunities and themes arising from latest developments in the digitalization of business and society. It supports the Forum's broader activity around the theme of the Fourth Industrial Revolution. To find out more about the DTI project, visit <http://reports.weforum.org/digital-transformation>

# Foreword

Digital transformation is emerging as a key driver of sweeping change in the world around us. It has the potential to significantly improve consumer lives and create broader societal good, while providing businesses with new opportunities to create and capture value.

B2B digital platforms enable partnerships across vast ecosystems that are redefining industries and creating new business models. These platforms promise more inclusive and diverse outcomes, while expanding market access and raising innovation levels for participants.

It is clear that platforms will bring about transformational change, but there are a number of challenges that must be addressed. Platforms are hard to build and leaders must establish an environment in which they can flourish. The rapid pace of technological progress, cultural and organizational transformation, outdated regulations and irrelevant metrics are key priorities for policy-makers and business leaders to address.

The World Economic Forum is committed to helping leaders understand the implications of B2B digital platforms and supporting them on the journey to shape better opportunities for business and society. This is increasingly important, given the trillions of dollars at stake for both society and industry through the development of these platforms.

The Digital Transformation Initiative (DTI) was launched by the World Economic Forum in 2015 to serve as the focal point for new opportunities and themes arising from the latest developments in the digitalization of business and society. It supports the Forum's broader activity around the theme of the Fourth Industrial Revolution.

In 2015, the DTI analysed the impact of digital transformation on six key industries – automotive, consumer goods, electricity, healthcare, logistics and media – and on three cross-industry topics: digital consumption, digital enterprise, and societal implications.

In 2016, the initiative was extended to cover seven additional industries, and two new cross-industry themes: platform economy, and societal value and policy imperatives. Through its broad focus, the DTI has driven engagement on some of the most pressing topics facing industries and businesses today and provided business and policy leaders with an informed perspective on how to take action.

This report was prepared in collaboration with Accenture, whom we would like to thank for their support. We would also like to thank the members of the World Economic Forum's community of more than 40 experts from industry, government and academia who were involved in shaping the insights and recommendations of this project.

We are confident that the findings will contribute to improving the state of the world through digital transformation, both for business and society.

**Jeroen Tas**  
Chief Innovation & Strategy Officer,  
Royal Philips

**Bruce Weinelt,**  
Head of Digital Transformation,  
World Economic Forum

# Executive Summary

*B2B platform ecosystems underpin some of the most significant opportunities in the digital transformation of industry and society. To realize them in full, business leaders and policy-makers must work together and take decisive action.*

## Why are B2B platforms important?

Over the next decade, one of the most prominent aspects of digital transformation will be the creation of vast, interconnected ecosystems enabled by industrial B2B platforms. The World Economic Forum's Digital Transformation Initiative (DTI) research suggests that these digital platforms could unlock \$10 trillion of value for business and wider society over the next 10 years. They can do this by enabling the "outcome economy", which will reshape how industries are defined, how ecosystem participants interact, how stakeholders' needs are met, and how value is created and shared. While select business leaders take decisive action to position their organizations for success in this new environment, many others are less certain of their strategy and starting to lag.

## What's new about B2B platforms?

Platforms work differently from traditional businesses in three important ways:

1. **Value shifts.** Historically, value has been created "upstream" and systematically pushed down the value chain to the consumer. Platform business models create value in an iterative and continuous fashion across entire ecosystems.
2. **Non-linear growth.** Network effects can accelerate the velocity of change for how value is created (and destroyed).
3. **Trust.** This is a foundational element between market participants, who must understand and apply a core set of principles to govern platform-powered ecosystems.

## How do enterprises realize value?

To realize value in the B2B platform economy, leading players have identified five key areas to explore:

1. How will your platform strategy unlock value both for your business and wider society? How can you adjust your business model to participate in new ecosystems?
2. How do you need to adjust incentives across platform participants to build a shared commitment to advancing the interests of the ecosystem?
3. How can you increase collaboration to stay at the leading edge of technical and business-model transformation?
4. What investments in key technical capabilities are required to reduce the friction and costs associated with participating in fast-moving ecosystems?
5. How will you use advanced data analytics to glean actionable insights and maintain differentiation?

## What are the big challenges facing policy-makers?

Balancing the societal concerns of individuals and governments with the need to foster innovation and commercial growth remains central for policy-makers in this new platform world. Addressing challenges related to cross-border data flows, security, privacy, discrimination, taxation, market dominance and local inclusion will be essential for creating a sustainable and balanced platform economy. For meaningful progress, it is vital that all actors remain informed, up to date and open to change.

## Now what?

To make the most of emerging opportunities, business leaders and policy-makers need to strengthen their commitment to collaboration by sharing insights on platform strategies and their impact on the common good. Both businesses and policy-makers should enable ecosystem engagement and ensure that their data and technical infrastructures meet the demands of platform interactions. Business leaders have unique organizational considerations to address, while policy-makers need to understand how to enable platform-friendly regulatory environments.

# Setting the Context

*Digital transformation brings immense opportunities for business and society, and one of its most vital catalysts is new B2B platforms.*

Technological innovation will transform business and society over the next decade. One of the most prominent aspects of this transformation is the creation of vast, interconnected ecosystems enabled by industrial B2B platforms. By reshaping how industries are defined, how ecosystem participants interact and how value is created, these platforms are helping to build an economy anchored on shared outcomes.

The evolution and adoption rate of platform-driven businesses is in its early stages. With fewer than 15% of Fortune 100 companies having developed a platform model today, platform take-up is expected to accelerate.<sup>1</sup> An initial analysis created by the World Economic Forum's DTI states that B2B platforms could represent \$10 trillion in socio-economic value creation from 2016 to 2025.<sup>2</sup> This estimate – derived from a larger forecast, which estimates \$100 trillion of value is at stake through 2025 – may, in fact, be conservative. IDC predicts that more than half of large enterprises, and more than 80% of enterprises with advanced digital transformation strategies, will create and/or partner with industry platforms by 2018.<sup>3</sup>

## Case Study: Klöckner & Co – using platforms to drive digital transformation

German steel and metal distributor Klöckner & Co has used a traditional supply value-chain model for over 110 years.<sup>4</sup> Realizing that its key assets will soon be its platform and intellectual property, the company has set up a separate entity, Klöckner.i, to drive digital transformation via a B2B platform.<sup>5</sup> The opportunities and efficiencies this platform creates are not just for Klöckner: large steel producers, smaller start-ups and customers can all benefit from connecting, consuming and transacting with each other. The platform's capabilities will include: a legal tool providing real-time information about contracts; direct ordering; an online storefront; mill certification; and logistics and communications for special offers.<sup>6</sup>

B2B digital platforms create economic value by pivoting away from traditional linear value chains to create shared outcomes. Michelin's business model, for example, has evolved from simply selling tyres as a product to selling them as a service that guarantees mobility solutions. Predix, General Electric's cloud-based platform, has provided industrial companies with central asset management at all organizational levels, helping them reduce downtime and improve asset output and process efficacy. Cohealo, an asset-sharing platform, helps hospitals to locate, reserve and track non-emergency

equipment to increase asset utilization. As the platform economy continues to grow, businesses and other institutions will have to re-evaluate their current strategies and consider the critical operational capabilities required to support these new opportunities.

## Platform definition<sup>7 8</sup>

To ensure that the full value of B2B platforms can be realized, a standard definition is needed to establish a more productive and inclusive global dialogue. To that end, platforms are defined in this report as **technology-enabled business models that create value by facilitating exchanges and interactions**. Built on a shared and interoperable infrastructure, fuelled by data and characterized by multistakeholder interactions, platforms bring together people, processes, policies and networked technology to enable value exchanges throughout an ecosystem. In short, they create opportunities for stakeholders to collaborate and transact at a global scale.

Platforms have two functional layers:

- **Interactions.** Producers, consumers and platform orchestrators collaborate in the creation, consumption and compensation of units of value.<sup>9</sup> These value units can take the form of information, physical matter, labour, currencies or energy.
- **Infrastructure.** Underlying technology and architecture address concerns around APIs, interoperability, security, reliability and performance management. The focus here is on the management of a complex set of open and interoperable technical elements at global scale and in a highly reliable and secure manner.

Figure 1: The two functional layers of platforms

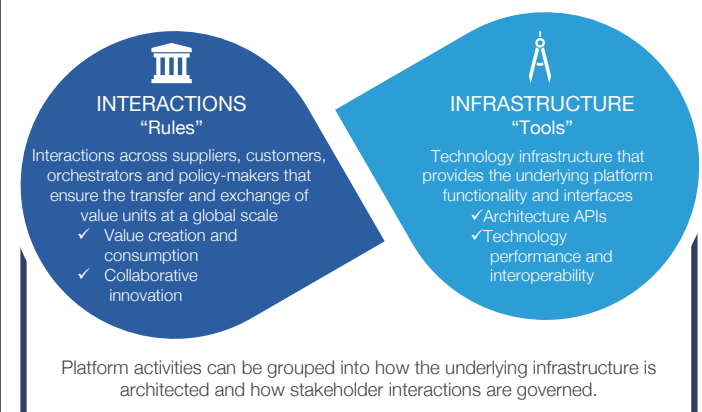


Figure 2: Selected B2B platform companies



Source: World Economic Forum/Accenture analysis

Players in the platform arena run the gamut from traditional industrial companies (GE, Siemens, Philips) to the web-based giants of the digital era (Alibaba, Amazon, Google, WeChat) to a host of start-ups offering industry-specific platforms, data or technical capabilities. A representative collection of these companies across various industries is shown above.

## Platform dynamics are fundamentally different

“

If you think you are collaborating now, you haven't seen anything yet. To be successful with platforms, you need to put your collaboration capabilities on turbocharge.

”

– Brett Begemann, COO and President, Monsanto

One of the biggest changes enterprises face when they transition to a B2B platform business model is the expansion of their interests beyond that of their own enterprise. In traditional, linear business models, value is created upstream and pushed downstream to consumers; in platform models, an actor's interests extend far beyond a single organization to encompass the needs of the entire ecosystem. Value is distributed across a dynamic network of competitors, customers and suppliers.

More specifically, value creation in B2B platforms is unique in three ways:

### Ability to create as-a-service models around existing assets

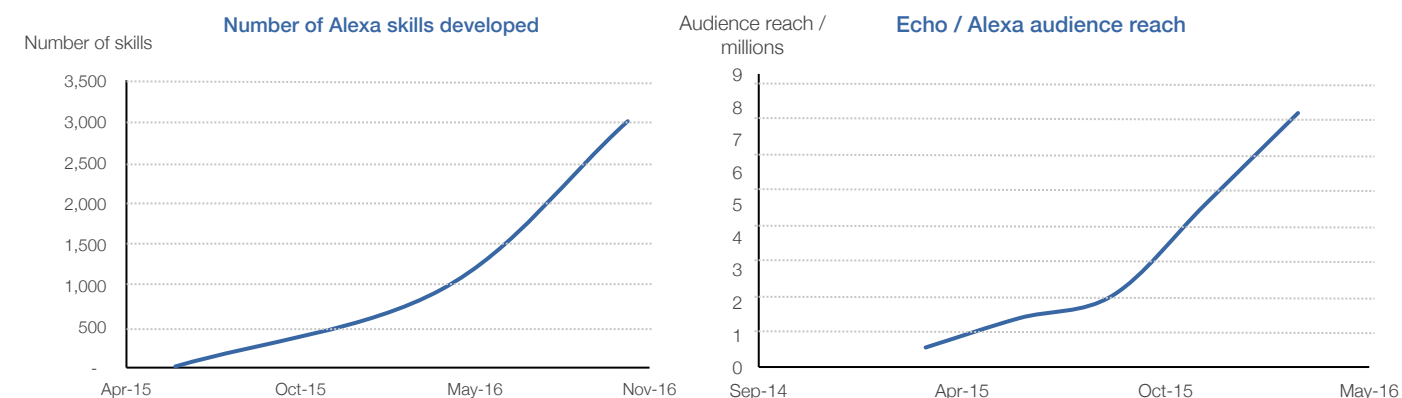
Leveraging a large, embedded asset base is one of the most natural ways for incumbent players to participate in new, platform-enabled growth models. For example, GE Aviation leverages its industrial cloud-based analytics platform to offer flight-efficiency services, helping customers turn real-time operational data into insights. Working with GE, Qantas leverages data directly from its 300-plus aircraft, 40 million flights and 120 million flight hours to “increase operational flexibility, increase fuel efficiency and reduce carbon emissions”.<sup>10,11</sup>

### Value-creation opportunities are delinked from asset ownership

In platform ecosystems, enterprises must optimize how they use their assets and delink them from the ways in which they currently create and share value. To increase efficiency and value, assets can be independently traded and applied to their best use.<sup>12</sup> For example, Cohealo is an asset-sharing platform that helps hospitals optimize asset utilization. It also provides logistics and analytics services to support its ecosystem partners.



**Figure 3: Non-linear growth of skills developed through Alexa Skills and of Echo/Alexa audience reach**



Source: Amazon, PRWeb, KPCB Internet Trends, CIO.com, AXPP Media, Accenture Analysis<sup>14 15 16 17 18</sup>

## Non-linear growth

Platforms have non-linear growth rates and network effects, which means that business models, operations and the technologies that support them all need to be able to scale on both sides of the platform – for producers and consumers. The accelerated velocity of change within platforms is a fundamental shift away from traditional business models that relied on incremental growth. More than half of executives recently surveyed by Accenture agreed that “platforms have enabled the growth of our company’s business through network effects”.<sup>13</sup>

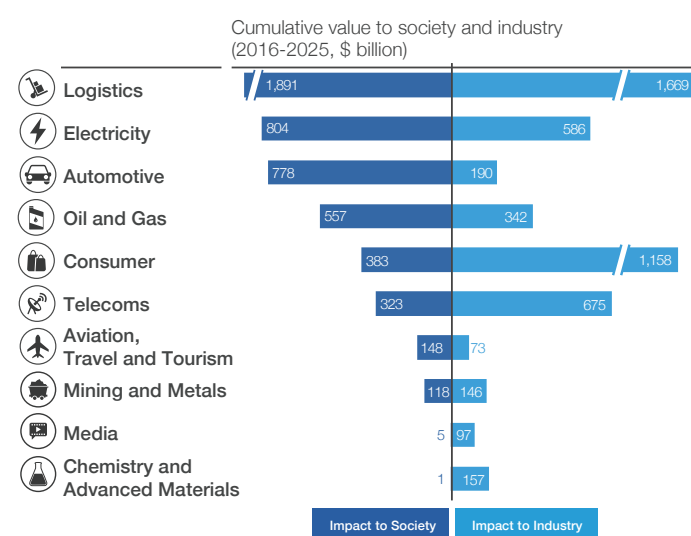
## Case Study: Amazon Alexa – teaching businesses new skills

In June 2015, Amazon launched Alexa Skills Kit. This assortment of APIs and tools allows developers, manufacturers and start-ups of all sizes to develop Alexa Skills that can be integrated into Alexa, the Amazon Echo voice service that interacts with users. Businesses use Alexa to interact with internet of things-enabled devices to enhance operations throughout the supply chain. In the first three months of the Alexa Skills Kit, 14 skills were developed; in the next eight months, another 936 skills came online. The most recent figures indicate that 2,000 more skills were added in the seven months following that – a compound annualized growth rate of 9,498%. User growth mirrors this developer growth, as demonstrated by the non-linear growth of Alexa’s user reach. In only a year, its audience reach increased by about 10 million people – an annualized growth rate of 438%. Alexa’s audience reach is projected to be 40 million people by the end of 2017.

## Sizing the opportunity in the B2B platform economy

After assessing 129 initiatives across 10 industries, the DTI research estimates the cumulative socio-economic impact of digital transformation at \$100 trillion between 2016 and 2025. It found that just over half of the initiatives relied on the enabling capabilities of B2B platforms, and that there is an estimated \$10 trillion in value that the B2B platform economy could generate for business and society through 2025.

**Figure 4: B2B platform-enabled value at stake by industry through 2025<sup>1</sup>**



Note: (1) Total societal value-at-stake includes impact on the customers, society and environment. Impact on external industries has not been considered. (2) Retail value at stake is embedded into the consumer value-at-stake calculations. Source: World Economic Forum/Accenture analysis

Given the complex, emergent and rapidly changing nature of the platform economy, measuring its socio-economic impact raises some methodological challenges. Yet, with more than 80% of executives believing that platforms will be the glue that brings organizations together in the digital economy, there can be little doubt of the central importance on platforms.<sup>19</sup> Traditional financial key performance indicators are needed for measuring the success of a fast-moving ecosystem. New classes of digital traction metrics – including scale, active usage and engagement – will be essential for understanding engagement in a digital environment.<sup>20</sup>

From a regulatory perspective, it is also critical that actors and regulatory bodies jointly engage in the development of outcome-based metrics. With the commitment by all stakeholders to identify these new shared ecosystem metrics the value of a balanced and healthy platform economy can be more effectively realized.

1 The DTI project includes 12 industries. However, health was not fully quantified and has therefore been excluded from the platform economy value-at-stake calculations. Additionally, value at stake from retail was embedded within the consumer industry.

# Building Trust-based Platforms to Facilitate Adoption and Use

“

**Trust is a core value. There needs to be clear and open communication with partners, customers and other stakeholders, particularly in how information is shared and how it will be used.**

”

– **Jamie Ferguson**, Vice President, Kaiser Permanente

*With an increasing number of transactions forecast to occur on platforms, their trustworthy and principled operation is a prerequisite.*

Eighty-three per cent of respondents to a recent Accenture Survey agreed that trust is the cornerstone of the digital economy.<sup>21</sup> Clarity on the core principles that help establish and sustain trust will support long-term investment, growth and innovation in the platform economy.

## Principles of trust-based platforms

Industry experts identify six principles as critical to building a trustworthy platform ecosystem.

**Figure 5: Six core principles of trusted digital B2B platforms**



- **Security** is essential as platforms operate on shared network infrastructures and handle increasingly valuable B2B transactions. Reliance on ageing infrastructure can open the door to attackers. Cisco recently reported that 92% of the internet-connected devices it sampled were running software with known vulnerabilities.<sup>22</sup> Against this backdrop, it's no wonder that more than 85% of recently surveyed executives expressed concerns about cybersecurity.<sup>23</sup> These concerns are not without merit: the annual cost of damage caused by hackers, malware and data breaches is roughly \$3 trillion.<sup>24</sup>
- **Accountability** embodies three key components. First, a platform must be reliable and function as promised, e.g. fulfilling orders, rendering services and successfully transferring payments. Second, its participants must comply with accepted standards, which can be challenging when operating at scale across a marketplace. Third, its operators must be held responsible if the platform fails to fulfil its promises. In this way, accountability lowers shared risks and encourages actors to further trust the platform.
- **Transparency** means providing stakeholders with meaningful ways to understand relationships, intent and outcomes. To achieve this, individuals need information on how relationships are structured and how data is being used to derive market insights and facilitate transactions. Additionally, transparency requires the capacity and oversight to audit algorithms across (and within) a platform ecosystem to confirm that delivered outcomes are accurate and that biases (intentional or unintentional) are not systemic.
- **Auditability** means externally auditing, verifying and monitoring transactions and data flows across an array of stakeholders and jurisdictions. It, too, builds trust between parties by facilitating transactions and enabling efficient dispute resolution. The ability to definitively answer questions such as, “Who has what data and what right to use it in which ways?” and “How, where and what transactions occur?” ensures that platforms are trustworthy, legal and reliable.
- **Fairness** is based on equitable value allocation and unbiased intended outcomes. Regulators and consumer protection agencies are focused on ensuring fairness and are increasingly vigilant about price discrimination, collusion and anti-competitive tactics. The very nature of ecosystems that depend on massive scale for efficiency in collaboration and innovation raises concern for policy-makers about the boundaries between collaboration and collusion.



- **Ethics** is key to guiding stakeholders through potentially ambiguous and uncertain decisions. Unethical (or even illegal) activities can permanently damage trust in a platform and the brands associated with it. A core tenet of the Fourth Industrial Revolution<sup>25</sup> is inclusivity – the needs, aspirations and intentions of every stakeholder should be heard.

### Case Study: General Motors and IBM – establishing trust in advanced analytics

General Motors (GM) and IBM are bringing to market the automotive industry's first cognitive mobility platform, Onstar Go. The platform is designed to enhance a driver's experience by facilitating personalized, location-based interactions with shops, hotels, restaurants and gas stations.<sup>26</sup> To bolster trust and transparency between the enterprise, platform and consumer, GM allows individuals to opt into (and out of) it. "People are willing to exchange information about themselves if it makes life better," says GM's Chief Infotainment Officer, Phil Abram.<sup>27</sup>

### When principles fail: challenges in the platform economy

Given the accelerated velocities for platform ecosystems scaling across industries and borders, tensions are emerging. There is opacity on the multidimensional and complex relationships that platforms enable, the impact they create over time, and the intentions of those who design the systems but do not actively control them.

“

**We are in a period of regulatory arbitration – rules created in the 1960s are being applied to today's technology.**

”

– **Asheesh Birla**, Vice-President – Product, Ripple

#### 1. Discrimination

Dynamic platform pricing models use artificial intelligence, advanced algorithms and big data. On one hand, dynamic pricing can foster transparency, reduce search costs, expand markets, improve user experiences and lower prices. On the other, it can mask unfair price discrimination and even collusion.

Poorly implemented pricing algorithms can interact in unexpected ways, particularly in complex environments populated with other algorithms. Two competing dynamic-pricing algorithms once inadvertently raised the price of a used textbook to \$23 million on Amazon.<sup>28</sup>

Even well-designed algorithms can drive dramatic and unpredictable shifts in price, when they are reacting to the actions of other algorithms. In financial services, algorithm-driven trading can spark big market moves in moments: algorithm-driven sales can be contagious, with one algorithm's trades setting off sell signals for other algorithms.<sup>29</sup> In October 2016, the British pound experienced a “flash crash”, dropping over 6% to a 31-year low, largely as a result of algorithmic trades.<sup>30</sup>

Pricing algorithms can also be deliberately programmed to support collusive practices harming consumers. The United States Justice Department successfully prosecuted several individuals who wrote a computer code that instructed algorithm-based software to set prices in line with an agreement they had made.<sup>31</sup>

Additionally, online platforms rely heavily on big data and algorithms to operate, running the risk of reflecting discrimination in society as well as the commercial and institutional biases of platform providers.<sup>32</sup> It is increasingly incumbent on business leaders and policy-makers to help detect and address discriminatory patterns.

While platforms can risk fostering discrimination, in other circumstances they can also create more inclusive and diverse ecosystems, particularly in providing access to markets for small and medium-sized enterprises. eBay's platform has opened a range of opportunities for its partners, enabling growth into new markets for small sellers. Indeed, a study of eBay's commercial transactions revealed that exporting can be just as easy for small sellers as it is for large ones: 94% of the smallest 10% of commercial sellers on eBay engage in exports, not far behind the largest 10% (99%).<sup>33</sup> As enterprises move into the platform space, they should evaluate their partnerships to monitor discrimination and take steps to promote more inclusive ecosystems.

#### 2. Cross-border regulation

Platforms are more impactful in larger markets where transactions can flow easily without having to cross geographic boundaries. Accelerated scaling is easier in a single market; for platforms that seek cross-border growth, there is the challenge of balancing global-local tensions in regulations concerning, for example, data localization, tax and labour. Data-localization requirements generally reduce economic efficiency by forcing businesses to store data in particular countries. Forced data-localization laws can increase computing costs for local companies by 30%-60%.<sup>34</sup>

## Case Study: Microsoft – managing data-localization challenges

In response to customer concerns regarding data security in 2015, Microsoft set up two data centres in Frankfurt and Magdeburg, Germany, that prevented customer data from being accessed by non-European agencies. To ensure security, Microsoft agreed to have Deutsche Telekom subsidiary T-systems act as data trustee for Microsoft Cloud in Germany.<sup>35</sup> The agreement prevents Microsoft from accessing any data without the permission of T-systems and blocks any attempts to invoke non-European laws to gain access to data. The trustee arrangement covers Microsoft Azure, Office 365 and Dynamics CRM Online customers throughout most of Europe.<sup>36</sup>

Legal and regulatory differences in digital policies and initiatives affect how platforms can operate across borders. Local regulations will also address in different ways the fundamental shift in employee relationships prompted by digital platforms. New businesses that leverage platforms to connect flexible workers with employment opportunities – like Upwork and OnForce – change how companies access talent. These talent platforms make it easier for enterprises to expand the number of contingent workers or contractors they work with. While there are benefits to both employees and employers in these new, more flexible arrangements, the changing social contract can shift the burden of some benefits (e.g. unemployment insurance, healthcare or retirement savings) away from enterprises and on to either individuals or society.

### 3. Market dominance

Platforms typically require a certain scale to deliver transformative innovation and unlock new efficiencies. Significant scale, however, brings concerns about anti-competitive behaviour and abuse of power. In the context of platforms – and platform orchestrators, in particular – notions of how dominance and power are expressed differ from traditional concepts of industrial monopolies. For example, platform orchestrators leveraging the predictive power of advanced analytics raise concerns that one commercial actor can systemically generate insights that other participants cannot.

The challenges to understanding and addressing market-concentration concerns are the lack of agreed indicators and legal precedence and the limited means of regulatory enforcement. To understand whether B2B platforms are already driving increases in market concentration, the DTI's research evaluated three industries using the Herfindahl-Hirschman Index (HHI).<sup>2</sup> It was determined that since 2009 market concentration had actually decreased for the three industries analysed and it was forecast to further reduce by 2018.<sup>37</sup>

The decreasing market dominance seen in this analysis is not necessarily a trend that will continue. As platform uptake increases, new metrics to measure market dominance are likely to be adopted and will highlight increases in market dominance where traditional metrics cannot. For instance, differentiated data access might be widely adopted as a measure of market dominance. The HHI might find that a merger between an incumbent and a disruptor has a limited impact on existing market concentration because the disruptor typically has a relatively small market share. However, in an information-intensive market, the merger can lead to differentiated data access and increase the concentration of data, if the disruptor owns large data sets. In the United States, the Department of Justice 2014 lawsuit against the merger of Bazaarvoice and PowerReviews confirmed that market share is not the only indicator of market dominance when it established that data can serve as a barrier to entry in the market “because the merger would allow them [Bazaarvoice and PowerReviews] to produce better products faster because of differentiated data.”<sup>38</sup>



#### Key Questions for Policy Makers:

- How can you engage with talent platforms and enterprises to address the impact of shifting social contracts?
- What digital metrics can be devised to measure the shifting nature of market concentration?
- How can you create a harmonized and predictable regulatory environment across national boundaries?

Discrimination, cross-border regulations and market dominance are tensions that can be managed and avoided by establishing trusted platforms. To do this, platform actors must ensure that platforms are secure, accountable, transparent, auditable, fair and ethical. It is also important for actors to be aware that tensions may develop and to establish metrics that can successfully assess their emergence.

2 Based on evaluation of HHI in healthcare, logistics and electricity for 2009, 2014, and 2018 (projected). For the healthcare industry, all evaluated segments had a moderately low market concentration (below 1,500 points), while logistics and electricity only had one segment with HHI that were moderately concentrated (scores between 1,500 and 2,500 points).

# Business Priorities for Realizing Platform Value

Managing the transition to the platform economy will require new perspectives, strategic frameworks and capabilities.

Despite similarities with traditional, product-driven models, platform-based business strategies differ in some fundamental ways. As emerging ecosystems transform innovation and create new organizational requirements, enterprises will need to redefine how they can generate value both for their business and wider society. Figure 6 outlines the six critical strategic and operational “table stakes” for participants in the platform economy.



**Business leaders: How will you realize value from new and emerging B2B platform-based opportunities?**

## 1. Building vision and ambition

Platforms challenge leaders to rethink the vision for their organization – and the outcomes they want from ecosystem collaboration. A clear understanding of the platform concept means: identifying the market change that requires a platform-based response; understanding the supporting ecosystem and the roles that actors within it can play; and, ultimately, determining which role(s) fit their organization’s differentiated value proposition. Industry context is vitally important, as the existing industry structure will determine the openness of the platforms that emerge. Highly fragmented industries tend to evolve open platforms while more concentrated industries tend to evolve more closed platforms. The various roles and responsibilities within a platform ecosystem are described in Figure 7 on the following page.

Figure 6: New strategies and operational capabilities are critical for success in the platform economy

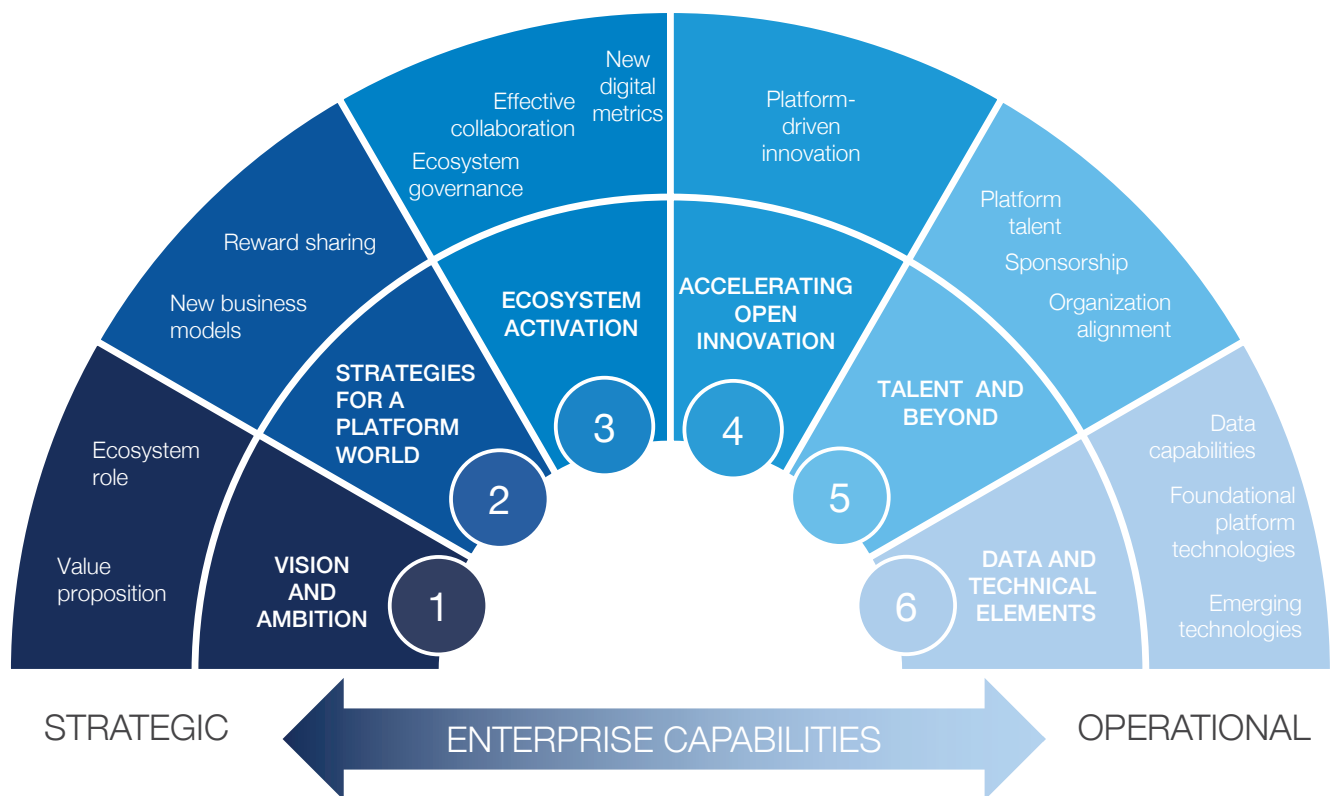
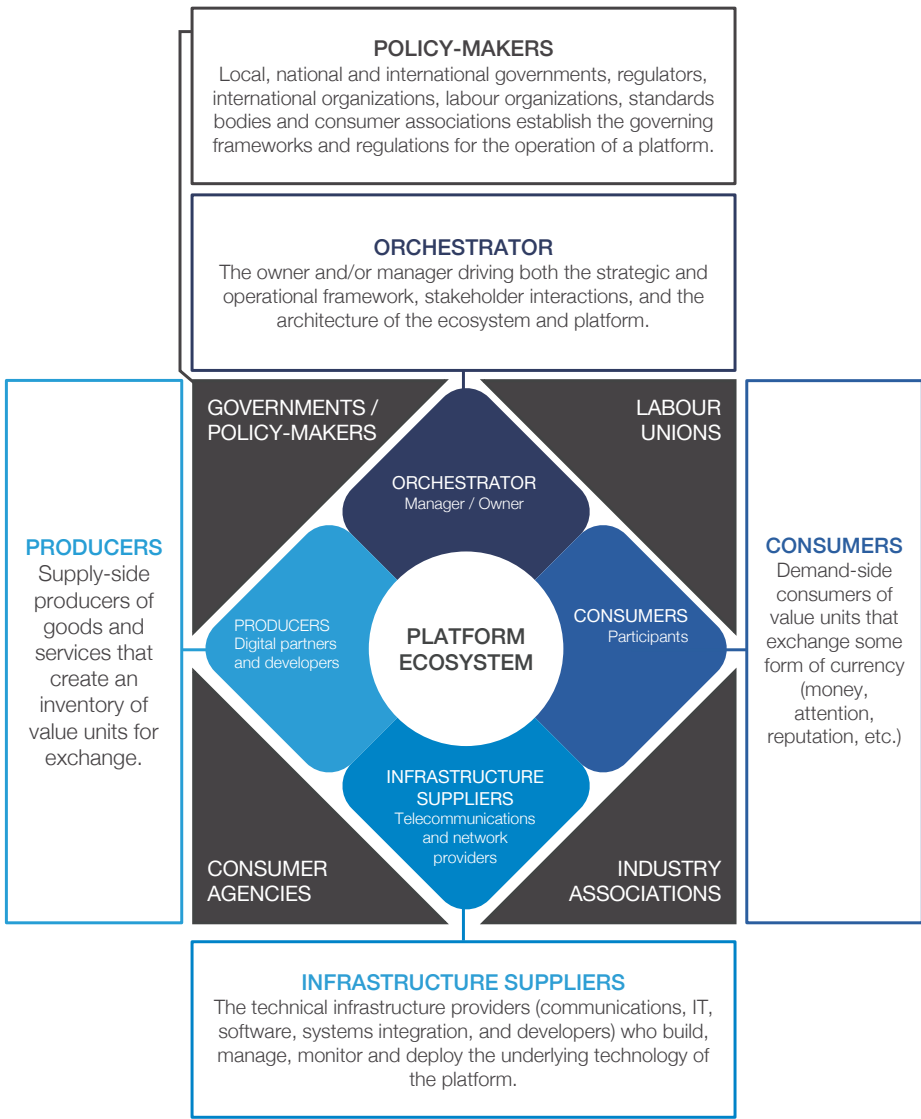


Figure 7: Platform ecosystem roles and interactions



Source: World Economic Forum/Accenture analysis

Platforms enable actors to take very different roles across the ecosystem. The fluid nature of platforms means that any one actor can play multiple roles within a platform ecosystem – or even different roles across multiple ecosystems simultaneously.

**Case Study: SWIFT – platform owners are not always the managers**

SWIFT is a provider of interbank secure messaging services around the world. It is a global cooperative, currently used by about 11,000 financial institutions in more than 200 countries. Financial institutions must submit an application to become members and, once they are accepted, owners. As owners, members hold all funds and manage all accounts on behalf of customers, rather than these accounts being held and managed by SWIFT itself. Owners also elect 25 independent directors to govern and manage the company,<sup>39</sup> but owners do not manage the platform. SWIFT acts as the sole platform manager by defining standards, shaping market practices and building the ecosystem. As a result, SWIFT members are the platform owners and users, but not its managers.

Actors, who may be playing multiple roles across diverse ecosystems, must realize that ecosystems are highly dynamic environments that evolve naturally and rapidly. An existing ecosystem may find itself disrupted when incumbent businesses join. The orchestrator role, however, is least likely to be disrupted, as there is a significant first-mover advantage for those entities that shape and invest in the ecosystem, e.g. by establishing standards and governance processes.



**Business leaders: How is your organization prepared to simultaneously play different roles within various ecosystems?**

## 2. New strategies and business models

Platforms make new business models possible. Particularly when powered by the internet of things (IoT) and mobile capabilities, platforms enable business models that can sense, adapt and respond in real time. Platforms allow enterprises to create ancillary services built around physical products and this can underpin transformational growth. These services are likely to transition to guarantees in experiences or outcomes. New business models only accounted for a 1%-5% share of total revenues in 2015 but are expected to be responsible for 30% by 2020.<sup>40</sup> For platform owners or orchestrators, much of this opportunity will emerge from four new classes of digital business model that are particularly relevant in the B2B environment.<sup>41</sup>

### A. Commission-based models

Actors collect commissions (or a margin) for facilitating exchanges, e.g. matching buyers and sellers for a given product or service.

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#### Case Study: Ebates – attracting a customer base to build the ecosystem

Ebates is a membership-based platform that leverages B2C interactions to drive B2B e-commerce sales for more than 2,000 businesses. Companies in the retail and consumer goods space pay Ebates a commission on the sales it generates – a portion of these is also passed to the consumer as cashback savings. In 2014, Ebates had more than 2.5 million active users, accounted for \$2.2 billion in gross merchandise value and had a net revenue of \$164 million.<sup>42</sup> As a free service, Ebates' success relies on it attracting and retaining users at low cost, which it does through pop-up advertisements that convert 20%-40% of first-time visitors into email sign-ups.<sup>43</sup>

### B. Capacity-leasing models

Unused capacity (people, processes or things) is made available to new users outside an enterprise. This lowers entry barriers and creates opportunities for innovative collaboration with lower investment risk profiles and faster time-to-market cycles. Increased asset utilization also brings significant financial benefits, as enterprises realize greater returns on investment.

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#### Case Study: Flexe – leveraging platforms to unlock capacity and increase utilization

Flexe is a cloud-based platform that increases warehouse space utilization by connecting companies with unused space to those needing space. It handles approximately 370 warehouses with more than 10 million square feet of space, and is expanding quickly, reporting a 600% increase in revenue in 2015.<sup>44</sup> Flexe operates a pay-as-you-go model, with no long-term leases or contracts, so customers can access storage space for short periods. It generates revenue by taking a 20% cut from each transaction.<sup>45</sup>

### C. Subscription models

Products or services can be subscribed to for a period of time, which can be as short as a day. This model attracts customers with lower upfront costs.

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#### Case Study: Carbon – subscription models as a service

Carbon provides the technology for 3D manufacturing applications. Its M1 machine is a new commercial model for 3D printing that brings together printer, software and service.<sup>46</sup> Rather than charging for the materials used and the manufactured product, Carbon leases the machine to users. Under its subscription business model, anyone can manufacture their own 3D products for \$40,000 a year, for a minimum of three years.<sup>47</sup> The company has further integrated into the ecosystem by supplying customers through its marketplace with resins produced both by Carbon and its partners.

### D. Data-monetization models

Used by online marketers and many advertising-based platforms, this model offers a free (or deeply discounted) primary service to sell the data generated by the platform to third parties. More than 30% of organizations already directly monetize information assets by bartering, trading or licensing them outright.<sup>48</sup> It has also been predicted that, by 2019, 40% of IT projects will create digital services and revenue streams that monetize data.<sup>49</sup>

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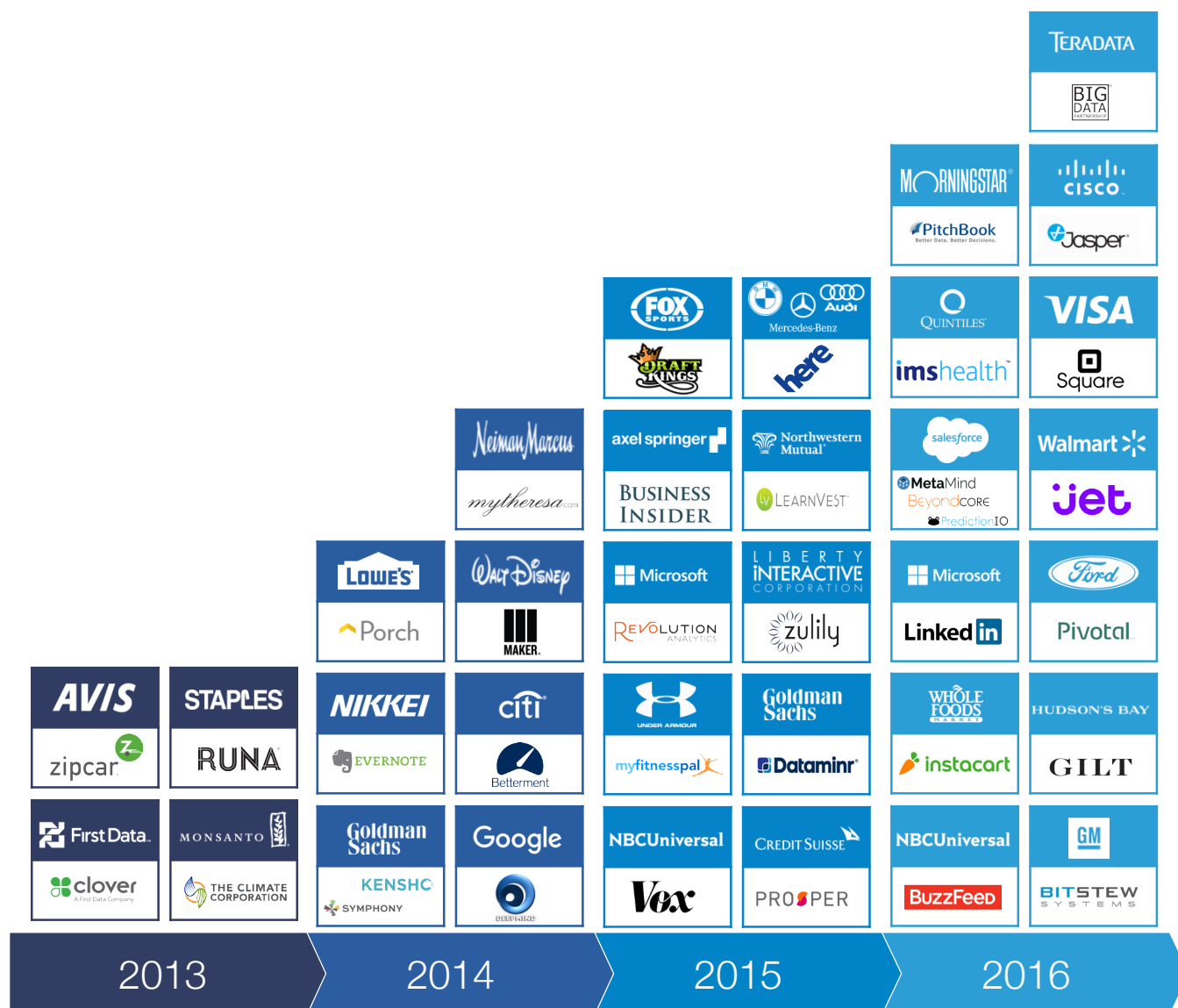
#### Case Study: Farmobile – using a data-monetization model to sell a service and resell data

Farmobile is an internet of things-based subscription service that puts smart chips into farm equipment. These chips provide useful data to farmers – e.g. crop variety, population, total production and average yield – that can help them improve crop yield and profitability.<sup>50</sup> The service also allows farmers to sell their collected data to farm-equipment manufacturers, who are eager to use it to improve their products. Each microchip costs farmers approximately \$1,250 a year, and they can receive \$2 per acre (up to 250,000 acres) if they choose to sell their data.<sup>51</sup>

To take advantage of these new business models, actors need to know how to access them: buy, build or ally. The accelerating rate at which incumbents are acquiring platforms (or key platform components) shows the importance they place on accessing these capabilities.



Figure 8: Acceleration of platform ventures and acquisitions



Source: World Economic Forum/Accenture analysis

Emerging platform ecosystems also challenge traditional approaches to pricing, from product pricing to value sharing across the ecosystem. For instance, the healthcare industry is shifting from “pay for pill” to performance-based pricing in which medication is priced according to how effectively it reduces overall healthcare costs. Novartis’ heart-failure drug Entresto, for example, demonstrated a 20% decrease in mortality and a 44% reduction in hospital admissions during clinical trials.<sup>52</sup> Novartis crafted outcome-based contracts for the drug with insurance providers Cigna and Aetna. Although drug therapies such as Entresto only account for 10% of total healthcare costs, pay-for-performance pricing takes into account additional savings associated with administration, hospital care, and physician and clinic services.<sup>53</sup> This new pricing model reduces the risk for payers and incentivizes pharmaceutical companies to boost the performance of their drugs.



**Business leaders: How are you preparing your organization to adopt a new revenue-sharing model that prioritizes the interest of the entire ecosystem?**

### 3. Ecosystem activation and new digital metrics

To activate an ecosystem, actors need to focus on four practical goals:

- Effective platform governance
- Multisided network development
- Collaboration
- Outcome-based metrics

**Effective platform governance** reduces friction across interactions while meeting the needs of actors within the complex ecosystem. The innovative nature of platforms requires more collaborative governance frameworks that can identify and manage shared risks. The most pressing governance concerns revolve around agreement on standards (to facilitate interoperability), data usage and privacy, and value apportionment. Emerging technologies (e.g. APIs or blockchain) can provide new ways to embed governance principles into the automated interactions of ecosystem participants. Typically, governance is set and monitored by the orchestrator, which needs to proactively engage regulators and other actors in the development and rollout of new governance frameworks.

“

**Governance is the set of rules concerning who gets to participate in an ecosystem, how to divide the value and how to resolve conflicts. To understand good community governance is to understand the set of rules for orchestrating an ecosystem.**<sup>54</sup>

”

– Amrit Tiwana, Professor, University of Georgia,  
Author of *Evolutionary Competition in Platform Ecosystems*.

**Multisided network development** will be led by the orchestrator. It requires focus and investment in building both sides of an ecosystem – because ecosystems don’t just organically grow and flourish around newly built platforms. To rapidly activate an ecosystem, the orchestrator must know how to mobilize ecosystem members, technology and capabilities. That means connecting with critical players, rapidly developing proofs of concept and recruiting talent for sales and delivery.

In the Alexa example cited earlier, Amazon has devoted significant energy and investment in building a user base to create the pull for developers. The Alexa Moments campaign has involved more than 100 10-second spots highlighting the breadth of Alexa’s capabilities. Many of the spots were inspired by real user stories, with some even gleaned from user reviews.<sup>55</sup> Amazon has opened Alexa to other hardware producers, who hope to make it their voice platform of choice. It has further committed to investing \$100 million into the Alexa Fund, which will back companies developing Alexa-focused hardware and features.<sup>56</sup>

### Case Study: mFarmer – building a multisided network

mFarmer is an open-source platform developed by Unilever, Grow Asia and Facebook to “improve smallholders’ profitability and productivity across sustainable supply chains” in South-East Asia.<sup>57</sup> On the platform, smallholder farmers can gather information on good agricultural practices, markets and financing to make informed and sustainable decisions for their farms.<sup>58</sup> Farmers access the platform through their mobile device, without additional carrier charges.

The platform is meant to distribute applications based on the needs of the farmers, not compete with existing mobile applications. For instance, smallholders are paid in cash for their crops, but the platform can integrate existing mobile payment applications to facilitate online payments. The goal is that this will increase farmers’ engagement in the supply chain and help them better position themselves in the market.

**Collaboration** is key to an ecosystem’s ongoing and sustainable success. As collaboration brings a broader range of partners to a platform, new markets can be discovered. Recent research has found that more than 90% of companies that say they are preparing for disruption are focusing their growth strategy on collaborative ecosystems.<sup>59</sup>

Enterprises with strong capabilities in traditional partner management need to be cautious. Conventional procurement approaches will not create the collaborative, win-win mindset that is needed to be successful in a platform model. From a financial perspective, the rise of platforms and their associated ecosystems of partners supports a shift of investment from capital to operational expenditure, as enterprises can now access capabilities through “as a service” models. Additionally, the ability of platforms to electronically deliver documentation and support real-time payment processing promises to reduce accounts receivable and days sales outstanding, and improve cash flows.

Critical capabilities in ecosystem management include: clarifying objectives; getting partners on board rapidly; creating joint incentives; and apportioning value appropriately between partners. Most critical of all is a clear and shared understanding of partner priorities and opportunities. This allows actors across the ecosystem to boost the value of participation for all parties, creating a virtuous circle.



**Business leaders: How will you collaborate with other enterprises and policy-makers to drive positive outcomes for the entire ecosystem?**

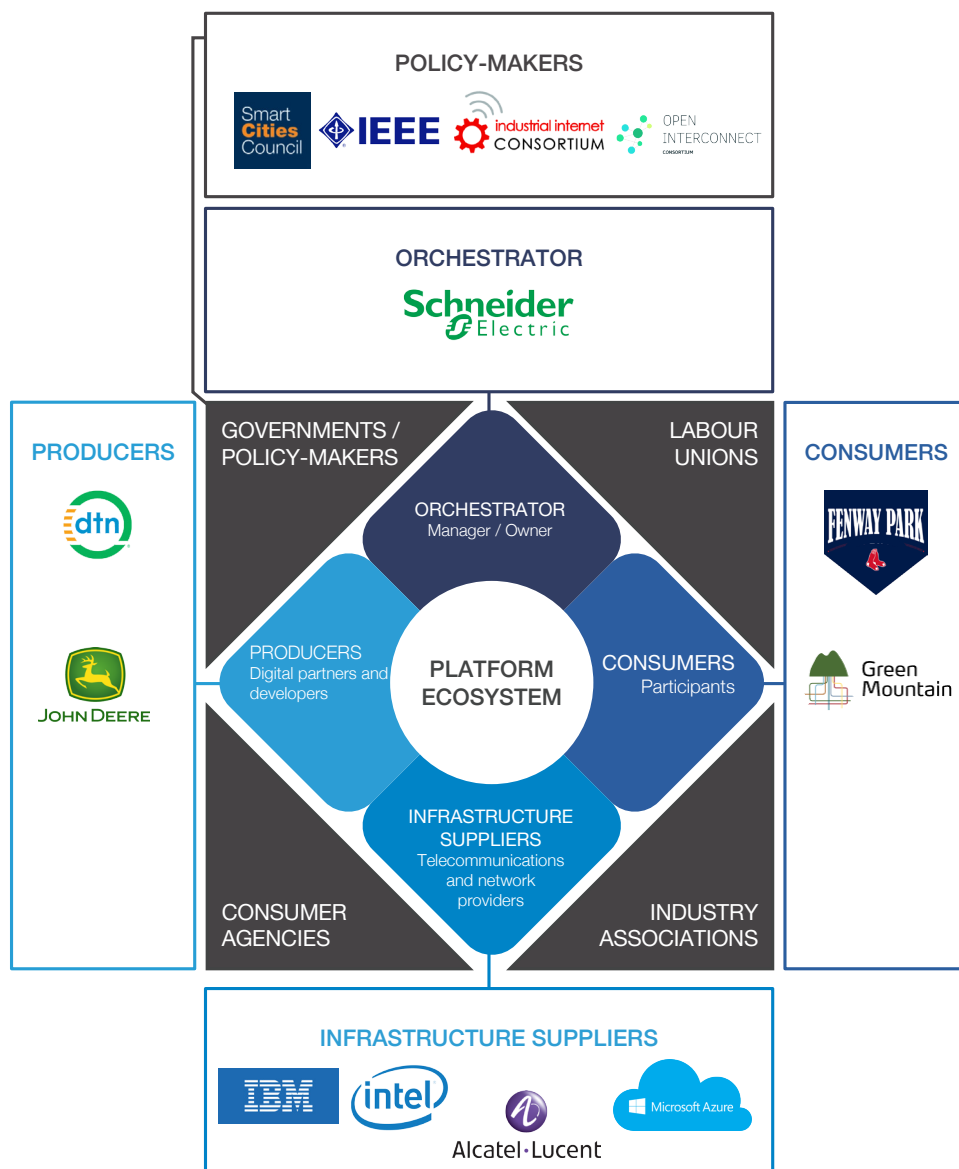
### Case Study: OpenPort – understanding partner issues is key to delivering a core value proposition

OpenPort is a digital logistics platform that is transforming domestic distribution in emerging markets by creating a direct, transparent relationship between shippers and carriers through its Open Enterprise Logistics model. The most critical factor in its success relates to the compensation phase of a transaction: OpenPort delivers timely proof-of-delivery documentation, which triggers invoicing and payment processing, and can shorten payment cycles from 45 days to fewer than 10. This alleviation of the most significant pain point for partners has driven significant ecosystem engagement.

Lastly, actors across an ecosystem must adopt a holistic set of **outcome-based metrics**. These metrics provide important insights into the success of specific entities within the ecosystem but don’t necessarily point to the key measures that the ecosystem as a whole should be monitoring. The power of new digital metrics is that they can measure the whole system, not just individual components.

For instance, electricity providers and regulators have traditionally used subscriber bases, prices and kilowatt-hour outputs to gauge the sector’s competitive dynamics. In contrast, E.ON, a privately owned energy supplier focused on renewables, is tracking sales of large battery packs as an upstream proxy for consumers who may be capturing energy outside the traditional industry value chain. As E.ON seeks to expand its network of partners, understanding leading indicators for its renewables business provides a more holistic view of value-creation opportunities in the ecosystem.

Figure 9: Schneider Electric sustainability services ecosystem



Source: World Economic Forum/Accenture analysis

With these four elements in place, expansive ecosystems can rapidly evolve. For example Schneider Electric is a global specialist in energy management and automation. Its platform, EcoStruxure, delivers IoT-enabled solutions that enhance an enterprise's process management. The platform operates as part of a larger ecosystem in which Schneider Electric acts as the orchestrator, collaborating with producers, consumers and infrastructure suppliers to meet enterprises' sustainability goals. Schneider Electric's sustainability services ecosystem is illustrated below.

#### 4. Accelerating platform-driven innovation

“

**The definition of innovation is changing. Five years ago, we were thinking about innovation comprehensively. Today, innovation is about how you create the components and knit it together.**

”

– John Williamson, Senior Vice-President, General Manager – Digital, Comcast

A platform is only partially under its owner's control.<sup>60</sup> Unlike products or services, the risks and costs of most innovations are borne by outsiders who also generate many of these innovations. In platforms, emergent innovation foreshadows planned innovation.<sup>61</sup>

To accelerate innovation, reducing friction within and across a platform is important. Adopting shared standards is critical for success. Recognizing this, some leading businesses have come together to accelerate the interoperability of key IoT platforms. In February 2016, the Open Connectivity Foundation (OCF) was founded with a mission to unify IoT standards, so that companies and developers can create IoT solutions and devices that work seamlessly together. Founded by GE, ARRIS, CableLabs, Cisco, Electrolux, GE Digital, Intel, Microsoft, Qualcomm and Samsung, the OCF aims to create protocols and open-source projects for IoT.<sup>62</sup> The foundation also wants to connect the next 25 billion devices for IoT in markets such as consumer, enterprise, industrial, automotive and healthcare. To this end, it is defining a comprehensive communications framework for emerging applications in all key vertical markets that will support a “building block” architecture and provide open-source implementation.<sup>63</sup>

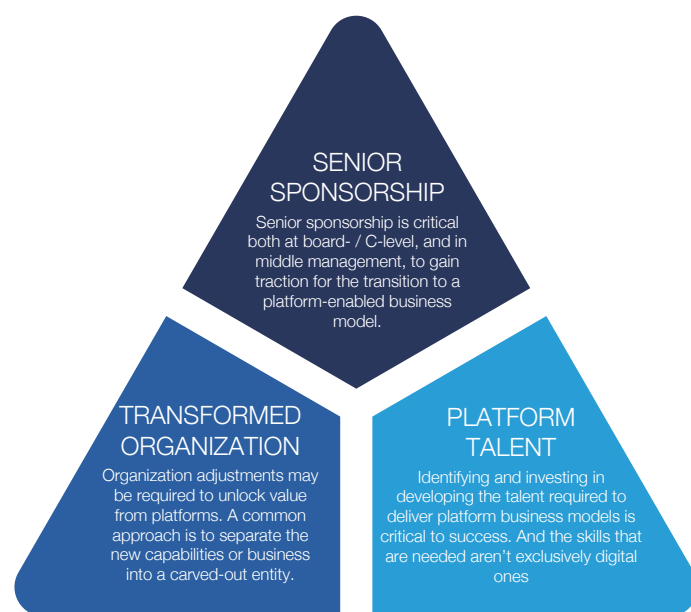
## Case Study: OrganiCity – platform-enabled open innovation accelerates the smart city of the future

OrganiCity is an experimental platform in the EU that fosters interactions between everyone in a given city – citizens, businesses, government – through various channels.<sup>64</sup> These interactions, or conversations, centre around ways to improve the city through technology. OrganiCity illustrates how platforms are disrupting the historically vertical innovation process by increasing collaboration around specific use cases, such as driving a real-time analysis of London transport network usage by mobility-impaired passengers to recommend accessibility improvements, or providing an insight tool to improve procurement efficiency in public spending.<sup>65</sup>

## 5. Platform talent and beyond

From an organizational perspective, three components were repeatedly emphasized in DTI research: adjusting critical skills to support new platform opportunities; commitment from senior sponsors; and the rise of platform-transformed organizations.

Figure 10: Organizational attributes critical for success



Source: World Economic Forum/Accenture analysis

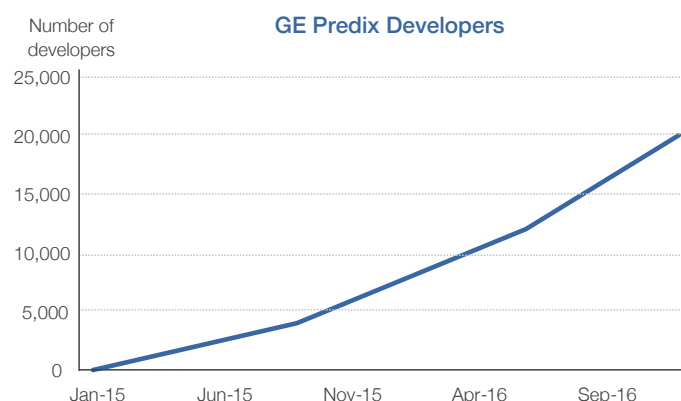
### Senior sponsorship

In interviews, experts agreed that senior sponsorship is critical at both board and C levels, and in middle management, to gain traction for the transition to a platform-enabled business model. This is particularly true where traditional, product-centric revenue models will be cannibalized by new, platform-driven opportunities. Internal incentives, for both individuals and business groups, need to be carefully balanced to incubate new opportunities, while maintaining support for legacy businesses.

## Case Study: GE – C-suite support is needed to transition to a platform-enabled business model

GE used data and analytics to transform its global operations. This effort was driven by Chief Executive Officer Jeff Immelt's belief that the 123-year-old company must carve its own path in a fast-paced industrial landscape. He argues that industrial companies are now in the information business and the only question for GE was whether it should build or buy to get there. GE made the decision to build to become both a platform company and an application company.<sup>66</sup> GE's platform, Predix, is open to developers to build applications on it. Its developer community grew at an annual rate of 140% between January 2015 and November 2016.<sup>67</sup>

Figure 11: Growth in number of developers building apps for the GE Predix platform



Source: TechCrunch, Accenture analysis<sup>68</sup>

### Platform talent

The question of talent in a digital era repeatedly challenges business leaders and policy-makers. It is widely recognized that businesses need to ensure the availability of a sufficient depth and breadth of critical digital skills, such as data science or design-led thinking. Robust talent strategies, supported by rigorous workforce planning, will ensure that the talent lifecycle helps to meet an enterprise's needs. Gartner believes this will be reflected in companies' C-suite, predicting that 90% of large organizations will have hired a chief data officer by 2019.<sup>69</sup>

Platforms demand more pervasive and nuanced digital skills, challenging actors to adapt certain existing skills for success in a platform world. Senior leadership and strategy groups must build on a strong foundation of continual learning to explore how emerging platform-driven business models affect strategy formulation. Traditional approaches to partner management and procurement processes will have to be re-examined to ensure that they are relevant and appropriate for an ecosystem-led model. Product designers and manufacturers will need to consider the implications of creating platform-enabled services on design and manufacturing processes. Lastly, integration architecture skills will become increasingly important, as emphasis shifts to enabling rapid integration across multiple platforms.

Organizations can follow a range of approaches to ensure that talent is available in sufficient quality and quantity: reskilling and upskilling existing workforce; acquiring new talent; shifting tasks; emphasizing lifelong learning; and developing creative arrangements with academia or other partners.



As new talent marketplaces appear, platforms themselves can help solve some of these challenges.<sup>70</sup> Platforms are uniquely positioned to augment traditional methods of accessing the workforce, which enterprises can leverage to close existing gaps. They also create new ways of working and open up new opportunities for workers. Additionally, the rise of the contingent workforce provides financial flexibility for enterprises by varying the fixed costs associated with a traditional employee base.

Procter & Gamble (P&G) is experimenting with larger external talent marketplaces. The 180-year-old company is embracing on-demand talent, “borrowing” workers alongside their traditional workforce of employees. P&G recently completed a pilot programme using Upwork’s freelance management system, Upwork Enterprise. P&G’s analysis found that, in 60% of cases, its products were delivered more quickly and cheaply by workers in the pilot programme than by those using more conventional methods.<sup>71</sup>

### Transformed organization

Enterprises should realize that adjustments may be required to unlock value from platforms. As with the launch of any new venture, attention should be paid to how decisions are made and by whom (governance); what capabilities reside where (operating model); what tools are used to manage operational processes (IT, operational technology, financial reporting, investment and talent management); and how the new, platform-driven business relates to the organization’s legacy business. The pivot to platform-enabled models requires the adoption of a “multicore” mindset: simultaneously balancing multiple perspectives on business focus, pace, processes and capabilities. An increasingly common approach is to separate the new capabilities or business into a carved-out entity. Research indicates that 58% of high performers have created a dedicated centre of excellence for critical new analytics capabilities that sets the analytical direction for the entire organization.<sup>72</sup>

### Case Study: Siemens – intelligent facilities expand enterprise capabilities<sup>73</sup>

The Siemens Mobility Smart Data Solution gives clients the tools to improve the availability and reduce the cost of transport infrastructure and operations. When the Siemens Mobility Data Services group of 30 data scientists was created, it was carefully situated between the production and engineering teams, with direct access to both areas. This helped the group integrate into the core of Siemens’ business, while building its own distinctive capabilities. In this way, the data team could address the significant challenge of learning the “language” of engineering, while also supporting the enterprise’s new behaviours that were necessary for success. One outcome can be seen on the Bangkok metro, where the solution drives 100% vehicle availability during rush hour (about half the day), allowing the system to operate without reserve trains.

## 6. Data and technology

Successful platform strategies rely on an understanding of underlying technical components. Recognizing the intricacies of managing data, building the technical foundations for a platform, and closely observing the impact of emerging technologies are three crucial areas.

“

**Data is the next major currency in the platform space.**

”

– **Macario Namie**, Head of IoT Strategy, Cisco Jasper

The B2B platform economy is built on the massive streams of data that are being created, collected, enhanced and shared. Forecasts suggest that the volume of high-value data worth analysing for actionable insights will double by 2020.<sup>74</sup> The ethical and technical management of this data explosion represents “table stakes” for actors in the platform economy. Enterprises are keenly aware of their accountability for responsible data management and the need to train employees so they manage data in an appropriate, legal and secure manner.

In an information economy, the core challenges of awareness and consent are paramount. Informed consent is crucial, particularly when forwarding data to parties up and down the value chain. This data can then be leveraged in an increasingly wide array of use cases further and further from the initial source of the data. Data producers must be engaged in a meaningful and informed way, particularly when the data is passively collected (or an insight derived) at the individual level – whether from a consumer, employee, patient or citizen.

For example, users of Facebook, Instagram and Twitter are unlikely to have consented to their public social media data being used for law-enforcement purposes. However, Geofeedia, a location-based analytics platform, helped police to triangulate the openly shared personal information from over a dozen social media sites to monitor activists.<sup>75</sup> When this practice was exposed, Facebook, Instagram and Twitter claimed they were unaware of this use of their data and shut down Geofeedia’s access to user data.

Consistent data regulation creates a more predictable and productive operating environment for enterprises. In a platform-enabled ecosystem spanning multiple geographies, it is vital for all participants to understand how data will be moved, shared and used. They must ensure that the original producer of that data is fully aware of the implications of how the data will be used and has agreed to this use.

For example, the European Commission’s adoption of the EU-US Privacy Shield in early 2016 removed much of the uncertainty that arose from the repeal of Safe Harbour nine months earlier.<sup>76</sup> The EU’s General Data Protection Regulation (GDPR), adopted in April 2016 with a two-year implementation period, established a single legal framework across the EU that underpins a unified Digital Single Market.<sup>77</sup>



The GDPR applies to data controllers and processors within and outside the EU in instances where the data processed relates to goods or services offered to EU citizens or attempts to monitor their behaviour. It addresses several key issues, including data transfers, the rights of individuals and the concept of personal data. It further establishes requirements for enterprises to make notifications of data breaches.<sup>78</sup> It is also a clear step towards harmonizing regulations, as enterprises will not have to deal with divergent rules across the EU. Moreover, the regulation increases data security for individuals in the EU.

One way to manage concerns relating to cross-border data flows is to allow the data to reside locally. Advances in computing power are enabling “edge analytics”, where the data is analysed at (or near) the point of generation, so that it is the results of the analysis – the insights – that are moved through the system. This is particularly beneficial for companies such as mining operators working in remote locations.

### Technical foundations for platforms

All participants in the platform economy, regardless of the role they play, will have a degree of familiarity with the technical components and emerging technologies that underpin platforms. Technology enables many of the critical capabilities explored above, including those relating to governance, trust and quality assurance. Platforms depend on a set of core technologies that is assembled and managed by the orchestrator and enabled by infrastructure providers, component suppliers and other IP providers. These technologies include: appropriate API strategies (that are intrinsically linked to business strategy); supporting technical architectures; access to key data assets; and robust analytics. Specific components of platforms are themselves built on various platforms, including cloud, security, insight generation (including machine learning), mobile, IoT, and emerging artificial-intelligence platforms.

As technological complexity increases, rapid and easy integration into the platform becomes ever more important.

When developing their technical architecture, enterprises should focus on a modular, service-oriented approach. The clear definition of interface standards and partitioning to manage the complexity between stakeholders will be important enablers of this approach. Actors participating in multiple platform ecosystems in different roles will face the difficulty of integrating into different platforms simultaneously, which brings real cost and implementation challenges. The easier the orchestrator and infrastructure providers can make it to “plug and play” through common standards and integrated APIs, the more viable the entire ecosystem will be. By 2020, 75% of integration platforms are projected to automate integration between application APIs through machine learning.<sup>79</sup>

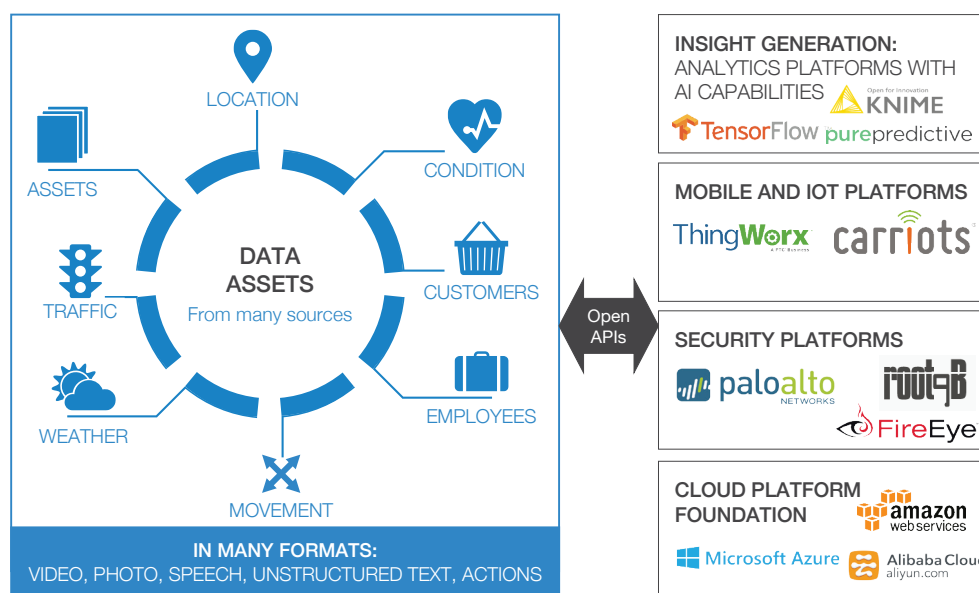
### Emerging technologies

As well as the array of mature networked-information technologies, DTI research has identified seven emerging technologies that are expected to fundamentally reshape business and society:

- Artificial intelligence
- Autonomous vehicles
- Big-data analytics and cloud
- Custom manufacturing and 3D printing
- Internet of things and connected devices
- Robots and drones
- Social media

These technologies are critical to digital transformation across industries. DTI research evaluated over 120 initiatives and determined that 51% of use cases deployed one or more of these seven technologies to either enable platforms or leverage platforms to deliver outcomes. Enterprises already find it challenging to keep their legacy IT and critical operational technology up to speed without having to consider the impact of these emerging technologies. The increasing need for technical fluency creates additional demands for IT and analytics organizations that are already working hard to keep up with technical demands.

**Figure 12: Common technical components of platforms**



# Platform Economy Imperatives

*As platforms emerge, so do the imperatives for business leaders and policy-makers who seek to realize their value to both industry and society.*

## Shared imperatives

### Shape platform strategy and business model

All business leaders and policy-makers should have a clearly articulated strategy for a platform-driven world. They must evaluate the ecosystem they wish to participate in, determine their value proposition, the role they want to play, and ensure that their business model allows them to fulfil this role. Consider:

- *Which emerging industry platforms will be critical to your success in the next three years?*
- *Will these platforms disintermediate your existing business model? If so, how will you respond?*
- *What is your strategy to stay on the leading edge of platform-driven change in key industries, including the emergence of disruptive platform actors?*

### Integrate talent and leadership

To be successful in the platform economy, business leaders and policy-makers must ensure that they have access to the proper talent. This means expanding the current talent pool, through reskilling or hiring external talent. Recognizing that the right talent may not sit within an organization's four walls and may be part of the extended workforce of on-demand workers will bring additional opportunities to partner. Finally, senior leadership must be incentivized to take appropriate risks in support of new opportunities. Consider:

- *What changes have you made to focus senior leadership on platform imperatives?*
- *How do you cultivate the workforce that is best suited to execute your platform strategy?*
- *How do you shift your talent strategies to target, acquire and retain employees with the right digital skills?*

### Foster new mindsets and behaviours

Developing a new mindset for approaching digital skills is a key imperative for both business leaders and policy-makers. A distinct class of specific platform skills that are different from digital skills has not emerged. Instead, traditional digital skills must be implemented using new mindsets. Consider:

- *How can you lead your organization to immerse key employees in leading-edge platform trends that enable competitiveness, innovation and the transition to new business models?*
- *What are the behaviours your key employees must adopt to achieve platform imperatives?*

### Activate ecosystem collaboration

Business leaders and policy-makers need to reinforce the importance of a collaborative approach and shift to an outcome-based mentality. To do this, they must develop a shared understanding of the rules that govern the ecosystem, shift to metrics that measure overall ecosystem output and acknowledge the different incentive structures among relevant stakeholders. Consider:

- *How can you learn key platform lessons from others (across industry and geography)?*
- *How do you help your entity find new ways to partner with industry leaders and policy-makers to drive positive outcomes for all participants?*
- *What auditable metrics will you use to gauge your performance – and that of the ecosystem?*

### Build data and technology capabilities

Business leaders and policy-makers should focus on preparing their technological infrastructure and processes to “plug and play” on industry-level platforms. For business leaders, this includes ensuring that the product or service inventory is consistently priced, distributed and fulfilled across platforms. For policy-makers it means ensuring that they acquire the infrastructure to collect and share data with industry actors. Consider:

- *How might emerging technologies impact your platform-driven business? Are there new opportunities to partner with these emerging technology enterprises?*
- *How ready is your corporate infrastructure to plug into industry platforms?*

## Actor-specific imperatives

Business leaders and policy-makers each have an imperative that falls solely on their shoulders. Business leaders will need to adjust their organizational structures, while policy-makers should focus on enhancing the regulatory environment for platform-based businesses.

### For business leaders: transform organizational structure

To achieve their platform goals, enterprises should ensure that their organizational structure is designed to accelerate collaboration. Consider:

- *What changes might you need to make to your organizational structure, or even physical environment, to fully foster new platform businesses?*
- *How do you foster small-company innovation and responsiveness within a large, complex business?*

## For policy-makers: establish consistent regulations

Consistent regulations simplify cross-border transactions and operations, ultimately allowing the full value at stake to be realized. Policy-makers should aim to establish predictable, enforceable and harmonized regulations across local, state and national boundaries. Consider:

- *How can you harmonize policies across national boundaries on critical issues of IP ownership, trademark and copyright regulation, data management and privacy considerations, and local taxation implications?*
- *How can you increase the predictability of the regulatory environment to support platform players seeking to create transformative digital experiences for all?*
- *How will you apply fair and consistent “rules of play” for new actors?*

To succeed, all stakeholders need to strengthen their commitment to collaboration and shift to an outcome-based mentality. A shared understanding of platform tensions and dynamics can serve to frame the challenges that must be collectively addressed. This understanding will enable the development of policy frameworks that are accountable, equitable, reliable and commercially sustainable.

To optimize multistakeholder collaboration, participants in a B2B platform ecosystem will need to agree on metrics that measure overall ecosystem output rather than just individual firm output. Arriving at shared understandings and metrics will require training and education for leaders of all types. Recognizing the knowledge gaps and the different incentive structures among relevant stakeholders, and using them to operate, is a key first step.

By focusing on these key imperatives, business leaders and policy-makers can proactively guide platforms to unlock the trillions of dollars in value at stake for society and industry. When focusing on these imperatives, the importance of collaboration across participants in the ecosystem cannot be overstated. Regulators and business leaders need to work together and ensure that their actions are harmonized to drive ecosystem value and that the promise of platforms is realized.

# Appendix:

## Value at Stake

DTI's "value at stake" methodology is an innovative approach to valuing the highly complex platform economy. The strategic intent of measuring the impact of platforms is to help inform global conversations on the evolution of platforms and to engage ecosystem participants in a sustainable and constructive dialogue. The methodology used in this report for forecasting the socio-economic impact of B2B platforms was derived from a larger analysis where the complex network dynamics and emergent nature of platforms were out of scope. This valuation is shared as an initial proof of concept to quantify the long-term impact of platforms. Directional in nature, the model provided in this report is conservative in its outlook and does not include the impact of platforms in several major industries, including healthcare and the public sector. Its primary intent is to raise awareness of the importance of measuring socio-economic value in a rigorous and reliable manner.

In that light, additional insights from the DTI analysis point to a number of areas for further investigation. Roughly half of the total value at stake for B2B platforms can be attributed to 10 digital initiatives.

Crowdsourcing in the logistics industry, for example, could create \$454 billion of value through B2B platforms by improving the low fleet capacity utilization rates caused by empty backhauls. B2B platforms are estimated to improve the utilization of smaller trucking companies by 20%.<sup>80</sup> Keychain Logistics is one such platform that connects companies to independent truck owners and operators.<sup>81</sup> Traditional logistics brokerage third parties are removed, companies can track where their goods are shipped and truckers can haul a full truckload more frequently. Truckers are also incentivized to give discounts to increase their capacity utilization, attracting more customers to the platform. Added societal value comes from reduced CO<sup>2</sup> emissions as fewer trucks complete the same number of jobs.











Although the \$10.1 trillion created or enabled by B2B platforms through to 2025 is split almost evenly between industry (\$5.1 trillion) and society (\$5.0 trillion), this is not always the case within individual initiatives. When an initiative's value to industry is similar to its value to society, it is unlikely that policy-maker intervention will be needed to realize societal benefits.

Consider, however, unaligned initiatives, which are defined by the DTI's Social Implications paper as initiatives whose value to society is significantly larger than their value to industry.<sup>82</sup>

Here, a combination of multistakeholder collaboration and incentives may be needed to realize the full value that B2B platforms offer. Figure 14 shows the 10 initiatives in which the value of B2B platforms is most skewed to society.











DTI research indicates that the excess societal value from digital B2B platform-enabled initiatives is \$3.3 trillion, equivalent to 31% of the total platform-enabled value at stake. For example, multimodal integration represents \$562 billion of excess societal value – the highest amount across more than 120 initiatives. Multimodal integration increases consumer access to transport. To achieve it, different transport platforms work together, integrating carpooling, ride sharing, subways, public bicycles and other modes of transport. Value to industry is created through revenue generated from subscriptions to the platform, but this value is offset by a decrease in vehicle sales and maintenance income for dealers and manufacturers. Significant value to society is created by reduced emissions, fewer accidents and deaths, and net benefits to consumers who no longer need to spend as much money on cars, fuel and parking. Regulatory intervention and robust incentives are required to establish the platform and create the surrounding ecosystem.

Figure 13: Top 10 industry initiatives for B2B platforms

INDUSTRY	INITIATIVE	Industry Value (2016-2025, \$ billion)	Total cumulative value at stake (\$ billion)	Total B2B platform value at stake (%)
 Logistics	<b>Analytics as a Service</b>	604	820	7%
 Consumer Industries	<b>Smart Supply Chains</b>	455	458	4%
 Logistics	<b>Crowdsourcing</b>	454	1,426	13%
 Consumer Industries	<b>Data as an Asset</b>	406	406	4%
 Telecom	<b>Integrated on IoT</b>	352	456	4%
 Logistics	<b>Logistics Control Towers</b>	263	346	3%
 Oil and Gas	<b>Advanced Analytics and Modeling</b>	214	263	2%
 Electricity	<b>Asset Performance Management</b>	194	280	3%
 Logistics	<b>Digitally Enhanced Cross Border Platform</b>	165	728	7%
 Telecom	<b>Outside 'In-novation'</b>	163	164	1%

Note: <sup>(1)</sup> Total Societal Value at Stake includes impact on the customers, society and environment. Impact on external industries has not been considered;  
Source: World Economic Forum, Accenture Analysis

Figure 14: Top 10 unaligned initiatives for B2B platforms

INDUSTRY	INITIATIVE	Excess societal value (2016-2025, \$ billion)
 Automotive	<b>Multimodal Integration</b>	562
 Logistics	<b>Crowdsourcing</b>	518
 Oil and Gas	<b>Consumer Energy Choices</b>	435
 Logistics	<b>Digitally Enhanced Cross Border Platform</b>	398
 Healthcare	<b>Connected Home</b>	331
 Healthcare	<b>Accessible Intelligence</b>	283
 Electricity	<b>Real-time Supply and Demand Platform</b>	216
 Consumer Industries	<b>E-Commerce</b>	213
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Note: <sup>(1)</sup> Total societal value at stake includes impact on the customers, society and environment. Impact on external industries has not been considered.  
Source: World Economic Forum / Accenture Analysis



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# Endnotes

- 1 Accenture, *G20 Young Entrepreneurs' Alliance Summit Report, Five Ways to Win with Digital Platforms*, 2016, p8
- 2 World Economic Forum, *Digital Transformation of Industries Demystifying Digital and Securing \$100 Trillion for Society and Industry by 2025*, 2016
- 3 IDC, *IDC Predicts the Emergence of "the DX Economy" in a Critical Period of Widespread Digital Transformation and Massive Scale Up of 3rd Platform Technologies in Every Industry* [Press release], 4 November 2015
- 4 Klöckner & Co SE Group. *Kloeckner metals*. <http://www.kloecknermetals.com/Who-we-are/Kloeckner-Co-SE-Group.aspx>
- 5 Digitalization for the Steel Industry. *Kloeckner.i*. <http://www.kloeckner-i.com/en/>
- 6 Digital Products for Steel Industry. *Kloeckner.i*. <http://www.kloeckner-i.com/en/products/>
- 7 Tiwana, Amrit. *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Elsevier Inc. 2014. Chapter 2: Core Concepts and Principles
- 8 Parker, G. Geoffrey, Marshall W. Van Alstyne, Sangeet Paul Choudary. *Platform Revolution*. W. W. Norton & Company Ltd 2016, Chapter 1: Welcome to the Platform Revolution; Chapter 2: The Power of the Platform; Chapter 3: Principles for Designing a Successful Platform
- 9 Johnson, Nick and Alex Moazed, *Modern Monopolies: What It Takes To Dominate the 21<sup>st</sup> Century Economy*. St. Martin's Press. 2016, Chapter 5
- 10 GE, Qantas- mining data for gold in Texas. *GE Australia, New Zealand and PNG*. <http://gereports.com.au/2016/10/06/ge-qantas-mining-data-for-gold-in-texas/>
- 11 Qantas Group and GE Aviation sign strategic Flight Efficiency Services agreement. *GE Aviation*. [http://www.geaviation.com/press/systems/systems\\_20150929.html](http://www.geaviation.com/press/systems/systems_20150929.html)
- 12 Parker, G. Geoffrey, Marshall W. Van Alstyne, Sangeet Paul Choudary. *Platform Revolution*. W. W. Norton & Company Ltd 2016, p69
- 13 Lacy, Peter, Moritz Hagenmueller, Jan Ising. *Platform Strategies: How the Rules of Competitiveness Have Changed in the Era of Ecosystems*. 2016. p5
- 14 "What is the Alexa Skills Kit?", *Amazon Developer*. <https://developer.amazon.com/alexa-skills-kit>
- 15 "Kintone Demonstrates First Enterprise Low-code App to Harness the Power of Amazon's Alexa Voice Services for Creating Automated Business Workflows at AWS." PRWeb, 18 December 2016, <http://www.prweb.com/releases/2016/11/prweb13883254.htm>
- 16 KPCB Internet Trends 2016, p129
- 17 <http://www.cio.com/article/3145416/cloud-computing/new-partner-programs-for-aws-are-aimed-at-growing-alexa-iot-and-more.html>
- 18 Higbie, Pat. "Alexa is Growing Fast. Are You Missing It?". *AXPP Media*. <https://xappmedia.com/alexa-growing-fast/>
- 19 Accenture, *Technology Vision 2016 "People First: The Primacy of People in a Digital World,"* 2016, p40
- 20 World Economic Forum, *Digital Transformation of Industries: Digital Enterprise*, 2016, p36. <http://reports.weforum.org/digital-transformation-of-industries/wp-content/blogs.dir/94/mp/files/pages/files/digital-enterprise-narrative-final-january-2016.pdf>
- 21 Accenture, *Technology Vision 2016 "People First: The Primacy of People in a Digital World,"* 2016, p58
- 22 Cisco, *Cisco 2016 Annual Security Report*, 2016, p6
- 23 Cisco, *Cisco 2016 Annual Security Report*, 2016, p57
- 24 "Cybersecurity Economic Predictions: 2017 to 2021," Cybersecurity Ventures, 16 October 2016. <http://cybersecurity.com/cybercrime-infographic/>
- 25 <https://www.weforum.org/focus/the-fourth-industrial-revolution>
- 26 Mlot, Stephanie, "GM's OnStar Go Puts IBM Watson in Cars", *PC*, 26 October 2016, <http://www.pcmag.com/news/349051/gms-onstar-go-puts-ibm-watson-in-cars>
- 27 Muller, Joann, "General Motors and IBM's Watson Aim To Make Your Life Easier (And A Tad Creepier)", *Forbes*, 26 October 2016, <http://www.forbes.com/sites/joannmuller/2016/10/26/general-motors-ibms-watson-aim-to-make-your-life-easier-and-a-tad-creepier/>
- 28 Chen, Le, et al. An Empirical Analysis of Algorithmic Pricing on Amazon Marketplace. 11-15 April 2016. <https://www.justice.gov/opa/pr/former-e-commerce-executive-charged-price-fixing-antitrust-divisions-first-online-marketplace>
- 29 "Why sterling suffered a "flash crash"", *The Economist*, 15 October 2016, <http://www.economist.com/news/finance-and-economics/21708673-pounds-weakness-vote-no-confidence-brexiting-britain-why-sterling>
- 30 Ismail, Netty, Lukanyo Mnyanda, "Flash Crash of the Pound Baffles Traders with Algorithms Being Blamed", *Bloomberg*, 7 October 2016, <https://www.bloomberg.com/news/articles/2016-10-06/pound-plunges-6-1-percent-in-biggest-drop-since-bexit-result>
- 31 "Former E-Commerce Executive Charged with Price Fixing in the Antitrust Division's First Online Marketplace Prosecution", *The United States Department of Justice*, 6 April 2015, <https://www.justice.gov/opa/pr/former-e-commerce-executive-charged-price-fixing-antitrust-divisions-first-online-marketplace>
- 32 Barocas, Solon, and Andrew Selbst, *"Big Data's Disparate Impact"*, 2016, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2477899](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2477899).
- 33 Ebay, Inc., *Enabling Traders to Enter and Grow On the Global Stage*, 2012, p4
- 34 Quantifying the Cost of Forced Localization, *Leviathan Security Group*, p3 2015. <http://static1.squarespace.com/static/556340e4b0869396f21099/t/559dad76e4b0899d97726a8b/1436396918881/Quantifying+the+Cost+of+Forced+Localization.pdf>
- 35 Judge, Peter. "Microsoft puts Deutsche Telekom in charge of German Data". *Data Center Dynamics*. 12 November 2015. <http://www.datacenterdynamics.com/content-tracks/colo-cloud/microsoft-puts-deutsche-telekom-in-charge-of-german-data/95200.full> article
- 36 "Deutsche Telekom to act as Data Trustee Microsoft Cloud in Germany". *Deutsche Telekom AG*. 11 November 2015. <https://www.telekom.com/en/media/media-information/archive/deutsche-telekom-to-act-as-data-trustee-for-microsoft-cloud-in-germany-362074>
- 37 "Herfindahl-Hirschman Index", *The United States Department of Justice*, <https://www.justice.gov/atr/herfindahl-hirschman-index>
- 38 Davis, Wendy. "Bazaarvoice Merger With PowerReviews Ruled Anticompetitive", *MediaPost Online Media Daily*, 13 January 2014, <http://www.mediapost.com/publications/article/217261/bazaarvoice-merger-with-powerreviews-ruled-anticom.html>
- 39 "Introduction to SWIFT", *SWIFT*, <https://www.swift.com/about-us/discover-swift>
- 40 "How to Disrupt Yourself", *World Economic Forum*, <http://reports.weforum.org/digital-transformation-of-industries/how-to-disrupt-yourself/>
- 41 "How to Disrupt Yourself", *World Economic Forum*, <http://reports.weforum.org/digital-transformation-of-industries/how-to-disrupt-yourself/>
- 42 Estopace, Eden. "Rakuten Confirms Acquisition of Ebates for \$1 Billion". *Enterprise Innovation*. September 2014. [http://www.enterpriseinnovation.net/article/rakuten-confirms-acquisition-ebates-1971640875?qt-most\\_read\\_node\\_recommend=0](http://www.enterpriseinnovation.net/article/rakuten-confirms-acquisition-ebates-1971640875?qt-most_read_node_recommend=0)
- 43 "How Ebates Converts 20-40% of Its First-time Visitors into Email Sign-ups". *Marketing Sherpa*. 26 February 2004. <http://www.marketingsherpa.com/article/how-to/how-ebates-converts-2040-its>
- 44 *Flexe The Marketplace for Warehouse Space*. <https://www.flexe.com/>
- 45 "Flexe raises \$14.5M for on-demand warehousing marketplace." *Flexe*. <http://www.geekwire.com/2016/flexe-raises-14-5m-demand-warehousing-marketplace/>
- 46 "Company Overview of Carbon3D, Inc." *Bloomberg*. 18 December 2016. <http://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=288612314>
- 47 Griffiths, Laura. "A Closer Look at Carbon's M1 Clip 3D Printer". *tct*. 4 May 2016. <http://www.tctmagazine.com/tctblogs/laura-griffiths-blog/carbon-m1-clip-3d-printer/>
- 48 Gartner. Predicts 2017- Licensing, Legal and Language Lessons for Data and Analytics Leaders. 2017
- 49 IDC. IDC FutureScape: Worldwide CIO Agenda 2017 Predictions. 2017
- 50 O'Brien, Brendan. "3 IoT Monetization Strategies for Savvy B2B". *Connected World*. <https://connectedworld.com/3-iot-monetization-strategies-for-savvy-b2b/>

- 51 Bedord, Laurie. "Farmobile Helps Minnesota Farmer's Monetize Data". *Successful Farming at Agriculture.com*. 8 April 2016. <http://www.agriculture.com/content/farmobile-helps-minnesota-farmers-monetize-data>
- 52 Oransky, Ivan. "Entresto: A Case Study in Value-Based Pricing?" *MedPage Today*. 4 March 2016 <http://www.medpagetoday.com/cardiology/chf/56545>
- 53 Staton, Tracy, "Most U.S. payers are eyeing outcomes-based drug pricing: Report", *FiercePharma*, <http://www.fiercepharma.com/pharma/most-u-s-payers-are-eyeing-outcomes-based-drug-pricing-report>
- 54 Tiwana, Amrit. *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Elsevier Inc. 2014, p158
- 55 Nudd, Tim, "Amazon Made More Than a Hundred 10-Second Ads Asking Alexa the Funniest Things", *Adweek*, 5 October 2016, <http://www.adweek.com/adfreak/amazon-made-more-hundred-10-second-ads-asking-echo-funniest-things-173901>
- 56 Mac, Ryan, "Amazon Puts Money Where Mouth Is with \$100 Million For Echo and Voice Developers", *Forbes*, 25 June 2015, <http://www.forbes.com/sites/ryanmac/2015/06/25/amazon-puts-money-where-mouth-is-with-100-million-for-echo-and-voice-developers/#31d3dc3e261f>
- 57 Grow Asia, "mFarmer. A Common Platform for Smallholders", YouTube, 20 January 2017
- 58 mFarmer FAQs. *Grow Asia*. <http://exchange.growasia.org/mfarmer-%E2%80%93-common-platform-smallholders-faqs>
- 59 Lacy, Peter, Moritz Hagenmueller, Jan Ising. *Platform strategies: How the Rules of Competitiveness Have Changed in the Era of Ecosystems*. 2016. p4
- 60 Gawer, Annabelle and Michael Cusumano, "How Companies Become Platform Leaders", *MIT Sloan Management Review*. 1 January 2008, <http://sloanreview.mit.edu/article/how-companies-become-platform-leaders/>
- 61 Tiwana, Amrit. *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Elsevier Inc. 2014. pp50, 52
- 62 Marek, Sue, "GE's Predix IoT Platform Attracts Developers", *SDxCentral*, 23 June 2016, <https://www.sdxcentral.com/articles/news/ges-predix-iot-platform-attracts-developers/2016/06/>
- 63 "About Open Connectivity", *Connectivity Foundation*, <https://openconnectivity.org/about>
- 64 "About Organicity", *Organicity*, <http://organicity.eu/about/>
- 65 "Meet the Experimenters in London", *Organicity*, 8 November 2016, <http://organicity.eu/blog/meet-the-experimenters-in-london/>
- 66 "GE's Jeff Immelt on digitizing in the industrial space", *Mckinsey & Company*, October 2015. <http://www.mckinsey.com/business-functions/organization/our-insights/ges-jeff-immelt-on-digitizing-in-the-industrial-space>
- 67 Miller, Ron, "GE Predicts Predix Platform Will Generate \$6B In Revenue This Year", *TechCrunch*, 29 September 2015, <https://techcrunch.com/2015/09/29/ge-predicts-predix-platform-will-generate-6b-in-revenue-this-year/>
- 68 Miller, Ron, "GE Predicts Predix Platform Will Generate \$6B In Revenue This Year", *TechCrunch*, 29 September 2015, <https://techcrunch.com/2015/09/29/ge-predicts-predix-platform-will-generate-6b-in-revenue-this-year/>
- 69 Gartner, Must-Have Roles for Data and Analytics, 2017
- 70 Accenture Tech Vision 2017, (Chapter: Talent Marketplace) To be published Tech Vision, 2017
- 71 Accenture Tech Vision 2017, (Chapter: Talent Marketplace) To be published Tech Vision, 2017
- 72 Accenture and the Massachusetts Institute of Technology. *High Performance Analytics Study*. June 2014
- 73 Kress, Gerhard, *MIT Webinar*, 26 April 2016
- 74 IDC predicts data-driven organizations to achieve extra USD65 billion in productivity benefits by 2020 <https://www.idc.com/getdoc.jsp?containerId=prAP40943216>
- 75 <https://www.forbes.com/sites/kalevleetau/2016/10/12/geofeedia-is-just-the-tip-of-the-iceberg-the-era-of-social-surveillance/#4b0fbf6c5b90>
- 76 Forbes, Zoey, "EU-US Privacy Shield: an end to uncertainty?", *King & Wood Mallesons*, 19 July 2016, <http://www.kwm.com/en/us/knowledge/insights/eu-us-privacy-shield-an-end-to-uncertainty-20160719>
- 77 Galdles, Peter, "A Summary of the EU General Data Protection Regulation", *DataIQ*, 14 January 2016, <http://www.dataiq.co.uk/blog/summary-eu-general-data-protection-regulation>
- 78 "EU General Data Protection Regulation Finally Adopted", *Hunton & Williams*, 14 April 2016, <https://www.huntonprivacyblog.com/2016/04/14/eu-general-data-protection-regulation-finally-adopted/>
- 79 Gartner. Predicts 2017- Pervasive Integration is getting ready for prime time. 2017
- 80 World Economic Forum, *Digital Transformation of Industries: Logistics Industry*, 2016, p19
- 81 "Key Chain Logistic", *Crunch Base*, <https://www.crunchbase.com/organization/keychain-logistics#/entity>
- 82 World Economic Forum, *Digital Transformation of Industries: Societal Implications*, 2016, p11





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