

David
Moschella

seeing Digital

a visual guide to the
INDUSTRIES,
ORGANIZATIONS
& CAREERS
of the

2020_s

Preview Sample

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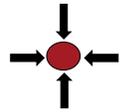
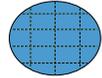
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Chapter 4

Becoming a platform organization

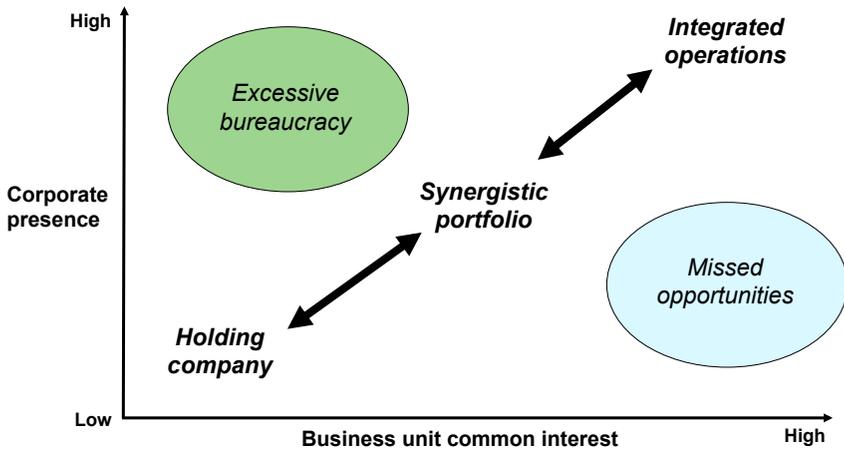
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In this chapter, we will explain why the term 'platform' has become so popular in business today. For decades, the computer industry has been grounded in a platform-based approach, with one technology innovation built upon another to enable continual improvement and evolution. But now that traditional businesses must increasingly become 'digital first,' platform thinking – and its associated designs and economics – is reshaping industry and organizational strategies in just about every business sector. In many ways, the Matrix can be seen as a vast web of interlocking platforms.

Large corporations seek the optimal level of business integration



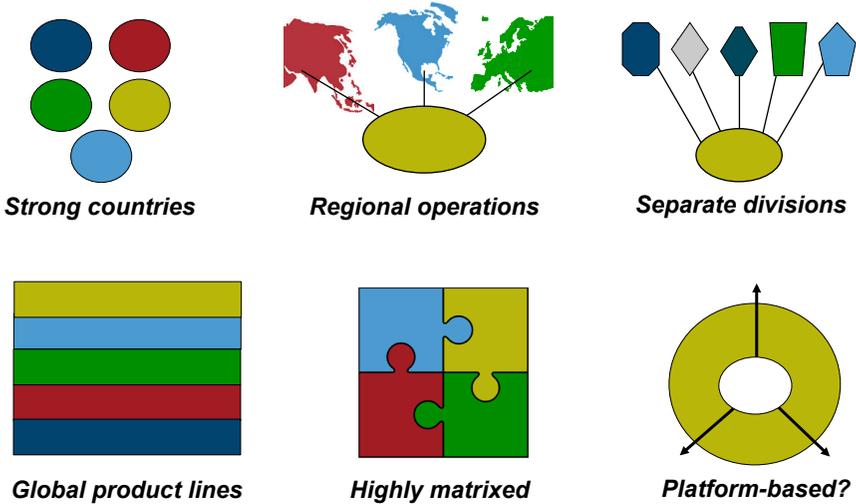
Once businesses grow and start to expand into new areas, they typically face some basic organizational questions. Do they want to be mostly centralized or decentralized? Should business units be synergistic or independently accountable?

Optimal company structures fall somewhere along the diagonal line shown in the figure. Too much corporate presence, and the firm will become overly bureaucratized; too little, and synergies and/or efficiencies can easily be lost. Diversified multinational firms have sought such optimization since their earliest days.

But although the challenge isn't new, this model still reveals a lot about the technology industry today. For example, when Google set up its Alphabet holding company in 2015, it was acknowledging that while there are strong synergies between its search, email, and YouTube businesses, the company's efforts in (for example) Nest appliances, self-driving cars, and life sciences are much less synergistic. In contrast, Apple continually seeks to leverage the many hardware and software synergies across its Macs, smartphones, tablets, and watches.

Perhaps the most interesting situation today is Amazon's. As a company, Amazon seeks to disrupt existing industries, and thus it often competes directly with traditional firms, most of which are also major customers of Amazon's AWS cloud computing unit. This underlying conflict of interest has often led to speculation that AWS may eventually become a more independent entity. We'll see. Amazon, like every company, must think through its optimal *operating model* approach.

Optimizing global integration is usually even more challenging



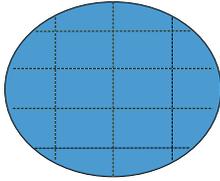
These centralization/decentralization decisions get more complicated as companies expand globally. For example, even if business units have relatively little in common, does it really make sense for every country to set up its own sales, marketing, and administrative systems?

Such dilemmas have challenged multinational firms for as long as they have existed, with the responses evolving steadily over the years. For example, before modern computing and telecommunications, large corporations often had very strong single-country operations, with *country managers* very powerful and living large. But as markets globalized and competition intensified, many firms opted for more streamlined regional and/or global product line strategies, seeking to sell the same product in the same way all around the world, significantly reducing local autonomy.

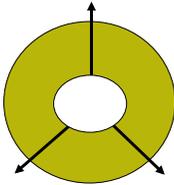
More recently, the need to leverage local capabilities, comply with local regulations, and be perceived as good local citizens has led many firms to set up substantial operations in many countries, relying on complex *matrix management* structures. This approach has been further strengthened by the rise of China, India, and other large national markets where robust country operations are once again seen as the best way to address unique local characteristics.

Not surprisingly, the resulting multinational structures have become highly complex. In response, many companies are now asking if *digital platforms* can bypass these challenges and provide the synergy, simplicity, collaboration, and responsiveness they seek. As expanded upon in this chapter, this seems the most likely path forward.

Technology and organizations are merging into ‘platforms’



Integrated solutions

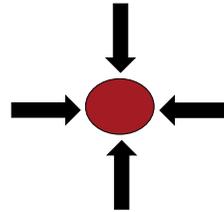


Digital platforms

“Platform:
a raised, level
surface on which
people or things
can stand”



Focused specialists



Co-creation platforms

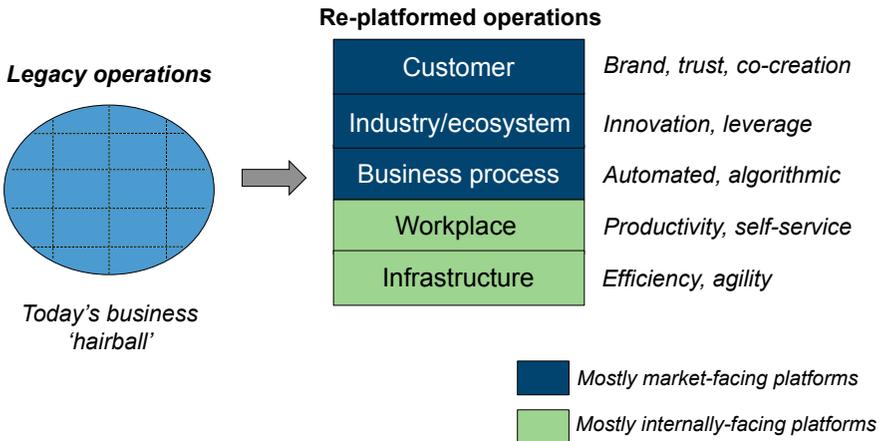
For over a century, business thinkers have speculated about the structure of industries and the subsequent ‘nature of the firm.’ During the pre-internet era, two models dominated: vertical (linear) integration and horizontal specialization. The former is optimized for an integrated customer solution, say an IBM mainframe or an Apple Mac, where the hardware, software, and support all come from one firm; as opposed to the latter, where for example in Windows PCs, the microprocessors, disk drives, software, and displays come from specialized suppliers, optimizing *innovation*, *scale*, and *efficiency*.

Today’s *digital platforms* challenge both of these models in two main ways. First, as we shall see, digital platforms, like today’s Matrix leaders, can be optimized for integrated solutions and specialized efficiency at the *same time*, long thought to be impossible. More pointedly, as companies seek to become *digital first*, their technology platform and its underlying support organization can render the firm’s geographic structures increasingly subordinate – a potentially fundamental shift in organizational thinking.

In recent years, powerful *co-creation platforms* (also called *n-sided markets*) have also emerged. Consider that the value provided by (for example) Facebook, Uber, Airbnb, and LinkedIn comes primarily from the people using the service. We will show that this model, where the customer is the *means of production*, will be critical to the future of machine intelligence, open communities, blockchains, and the *human platform*.

Today, all four of the models above can be viewed as ‘platforms.’ Our outlook for each is assessed over the rest of this chapter.

Traditional organizations are seeking to *re-platform* their business



Within the corporate world today, the use of the word 'platform' has sharply increased. As always, the emergence of new language is telling us something. But what? We have distilled two main messages.

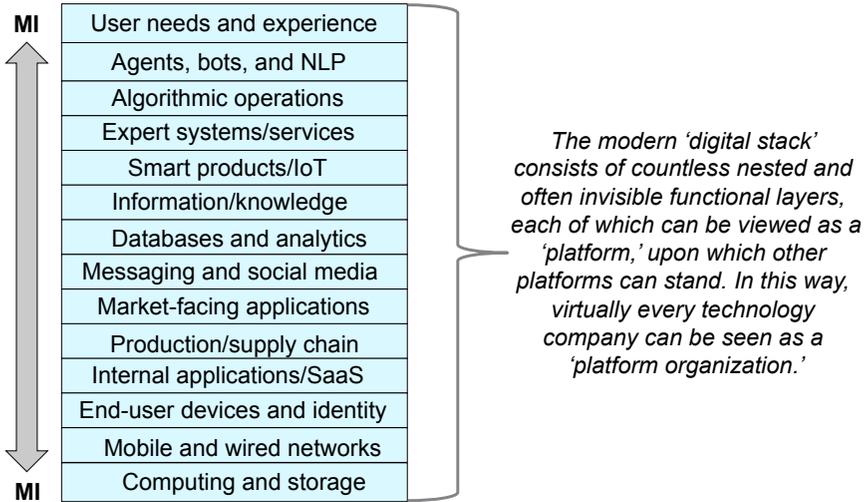
Most obviously, today's Matrix giants are often described as platforms, and who wouldn't want to be more like them? Thus, when traditional firms say they want to become *platform organizations*, they are subtly borrowing the tech leaders' cachet, while also implying that they want to become a similar *go-to* place for leadership and innovation within their ecosystem.

From a more internal perspective, traditional companies are often a dense 'hairball' of complexity, with many overlapping systems, applications, and security processes. Here, the desire for digital platforms – and *re-platforming* – is really a call for simplicity and a more intuitive, Amazon-like user experience. Again, who wouldn't want this?

Both motives are built into the figure above. Internally, enterprise IT seeks to provide efficient self-service infrastructure and workplace platforms. Externally, business units and senior leadership want more robust, software-defined processes, as well as the ability to shape the industry and customer platforms of the future.

Taken together, becoming a *go-to* place for innovation, providing a *simplified* customer experience, and becoming a true *digital-first* organization is a pretty good working definition of what most traditional firms mean by *digital transformation*. But while these words are easy to say, the technical and cultural challenges are often formidable.

The computer industry runs on layers of 'horizontal' platforms



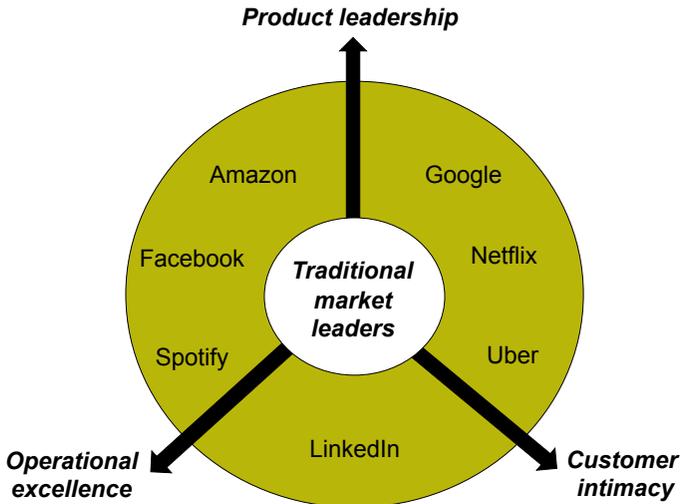
Inside the IT industry, the word 'platform' has long been used to describe just about any technology product or service that others can build on top of, including microprocessors, PCs, operating systems, servers, databases, software applications, web sites, eCommerce systems, smartphones, apps, social media services, IoT devices, application programming interfaces, intranets, wikis, collaboration software, open source code repositories, smart watches, VR/AR headsets, and more.

It's actually hard to think of an IT product or service that isn't designed to work or operate as a platform in one way or another. As suggested by the figure above, modern computer systems consist of layered and interoperable stacks of often-invisible capabilities, with each layer being constantly improved, commoditized or re-invented. This specialized, layered thinking has been built into the very heart of internet/web/cloud/Matrix designs and evolution.

In this sense, platform mindsets, designs, and architectures are more naturally aligned with horizontal IT industry structures than more vertically integrated traditional approaches, and this explains why many IT suppliers intuitively see themselves as platforms, while traditional firms feel the need to undergo complex transformation and *re-platforming* initiatives.

In short, technology firms have always used the word 'platform' because that's who they are and how they operate. Pre-digital firms have adopted the word 'platform' because that's what they hope to become. Taken together, platform thinking is now both the language and the design model of the modern digital marketplace.

Digital platforms bypass the traditional *value discipline* trade-offs



While specialization has always been an important business dynamic, digital specialization can be quite different from the specialization in (for example) the automobile industry, where every aspect of the modern car – tires, batteries, radios, fuel, services – is its own competitive marketplace.

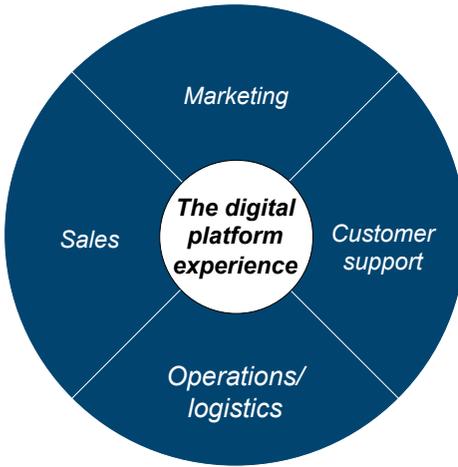
This difference is depicted in the figure above. In 1995, Michael Treacy and Fred Wiersema argued that companies could excel in one of three areas – *product leadership* (PL), *operational efficiency* (OE), or *customer intimacy* (CI)⁶. Strategically, they needed to choose which discipline to focus on, and then be competitive in the other two.

This thinking made great sense in the pre-digital age – with Sony (PL), McDonald’s (OE), and the Ritz-Carlton (CI) serving as iconic examples of each approach. But the digital leaders shown in the figure typically excel in all three dimensions. For example, Amazon and Netflix have the widest product selection, the most efficient operations, and the most personalized customer experience in their respective markets.

Today’s digital giants can do this because they replace costly human services with scalable digital ones. (It’s another example of why we should use the term ‘services’ carefully, as the economics of human and online services are so fundamentally different.) This merger of the three value disciplines has further strengthened today’s *winner-take-all* tendencies. Where once there was room for three market leaders, now there is often just one. It’s a fundamental shift.

6. Michael Treacy and Fred Wiersema, *The Discipline of Market Leaders*, Perseus Books, 1995

A digital platform IS the customer and/or user experience (CX/UX)



The digital CX/UX experience

1. *Real-time, 24x7 operations*
2. *Automated, self-service support*
3. *Personalized recommendations*
4. *Ratings/reviews*
5. *Detailed account histories*
6. *Location awareness, tracking*
7. *Process and price transparency*
8. *Customization, co-creation*
9. *Community, ecosystem content*
10. *Global consistency*

Even within traditional firms, the boundaries between sales, marketing, delivery, and customer support are often fuzzy; but on the internet, they typically vanish altogether, as everything happens through a single website or app. As suggested by the figure, the digital platform is inseparable from the customer and/or user experience (CX/UX), as it defines what the customer sees and does.

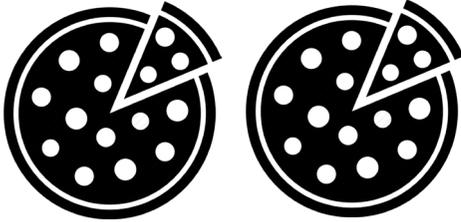
For example, is a movie recommendation from Netflix a sales pitch, a marketing campaign, or a form of customer service? Who really cares? Since on the web pretty much everything works in a self-service mode, similar functional overlaps exist in most of the areas listed in the figure. How many of us have talked to any sales, marketing, or support person at any of today's digital giants, even once?

It's hard to exaggerate how different this is from the situation in most traditional firms, where sales, marketing, service, and logistics have grown up as separately staffed functions, with their own charters and positions to consider. Who hasn't run up against these silos when calling (for example) their bank, airline, phone, or cable company and been shuffled from one confused, even if well-meaning, department to another?

As the digital boundaries between functions fade away, the way that companies develop new capabilities must also change. It's not a coincidence that today's digital leaders are embracing more collaborative and multi-functional software development processes, as discussed further on the next page.

Digital platforms require team-based development approaches

Amazon's two-pizza approach:



"Software development should be a collaborative, creative act"

- Team members are specialists, but collaborative
- Leaders are poly-skilled
- Teams self-manage and are collectively accountable
- Teams may eject members who can't fit in
- Teams use agile tools and APIs instead of traditional waterfall approach
- Advanced firms seek to hire whole teams

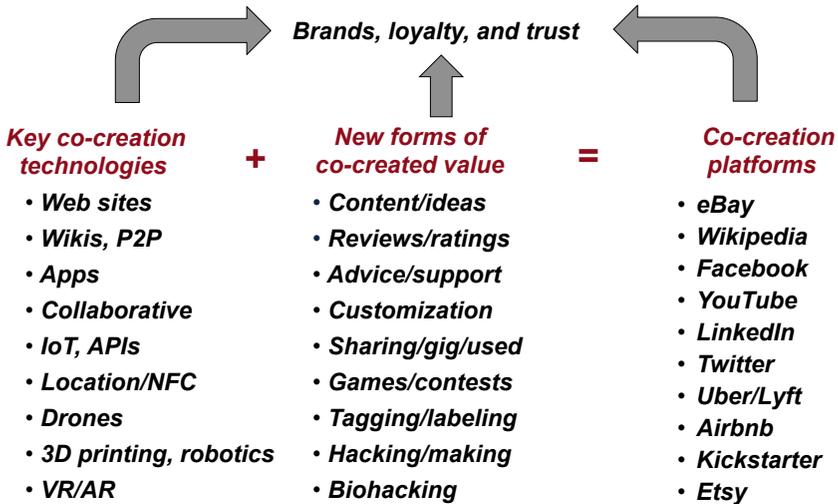
People often ask how Amazon keeps adding new services while maintaining such a consistent and intuitive customer experience. The company does many things well, but Amazon sets great store by its *two-pizza* development model. Its key product/service development teams should be able to feed themselves with a maximum of two pizzas (i.e. they should have no more than 12 people).

By setting up small, multi-functional teams, but also insisting on strict architectural discipline – mostly through web standards and APIs – Amazon has been able to sustain high rates of both innovation and integration, without any real burden on the customer.

But Amazon certainly isn't alone. The traditional *waterfall* approach (where business units hand over a fixed set of technology development specifications to enterprise IT) is being replaced by the team-based model shown in the figure. For example, we know a digital media company where editorial, design, IT, marketing, analytics, and customer experience professionals build apps as a single, collectively accountable unit.

The leaders of such teams typically need to be *poly-skilled* so that they can both manage and earn the trust of team members. And while poly-skilled people can be hard to come by, the need for them will only increase. As technology permeates every organization, more collaborative, platform-based development approaches will be embraced by digital-first and pre-digital firms alike.

Co-creation platforms harness the crowd and the customer



Many of the great digital platform successes – Apple, Amazon, Google, Microsoft, Netflix – are essentially *broadcast* in nature, in that the way one person uses these services isn't directly affected by the way that others do.

In contrast, *co-creation platforms*, while sharing many digital platform traits, differ in one fundamental way: the main value that these services provide comes mostly from other people using the service – examples include Facebook, Uber, eBay, Airbnb, and LinkedIn. This dynamic creates powerful *network effects* in that the more people who use the service, the more valuable it becomes. While we refer to this process of harnessing the knowledge, interests, and energies of the consumer as *co-creation*, other widely-used names include social platforms, peer-to-peer, the crowd, two-sided markets, n-sided markets, and the sharing economy.

As shown in the figure, there is an overall co-creation formula. It starts with a powerful and growing list of enabling technologies, which can be used to create the various forms of value shown in the middle of the figure. Those co-creation vendors, organizations, or other entities that can become the go-to place for bringing together these technologies and forms of value, tend to dominate their category, with strong brands and customer loyalty. Once again, it's mostly a winner-take-all pattern.

Today, we see significant co-creation potential in virtually every industry, and thus when companies talk about becoming a *platform organization*, it's important to keep this *customer-as-means-of-production* dimension in mind.

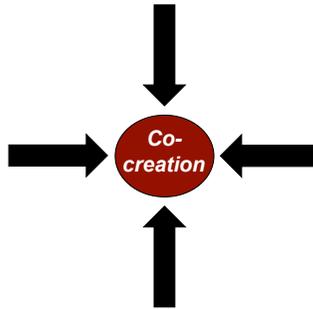
Expect important new co-creation platforms to steadily emerge

Aggregated data sets

- Genetic profiles
- Medical images
- Faces/voices
- Visual objects
- Activities

Community innovation

- Open source software
- Expertise/content
- Hackers/makers
- Robotics/IoT
- Gamers/fans



Shared ledgers

- Asset tracking
- Land/rentals
- Patents/copyrights
- Coupons/loyalty
- Contracts/payments

The human platform

- Wearables
- AR/VR
- Biorhythms
- Brain interfaces
- Implants

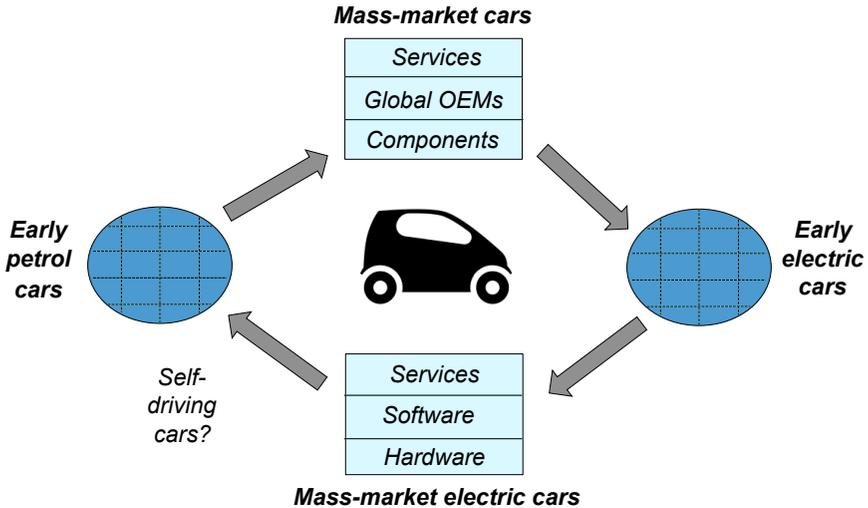
As described in Chapter 1, technology innovation tends to come in waves. During the web era (1993-2005), the emphasis was on email, search, browsing, and eCommerce, while the cloud era (2006-2016) saw the rise of mobility, social media, and the sharing economy. Since each previous era created important new companies and business models, it's only logical that the Matrix era will do the same.

Looking ahead, we believe that major new firms will emerge from the need to harness data and machine learning more effectively, and to better reward the social structures that underpin today's technology industry, as depicted above and explained below:

- Most MI capabilities/APIs will be based on a particular data set, and the companies that control such sets will have powerful market positions.
- Shared ledger systems will serve as the databases, payment systems, and legal platforms of the future, once again creating powerful new market players.
- We expect efforts to monetize at least some open source and other community projects, perhaps through digital tokens or initial coin offering (ICO) models.
- As will be discussed in Chapter 9, during the 2020s, innovation will increasingly shift to the *human platform*, augmenting both our brains and bodies.

Although these futures are still uncertain, co-creation thinking can help us see how new platforms might emerge over the course of the 2020s, as expanded upon in this chapter's final three pages.

Industry structures tend to run in cycles – the automobile example



As we will discuss in Chapter 10, markets are always evolving, and no business model is ever permanent. Indeed, many industry structures are cyclical. Initially, a certain amount of vertical integration is often needed to get a functional new product to market (for example, remember the first iPhone or iPod), but over time, markets tend to specialize, as the range of customer needs increases and each component becomes a sizable opportunity of its own. But eventually, the underlying technologies shift, and the cycle begins anew.

The automobile industry embodies this pattern. As shown in the figure, in its early years, the Ford Motor Company was highly integrated, with its own steel, rubber, and shipping capabilities. But over time, the auto industry came to rely on specialized global supply chains, with Ford and other car makers playing the role of final system integrator.

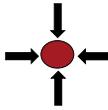
However, with electric cars, vertical integration has returned, as shown by Tesla's huge commitment to making batteries and other components. Looking ahead, we are confident that once electric cars go mainstream, specialized component markets will once again emerge. Similarly, today's prototype self-driving vehicles require closely integrated capabilities, but these could easily separate into specialized hardware, software, and services if and when autonomous vehicles become a mainstream market.

Thus different markets tend to be in different stages of evolution, with newer models/structures/platforms emerging as older ones mature. Looking ahead, we expect many new technology platforms to emerge, as described on the next page.

Which models will underpin the technology platforms of the 2020s?

Business-centric

- *Internet of things*
- *3D printing*
- *Robotics*
- *Shared ledgers*
- *Digital cash/tokens*
- *Drones*
- *Precision farming*
- *Printed electronics*
- *Autonomous vehicles*
- *Quantum computers*



Human-centric

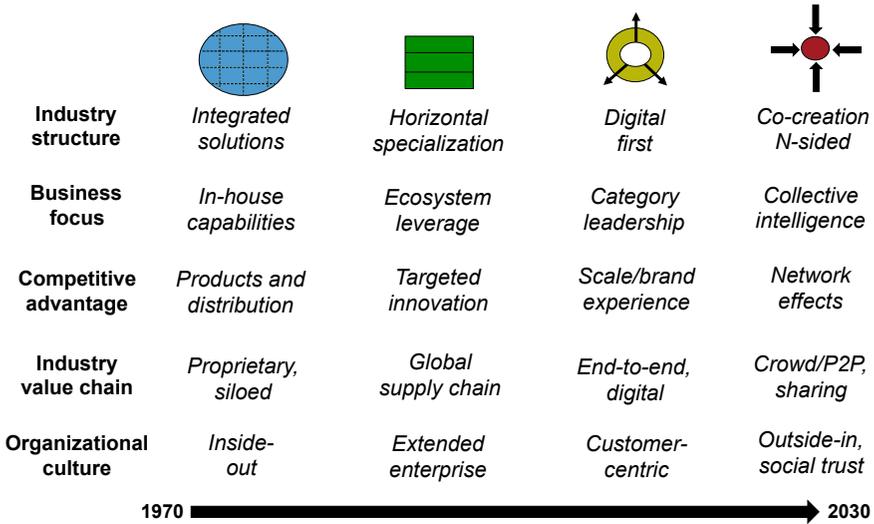
- *Wearables*
- *AR/VR*
- *Personalized learning*
- *Personalized medicine*
- *Genetic profiles*
- *Brain interfaces*
- *Emotion analytics*
- *Synthetic food*
- *Implants/prosthetics*
- *Biorhythms*

We will discuss in Chapter 11 how the media is often pessimistic about the digital future. But since we expect a great many new industries to emerge, and with them great opportunities and careers, we mostly disagree. While each of the areas above – and many others – are complex topics, we think the platform models described in this chapter can help us think about how each of these areas might evolve. For example, for each technology we might want to ask ourselves:

- To reach critical mass, does this technology need important innovation on multiple fronts – say in devices, software, and initial applications? If so, a vertically integrated iPod/iTunes/Tesla-like model might be needed.
- Is there an existing market or ecosystem that a new technology can naturally fit into? If so, a specialized, horizontal focus should generally work best.
- Is this an area that doesn't really require the adoption of new devices or any form of direct human support? If so, this market will likely follow the digital-first model.
- Is this market dependent upon collecting data in some new way or harnessing the knowledge and energy of a particular community? If so, then some sort of co-creation dynamic will likely be needed.

As we will discuss in Chapter 10, while the future is often unknowable, there are things we can do to recognize and even anticipate the likely nature of change.

An expanding range of business paradigms – 1970-2030



As we have discussed, the business, organizational, and technology models used in the digital world today can be viewed as *platforms*, as new capabilities are continually built on top of one another. The figure above shows the four main models we have identified and describes how each platform type has emerged over time.

It's important to keep in mind that the older eras don't go away, and having businesses at different stages of maturity is entirely normal. However, there is a distinct and ongoing shift in society's economic center of gravity as the digital and co-creation models enable the most potent new players, and as traditional firms seek to apply these models within their sectors. In general, the market is evolving from left to right.

Looking ahead, we expect further platform innovation, as companies build focused data sets to enable advanced machine learning; as blockchain-type technologies enable data to be aggregated, shared, and leveraged in new ways; as open communities experiment with new forms of monetization; and perhaps most powerfully, as the ability of technology to enhance *the human platform* becomes increasingly compelling. Technology progress always builds upon itself.

But as impressive as all of these developments will be, they too will be platforms upon which future value will be built. Since we all stand on the shoulders of those before us, don't expect the use of the word 'platform' to go away anytime soon.