ERICSSON

DIGITAL DISRUPTORS
MODELS OF DIGITAL OPERATIONS

PART 2/3
DIGITAL BUSINESS TRANSFORMATION

PREFACE

This series of reports on Digital Business Transformation provides insights into how new and established businesses are responding to some of the major technology-driven trends that are reconfiguring the global marketplace. The methods consist of extensive qualitative analysis including:

> A series of in-depth interviews with 71 business executives from a range of industries including, among others, finance, retail, manufacturing, media and digital services, as well as with professors from leading business schools.

> Secondary research analysis from sources such as OECD Internet Economy Outlook, MIT Sloan Management and other research institutes, Wired Magazine and other publications on digital transformation, a number of blogs and websites on the digital economy and homepages of digital companies.

The report series consists of three parts examining, respectively: the technology-driven macrotrends disrupting conventional business logics; the operating models of new digital enterprises; and the strategies and logics of traditional businesses undergoing various stages of digital transformation. Under the banner heading Digital Business Transformation, these reports are published consecutively under the following titles:

1. **The Disruption of Industry Logics**
2. **Models of Digital Operations**
3. **Traditionals in Transformation**

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EXECUTIVE SUMMARY

Given the remarkable shifts now taking place, sooner or later most business leaders will be faced with the billion-dollar question: How do you model and organize a business for a digitally transformed market?

Admittedly, the answer to this will change from market to market, product to product, and even month to month. There are, however, a number of successful digital operations currently reshaping the global marketplace, most of which have integrated into their strategies the changing business logics outlined in the first report in this series: The Disruption of Industry Logics.

To examine some of these disruptive business practices more closely, we've interviewed executives across a range of industries, from finance and human resources to online retail and automotive manufacturing. Their insights give rise to a fundamentally different picture of the 21st-century enterprise, the nature of which we examine within four organizational frameworks:

1. The Organizational Core, in which business leaders explain the new management strategies, business cultures and technological capabilities needed to organize for markets in a constant state of change.

2. Production, which examines the wide range of production resources that are moving outside the organizational structure, from on-demand manufacturing capacity to crowdsourced designs and open innovation models.

3. Business Models, which explores how traditional business models are giving way to versatile technology platforms, open marketplaces and networked company structures.

4. Market Approach, in which user-centric ecosystems create demand for innovative approaches to content distribution, requiring businesses to adopt multiple business models aimed at eliminating friction across a range of contexts and user experiences.

To conclude, we summarize how these business practices are dramatically redefining current conceptions of core business assets and core competencies, and outline the next wave of technological innovations that are set to further revolutionize business practices in the years ahead.

BUSINESS PRACTICES FOR DIGITAL MARKETS

"Today's fastest growing, most profoundly impactful companies are using a completely different operating model. These companies are lean, mean, learning machines. They have an intense bias to action and a tolerance for risk, expressed through frequent experimentation and relentless product iteration. They hack together products and services, test them, and improve them, while their legacy competition edits PowerPoint."

– Aaron Dignan[1]

Sowing the seeds of disruption

The current generation of entrepreneurs is unlike any other. Empowered by digital technologies and unencumbered by legacy structures, they are unleashing fundamentally new business practices at a pace that was almost unthinkable just a couple of decades ago: launching unfinished products for direct user input; sourcing complex engineering designs from complete industry outsiders; spinning off technology platforms across multiple industries; and inventing new business models and monetization strategies all along the way.

Despite their fast pace, many of these digital disruptors are focused on very long-term strategies. Innovative by nature, they are striving to revolutionize entire market categories with a product, service or platform that leaves competitors no choice but to collaborate or be left behind. Larger incumbents, meanwhile, are under pressure to perform from quarter to quarter, in many cases becoming increasingly shortsighted and more distant from the end user's needs.

A more agile organization emerges

As new forms of digital operations gain traction, a successful few are creating more responsive and resilient organizational models that are built to dominate the digital age. Only by analyzing and drawing on these examples can business leaders effectively assess the readiness of their business for tomorrow's digitally transformed landscape.

Through a series of interviews with a range of executives leading this transformation, this report aims to provide just such a framework for discussion. Its examples, though necessarily selective, serve to illustrate the broad value shifts now taking place – from core business cultures on through to diversification of products, services and pricing strategies.

[1] Dignan, Aaron. The Operating Model That is Eating the World, 2013.

1.1 DIGERATI CULTURE

"We work hard, we are profitable, we have a solid business, and we believe it's a marathon not a sprint. We provide everybody with a free gym membership. We cater in lunch and dinner for free every day. We have unlimited vacation. We don't track time – it's all about the output. We don't really worry about the input, it's more like: 'Are you delivering the results?' That's what matters, not procedures and policies."

– Steve Sarner, VP of Marketing at Tagged

Knowledge economy puts people first

Moore's law has upset the balance between people and technology. Every day, technology becomes more powerful and more affordable. Business infrastructure becomes more scalable. And production resources become more accessible. The result is that companies have become extremely efficient at producing physical and digital products, leaving markets flooded with cheap, commoditized choices. In such a marketplace, the true value has already shifted over to the knowledge economy, where people are no longer just one business asset among many. They are the asset – the innovators and creators who bring new ideas to the market.

Unlike traditional corporations, whose legacy business processes and internal structures often take priority over people, digital enterprises can't afford to take talent for granted. It's part of a broader cultural shift, and it's about far more than just attracting, developing and retaining the right technical talent. In a world of knowledge workers, the productivity, engagement and commitment to a shared vision of everyone involved with the organization are critical to a company's success.

In these "people first" companies, the organization's primary role is to constantly invest in the knowledge and well being of its people – including its outside community – whose unique talents and ideas become in some way tangible in the end product or service itself.

1. THE ORGANIZATIONAL CORE – DIGERATI CULTURE

"The input in a company is to an increasing degree people, which requires completely different things from management. I've seen that in knowledge-intensive sectors. They are difficult to govern. If you extrapolate, the traditional company controlled the means of production, the capital, the machines, the factories, etc., and a worker was just another input that could be replaced. When people become the primary input you cannot act like this anymore because you will lose your means of production if you lose your people. You have to be able to manage, develop and retain talent"

– Christian Sandström, Chalmers University of Technology

Leading by purpose

Naturally, productivity gains aren't the sole objective of an organization focused on its people. If this were the case, the conventional methods of perks, commissions or pension plans might be sufficient motivation for most employees. But creative capital is far less predictable. And great ideas demand far more flexibility than the typical corporate career ladder is able to provide. In a networked labor market, true innovators are drawn together not around a safety net, but something greater: a higher purpose around which the whole team can unite.

Mottos like Google's "Don't be evil" and Zappos' "Deliver happiness" are designed to resonate far beyond the corporate boardroom. Both address a larger purpose, an ethos that empowers the company's people and its end users. Of course, it's one thing to adopt these ideas as simple marketing taglines. But it's something altogether different to use them to guide an organization to achieve a greater vision, in which meaningful creative problem solving is elevated above micromanagement, quarterly profits and even the end product itself. More than just a corporate vision statement, a company's purpose should be a commit-

ment that is organically and transparently reflected in the business' culture and strategy – something digital startups are fortunate to be able to ensure from the very start.

Mission management

In addition to instilling a clear purpose, Robin Teigland of Stockholm School of Economics explains, today's business leader is heavily concentrated on assembling the work and product teams who will achieve it:

"I talk about leaders as assemblers. You find different parts that you can glue together. You continuously think about, 'What will happen if I put this and this together with this and this?' You think about connections and relationships."

1. THE ORGANIZATIONAL CORE – DIGERATI CULTURE

On an operational level, this means that digital companies are constantly engaged in mission management, finding the best solutions that allow teams to complete missions on their own terms. This gives employees a great deal of autonomy, which is natural for businesses involved in creative or digital work. Coders and designers, after all, need a broad range of creative freedom, and the ability to tackle missions, rather than tasks and checklists, allows them to contribute a value that is distinct from conventional measures of productivity.

Distributed organization

United by a common purpose and mission, a team of digitally connected workers is, at least in theory, free to collaborate from anywhere, at any time. Most obviously this manifests itself in distributed organizations that don't require all of their staff to clock in and out of the same office according to the same schedule. Whether this means working from home or from other outside locations, in the same city or spread across the globe, a very different style of organization emerges. For Matt Cooper at oDesk, the world's leading marketplace for freelancers, the advantages of a distributed organization are clearly worth the trade-offs of a dispersed workforce:

"There's no doubt that in many ways it's less efficient to have your team distributed, but the efficiencies you gain by being able to hire easily and paying global market rates, along with the ability to scale down more quickly, offset the fact that you're a little less efficient in your day-to-day interactions."

Digital communication and collaboration tools like Skype, Google Docs and various wikis only signal the beginning of the digital workspace. As cloud-based platforms and virtual presence technologies mature,

a richer online workspace is taking shape, enabling new forms of hands-on, face-to-face collaborations across time and space. Those who accept and experiment with new tools and formats of distributed work will be the first to reap the rewards of increased access to global talent.

Flat transparency

Finally, the culture at many digital companies is notable for its transparency of information. In most cases it is rare to restrict information to closed groups of people within the organization, employees are generally welcome to join any meetings they might feel are relevant to their projects, and decisions are communicated almost immediately throughout the organization. Since distinctions between staff and management are discouraged, management participates in the full range of day-to-day operations, thereby spreading their thinking openly through daily interactions. As Claes Tellander, head of press at Swedish digital payment service, Klarna, explains:

"We don't really have any hierarchies here. You can work here for two weeks without even knowing who's the manager or CEO. There are no exclusive rooms for anybody, and everyone works in the same fashion. It creates a certain atmosphere where the transparency is way higher."

This kind of flat transparency is a major factor in allowing employees at digital companies to easily relate to the business' visions and purpose-driven agendas. By working closely together in non-hierarchical teams, they remain tightly connected to the company's evolving strategy, without the need for heavy-handed corporate strategies that are otherwise handed down from above.

1.2 GOING TECH

"A lot of people would say that we're a finance company but I would say that we're an IT company working within finance."

– Alexander Widegren, Lånbyte

Technology as a strategy
As digital technologies are leveraged to meet a wider range of market demands, they become central to business models and are considered as a core – if not the primary – business asset. Even if, on its surface, a business might address the needs of the financial, transport or retail sectors, its key innovation is often based on a technology platform.

In many cases, this technological core results in companies with a split business vision that extends beyond their current category and market offering. The technology, which may initially be designed for a highly specific application, turns out to be agnostic, and can be applied in an endless number of other contexts.

"When you look at everything Google does there's a common thread that always has to do with our core competencies. Even with self-driving cars it's largely a computational problem. You have sensors, you have to make sense of data, and it's really complex data, which you need to understand."

– Pascal Finette, Google

1. THE ORGANIZATIONAL CORE – GOING TECH

Amazon has of course leveraged its online marketplace to dominate e-trade over an unprecedented range of retail categories. Zazzle has similarly diversified its production technology and platform into more than 200 product lines and ultimately aims to offer custom, on-demand manufacturing within any consumer goods category. Unlike in traditional economies, where a company's legacy dictates its area of business, digital markets make increasingly blurred market categories a foregone conclusion. This will increase the complexity of markets and pose a growing threat to traditional enterprises, which will need to consider new ways to model themselves as continuously evolving platforms.

The following examples illustrate some of the common features of the technology-driven enterprise:

Technical talent as a business-critical resource – All employees recognize technology strategies. Attracting and retaining talented engineers, developers, programmers and data analysts becomes central to business strategy.

Wider scope for CIOs and CTOs – Accessibility, searchability and maintaining high user ratings on digital platforms and marketplaces become critical to successful marketing. User experience design takes precedence over packaging and store design. Roles of CIO/CTO and CMO begin to merge.

Data-based cultures and strategies – In the digital space, entire business operations can be analyzed as a flow of data. This means not only collecting, monitoring and analyzing business data, but also organizing core business functions around key data points.

Digital working methods – Digital working tools are central to daily operations and a key part of employees' understanding of society's digital landscapes. For digital startup Wrapp, this means using only digital tools in everyday work: Facebook for intranet; Dropbox as a document server; Amazon as a cloud service platform; Google Docs, Calendar and Hangout; and Salesforce and LinkedIn for sales.

> "I think that companies in general have begun to realize that maybe their employees don't have to be business school graduates to succeed. Often, the people who can create new businesses and job opportunities are those with a technology background."
>
> – Martin Lewerth,
> Executive VP Cable Content
> & Digital Media, Millicom

1.3 ORGANIZING FOR CONSTANT CHANGE

"The difference in terms of innovation is speed. It's identifying that failure is okay, and failing fast. That's going to be a big change for organizations. And I think if you don't accept that, you're going to have a hard time following the game."

– Philip Petersen, Founder of Prehype

Technology in the driver's seat

Digital transformation puts technology at the forefront of an organization. And the one thing we know about technology is that it is constantly changing – at an accelerating speed. One way digital enterprises are organizing for this rapid change is by shifting towards a more agile product-focused model, a form of organization that prioritizes innovation, adaptation and iteration over traditional product cycles and elaborate in-house R&D strategies.

Since digital products can be perfected after launch, one way companies are becoming more responsive is to first release beta versions that encourage immediate user feedback. This type of "work-in-progress" launch, which few traditional manufacturers would ever have considered just a decade ago, has now become a mainstream strategy even for physical products, thanks in part to the popularity of crowdfunding sites like Kickstarter. Suddenly, it becomes possible to gauge market demand, adapt user interfaces and functionality, and involve end users in the process of co-creation even before full-scale production is under way. Steve Sarner, Vice President of Marketing at Tagged, explains how such an organization operates:

"There's the term fail fast, which we kind of believe in, where we put something out to one percent of the audience and we can gauge whether this has potential or not. If it doesn't, we move on. If it does, we take it to five percent, and we'll test different things. So we have a discipline of a lot of testing and finding things that actually work for people."

1. THE ORGANIZATIONAL CORE – ORGANIZING FOR CONSTANT CHANGE

Increasingly, this product focus takes precedence over the business model itself, the assumption being that if you build a great product there is always a way to monetize it later. While traditional entrepreneurs undergo years of business development, market research and round after round of venture capital funding, digital upstarts are free to experiment and create new markets almost overnight – provided they can meet funding rounds and monthly payroll. As Jessica Chan, business developer for Pulse at LinkedIn, says:

"In the beginning there really wasn't a monetization strategy until about early 2012. That's when we hired a gentleman from Facebook to help us map out what our monetization strategy was going to be."

From project to product organizations

Matrix-based project organizations have been the prevalent organizational model in recent decades. Typically, a project manager is appointed, team members and consultants are brought into the project, a pre-defined project roadmap is established, and a timeline with well-defined deliverables is set. Budgets, milestones and evaluations are set by a combination of internal management teams, reference groups, steering committees and financial departments that have set the project's scope in advance.

Although more flexible than its more hierarchical predecessors, the project organization has clear weaknesses in the digital space, where technology drives strategy and where market ecosystems and business networks prevail over the silos of individual projects. Tommy Jarnemark, head of business at TV4 Digital Media in Sweden, says:

"We have moved away from a traditional project-driven and project-oriented organization. […] Instead of having project managers we want someone who takes ownership of the whole production process. It's the kind of product management that Spotify is organized around. They have product owners who constantly work based on the overall change that's going on. And they're tightly connected to the technology and engineering side."

1. THE ORGANIZATIONAL CORE – ORGANIZING FOR CONSTANT CHANGE

The character of a product-based organization

Because a product organization is more atomized, it more easily "flows" into the overall market network and ecosystem. The atomized units of the organization can act more autonomously in the network, rather than co-ordinating all external interactions within the company hierarchy. If product teams operate more like startups than controlled and governed departments, they will also be more immersed in the world outside of the corporate boundaries. Each team can therefore adapt more quickly to external change, organically learning and creating new access points between the business and its customers and partners.

The following are some of the key features of today's product-based organizations:

Semi-autonomous product teams – Product teams, organized as semi-independent cells within the organization, can be liberated to function almost as startups, which either prove their value or are reintegrated into the organization.

Mandate to product owners – Product owners are empowered to follow their visions with a relatively free budget, engaging developers and designers without having to gain approval within traditional hierarchies. Accordingly, the CPO (Chief Product Officer) rises as one of the most important C-level functions in the organization.

Limited team sizes – Spotify, Netflix and Valve all allegedly organize around product, not project, teams. According to Aaron Dignan of Undercurrent, these teams should adhere to Amazon founder Jeff Bezos' two pizza rule, which states: If a team can't be fed on two pizzas, it's simply too big.

Constant iteration – An iterative loop of product development, testing, feedback and adaptation is key to any successful product team. Ideally this process continues even after market launch. Naturally, some products will die off, while others are continually refined.

Open development – When the product is in focus, anyone who has something relevant to say is encouraged to do so. One of the organization's primary functions is to incorporate feedback from all parties involved, and from the whole user base, into the development process.

User focus – To make inroads in the digital world, a product must be optimized for end users, based on direct user feedback. Most often, development is carried out by the product team itself, rather than by a separate R&D or market research function in the organization.

Innovative by default – Innovation, and therefore experimentation, is built into the culture and daily workflows of the company. Constant user feedback and product adaptation ensure that innovation arises organically.

"The trick is to stay focused on the product, all the time. The product has to be so good that everybody talks about it."

– Nami Zarringhalam, Truecaller

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1. THE ORGANIZATIONAL CORE – ORGANIZING FOR CONSTANT CHANGE

Three challenges with product organizations
Even though many organizations are moving more or less toward product-focused teams, this doesn't mean that product organizations are without their problems.

> First, without proper management and coordination a product organization can become very fragmented and build products that don't fit into the overall vision of the company.

> Second, product owners can also become possessive of the products they are developing, refusing to kill their darlings even if they don't perform well on the market. Konstantin Peric, author of The Castle and the Sandbox, says that organizations should let product teams run with an idea for two to three months. If it doesn't seem to take off it should be killed, in order for the team to avoid becoming blindly protective of the idea they're working on.

> Third, product organizations risk accumulating unnecessary costs. If several product teams keep investing heavily in different types of product development, they risk overspending against reasonable financial limits.

2.1 ON-DEMAND MANUFACTURING

"There are incredible disadvantages with large-scale production. It's a poor system. When everything becomes need-based, when the demand is not with the company but with actual end customer – that's the great innovation."

– Jonas Lennermo, Publit

As a business practice, on-demand manufacturing is not a new innovation. Car manufacturers, for example, have been producing cars on demand for a number of years. What is new is the way digital transformation makes the process easier, faster and more affordable. Bobby Beaver, Co-founder of Zazzle, explains ho the on-demand model is the natural successor to mass production, due to the wide-ranging inefficiencies of current systems: "For example, every year half of all shoes end up on the sales rack at the end of the season because it's impossible to predict the style, size, color, etc. That amount of inefficiency has implications. It has implications for the cost of goods; you're paying far too much for shoes on the whole if half of them are going on sale at the end of the season, because you're obviously paying for that inefficiency. It has a big taxing effect on the environment, because of all the excess it creates. And ultimately consumers aren't getting what the want. They're only getting what's available and what's close to what they want." He continues:

"Our long-term view is that traditional commerce, which is built on the back of mass manufacturing, is going away. We just don't see a future where brands or retailers will try to predict consumer demand, then mass manufacture in third world countries and ship through a bloated and inefficient supply chain to ultimately get products to consumers."

2. PRODUCTION – ON-DEMAND MANUFACTURING

The rationales behind on-demand manufacturing– i.e. selling first and manufacturing later – are many:

Meeting actual demand – Producing for estimated demand is extremely costly, inefficient and unsustainable. The price premium of on-demand products can be outweighed by the efficiency gains of meeting actual demand.

Eliminating storage costs – Idle storage and overstock can be eliminated entirely.

Cutting out the middlemen – Digital stores and marketplaces connect buyers directly with manufacturers, removing unnecessary phases of production and distribution.

Less waste – Fewer resources are used and wasted. Serving local communities: On-demand manufacturing can localize production and thereby strengthen the economy of the local community.

Decentralized production – Costly manufacturing facilities can instead be decentralized among a multitude of smaller producers.

Customized products – Everything from mundane commodities to complex products can be personalized according to individual preferences.

On-demand manufacturing shifts the logic from an on-display market to an on-demand market. Rather than acting as an involuntary venture capitalist – predicting, marketing and producing to serve an uncertain demand – the company can instead focus on facilitating demand. Rather than engaging in heavy and often inefficient post-production marketing, it can dedicate itself to building awareness and offering access prior to production. And it can move from corporate branding to more dedicated product marketing.

> **Zazzle** runs a marketplace for custom-made on-demand manufacturing of over 200 different product lines, from apparel to furniture. By combining on-demand manufacturing with the custom designs of their designer community, the company's grand vision is to disrupt the way the world manufactures. Partly because they feel it offers customers superior value, and partly because it is a more sustainable model than the mass production of the industrial economy.

> **Publit** is a Swedish on-demand manufacturing company in the publishing industry. The idea is based on giving all publishers digital access to the company's on-demand manufacturing capacity. When an order is placed, Publit manufactures and delivers the order to the customer. The company believes its on-demand model offers a vision of how manufacturing in a number of categories will be done in the future.

"Marketing will no longer be about the fact that we have made a great phone here, and because of that we have to buy adverts. Instead you advertise your phone and then you manufacture it, one phone at a time. It turns the whole demand model upside down."

– Jonas Lennermo, Publit

2.2 CROWDSOURCED PRODUCTION

"My question is: Why do companies exist, really? Do we need them? That's something we should question. A company is just a platform for community building, for collaborating on things. When you can do everything through the network, all that remains in the company is leadership"

– Robin Teigland, Stockholm School of Economics

As a buzzword, crowdsourcing is widely given lip service. As a business practice, it is reshaping production chains as we know them. Although still used mainly by smaller digital companies as a means to build products, solve problems or as a business model in itself, crowdsourcing is in many ways just beginning to make inroads among larger, more established businesses.

With crowdsourcing, certain projects, tasks or challenges are outsourced to others outside the organization, rather than put in the hands of employees or outsourced to the usual suppliers. Often, the task is posted online and interested parties – whether individuals, freelancers or other companies – can take on the job. It might be sourced through private social networks like Facebook, through online forums, or through commercial crowdsourcing platforms like oDesk and eLance. The "crowd" might be paid, or they might take on the job out of pure enjoyment or the kick of the challenge.

There are, of course, a number of clear advantages to crowdsourcing. For some, it's an inability to pay freelancers local market prices or hire new employees for short-term projects. Others use crowdsourcing to momentarily scale up production during certain launches and process challenges. In many cases, it's a matter of solving highly specific problems or challenges that can't be handled internally. The hope is that someone in the crowd can approach the task from a different perspective, with a different skill set, or simply at a lower cost. Although more common in tasks related to coding or design, it is increasingly being applied to other types of work as well. One example is Farmigo, a marketplace that aims to crowdsource food production to many small local producers and individuals.

2. PRODUCTION – CROWDSOURCED PRODUCTION

> Flying Monkey Interactive (FMI Games) is a San Francisco-based company focused on developing genetics-based online games. The company's first game, Strangelings, is a kind of Tamagotchi game with evolving animal traits and an in-game virtual economy, and has over 36,000 active players to date. FMI Games has just a small organization of five people who are mostly devoted to building the back-end game platform based on unique genetics and virtual economy algorithms, which can then be spun off into new games. In building the actual games, FMI Games employs crowdsourcing as a business practice. FMI Games comes up with the idea and vision for the game before the actual coding and design is crowdsourced through private network contacts and random freelancers who show interest. The company has no intention of building a large organization, but instead scales up temporarily to produce and launch specific games with the aim of eventually selling the developed back-end platform. Chris Collins, founder of FMI Games, explains:

A challenge to commercial production?

The more the networked crowd becomes involved in production, customization and personalization, the more individuals will simply expect certain goods to be created specifically for their needs. The most engaged among them will eventually learn ways to bypass even the on-demand companies, finding ways to accomplish their own productions and startups directly with manufacturing and maker facilities, in some cases without any intermediary companies.

Associate professor Robin Teigland of Stockholm School of Economics envisions this trend resulting in a future where companies are superfluous. As manufacturing evolves from a complex industrial enterprise to a user-driven community platform, and as digital markets, maker spaces and 3D printers mature, anyone can access the designers and manufacturing capacity they need to realize their idea. It's yet another scenario where network access is set to flip the control of value chains from commercial manufacturers to individual producers.

"I use contract resources incredibly aggressively… First we go to our own network to find people to fill slots. The next thing that we do is reach out to a number of online markets for freelancers… Then we're also searching in tech forums, where the people who are answering a lot of forum requests clearly know the technology, and I approach them to do some work."

2.3 OPEN INNOVATION

"The great thing about leveraging the community is that you get more ideas and better ideas faster, and therefore you are able to avoid mistakes and speed up your development process. As an example, the Rally Fighter, which was our first-ever vehicle produced, took us 18 months to go from initial sketch to the car on the road, when a typical car development process will take five to seven years from scratch. When we did the XC2V, we went from an existing base chassis to a vehicle, fully developed, tested, operational, and on the road in five months, when a typical DOD new vehicle development would take five if not ten years."

– Damien DeClercq, Local Motors

As businesses reorganize to serve the fast-changing demands of digitally transformed markets, one question looms above all others: Where will the new ideas come from? One answer is open innovation, in which the boundaries of the organization become more permeable, allowing ideas, risks and rewards to be shared both within and outside the traditional limits of the company. But opening up to such broader networks of innovation will come with a range of new external and internal challenges.

External innovation resources
As Billy Joy, founder of Sun Microsystems, used to say: "The smartest people in the world don't work for your organization." In the past, this might have sounded like a competitive threat. Today, however, it represents a challenge to discover new networks of collaboration and to recognize the fact that outside ideas and insights are critical to any healthy R&D strategy.

Among the more famous examples of this strategy is the Connect + Develop open innovation platform implemented by global consumer goods giant Procter & Gamble. According to Larry Huston, the company's former Chief Innovation Officer, the company used the platform to fuel the introduction of 600 products to the market, boost innovation productivity by 60% and add $12 billion in top-line revenue. Instead of relying solely on its 9,000 in-house innovation staff, the company included a network of 1.8 million suppliers, researchers and others.

2. PRODUCTION – OPEN INNOVATION

Of course, it's not always necessary to have the global muscle or extensive research networks of a P&G. In the digital space, it's becoming increasingly common for companies of all sizes to organize innovation around a networked community of enthusiasts, including developers, customers, early adopters and amateurs. The community becomes something of an added layer to the company, an extended root system that taps into new needs and ideas that are constantly filtered back into the organization's development. Managing this process can be far more complex than with simpler crowdsourcing methods, since the network naturally increases exposure to the market and begins to assume a range of other functions that were previously internalized – from marketing and market research to partnership ventures and sales. It can be a difficult balance to achieve, requiring entirely new strategies regarding where the company might benefit most from ceding or retaining internal control.

Internal innovation, or employee sourcing

Most companies, digital or not, have considerable difficulties opening up their organizational boundaries to outside innovators. Often, the first step is to break down internal structures and hierarchies in order to prepare for the new ways of working that collaborative networks demand.

The internal equivalent of open innovation, typically known as "employee sourcing", involves a mindset that anyone within an organization should be allowed to contribute new ideas and concepts. Although already common in creative industries, where job roles and departments tend to be more fluid, many larger institutions have yet to realize the untapped resources that exist among their own employees. Tommy Jarnemark at Sweden's TV4 is impressed by the digital betting companies in this regard:

"You may call it 'employee sourcing'. The digital betting companies are insanely good at it. Anybody with an idea should be involved in contributing. That's not the case with us old media houses, but when you transform to a digital enterprise you should appreciate if there's someone working at the reception desk, and who has maybe been browsing around a lot and found something really great at some other company's website. When you release that kind of employee power I think that you will release something really big."

So although a relatively small share of today's companies has full-fledged open innovation platforms in place, there is nonetheless a willingness to open up innovation internally as a first step. Ensuring this happens effectively, however, involves much more than a good intentions or a shift in corporate culture. In many cases, it begins by establishing an individual project or product team around open innovation principles, long before obstacles within the larger corporate hierarchy can be strategically addressed.

3.1 PLATFORM LOGIC

"We already have companies building on top of us. Alliance Data Systems did it just yesterday [with the launch of Dwolla Credit]. They launched a credit card on top of our network. They're a billion dollar company. The more people that depend on us, the more people are in the network and the stronger the network effect gets. That makes it a fundamental market."

– Alex Taub, Dwolla

From business platform to platform business
"You need to be a platform", says Nami Zarringhalam, founder and CEO of Truecaller, not mincing words about what she sees as a fundamental operating model for the digital era. As the term suggests, the logic of a platform business is to create technology that can serve as a basis for other services and products – either those created by the platform owners, or by other parties. The more businesses that are built on the platform, the more the platform becomes a full-fledged market ecosystem with a highly valuable technology platform at its core.

Adam Dignan, founder and CEO of Undercurrent, defines the digital platform as "a foundational product that moves beyond product status by encouraging others to build, play, and/or iterate on top of it".[2] Dignan argues that, in a platform, "the value and utility of the system is continually being discovered and expanded not just by the organization, but by its users and customers". Dignan's colleague Mike Arouz points to the fact that Apple, which today is better known for its closed ecosystems, was actually the company that invented the (relatively) open App Store. It has since become a groundbreaking platform in which, Arouz explains, "You've got millions of people outside of the Apple organization trying really hard every day to make their product better."

[2] "The operating model that is eating the world". Medium.com; September, 2013.

3. BUSINESS MODELS – PLATFORM LOGIC

A business organized as a platform typically emerges in two stages:

1. Foundational product to platform

A digital business usually emerges from an initial product idea around which a business model is gradually formulated. As the product develops, its functionality becomes richer, and a deeper user experience takes shape. What began as an individual item for purchase can therefore grow into a business framework onto which multiple products and business models can be built. The underlying technology of this platform is leveraged to build new products. As a business platform, it contains information about end user behaviors that can be used to launch new business models.

2. Platform to infrastructure

The platform owner can also open up the platform to development from external parties, at which point it moves from being a platform to a technology infrastructure – the fundamental basis for existence of a range of other outside products.

The business rationale for turning a product into a platform and a platform into an open infrastructure is, of course, that the more central your platform is to a wider ecosystem of products, the more critical your business is to the market. When other businesses build on top of your platform they also provide organic protection for your business, promoting the position of your business in the overall market ecosystem and bringing in new streams of user data.

Facebook is a prime example of a fast-expanding technology platform. As the business evolved from its founding idea as a student network into a worldwide social network, Facebook rapidly evolved into a core infrastructure in the digital space. There are hundreds of other businesses built on top of Facebook's platform, from Farmville to Candy Crush Saga to Wrapp, not to mention the countless other web services that utilize a Facebook login as digital identification. Almost all companies with an active marketing strategy have a Facebook page today, and as an advertising channel, Facebook is now second only to Google in its share of US web display advertising revenues.

3.2 OPEN MARKETPLACE LOGIC

"In a marketplace, once you get the flywheel spinning it kind of runs on its own. Internet-based marketplaces are natural disruptors, whether it's Beanie Babies on eBay or talent on oDesk. You can find anything in a marketplace now and I think it's disruptive that marketplaces have moved online. It makes it more transparent, more efficient, and it's a better user experience. There are a lot of advantages for everybody that is part of the marketplace ecosystem."

– Matt Cooper, oDesk

Achieving marketplace dominance

For Matt Cooper at oDesk, the world's leading marketplace for freelance workers, the marketplace represents one of the most promising business models in today's digital space. Many of the largest, most successful and most talked-about companies of the digital age are marketplaces: eBay, Amazon, Google Play and AppStore, to name just a few global giants. And around the world there are local markets for everything from apartment rentals and antique furniture to home repair and babysitting services.

Aside from the most straightforward marketplaces, such as those mentioned above, many other digital service providers also use elements of marketplace logic in their business models. Spotify is to some degree a marketplace for music, at least on the supply side, in that anyone from a global record label to an individual hobby musician can offer their music on the company's platform. Google Search can also be seen as a marketplace – for information. And Facebook has their own marketplace features, in which users can buy access to games and other digital entertainment products.

Unlimited supply-side access

It should be noted, however, that there is a fundamental difference between an access-based marketplace and a web shop. Although a web shop certainly offers access to a plentitude of goods, it essentially follows traditional retail logic on the supply side. Often it is little more than a traditional store with a traditional value chain, in an online form. An online marketplace, on the other hand, opens the supply side up to anyone who is interested in offering their product/service on the marketplace, provided they meet certain baseline criteria.

3. BUSINESS MODELS – OPEN MARKETPLACE LOGIC

The marketplaces of the physical economy have always been curated by necessity. Limited by shelf space or floor space, segmented by store owners and sales reps, the ultimate selection they make available is dictated by a long chain of decisions outside the customer's control. An open digital marketplace, by contrast, aims to aggregate all possible and relevant supply into the same marketplace, thereby giving all potential suppliers access to the marketplace and providing customers access to all products and services in the category. Open digital marketplaces are in a sense the equivalents of the flea markets of physical economy – an open space based on access and inclusion, rather than selection and exclusion.

Chris Hunter, Founder and CEO of GridBid, a startup marketplace for solar panels, argues the case for open marketplaces:

"Every sector can become Amazon. But it's not just matching up people, it's handling everything around that: workflow, timelines, the process, the payments. […] You need to have massive users on both sides. It needs to be simple and easy to use. People are not going to put up with functions that are crap. There needs to be a level of trust."

Open marketplaces as engines of growth

On traditional markets, it's typically the manufacturers themselves who become the dominant players. Whether it's Procter & Gamble, Unilever or Kraft Foods, much of the fast-moving consumer goods market, for example, controls a great deal of most retail channels, making it extremely difficult for new market actors to enter the field. As in most areas of physical production, economies of scale and control of distribution have proven to be the best strategies for succeeding in multiple markets.

In today's digital markets, by contrast, aggregating supply side access has so far proven to be one the fastest ways grow big. By opening up to all kinds of producers, from large multinationals to small local businesses, and by providing access to their products on the same marketplace, in the same user interface, companies like Amazon, App Store and Google Play transformed their markets in a matter of years. One reason for this exponential growth is, of course, the user's demand for a single point of interaction. From a consumer point of view, it is difficult to imagine a scenario where finding a specific app requires browsing through ten different app stores. And even if this were the case, another aggregator would certainly emerge to offer access to all the app stores' inventories through a single channel.

3. BUSINESS MODELS – OPEN MARKETPLACE LOGIC

Currently, this means that in digital markets, rapid growth normally favors the aggregating marketplace over the producers of physical products and services. As Bobby Beaver of Zazzle points out, it is far easier to scale up a business by creating an open marketplace than trying to manufacture everything on your own:

"There's obviously a limit to how quickly you can scale when you're building manufacturing facilities and so forth. So at a certain point we decided to take our technology and create a marketplace around it, and now we're actually working with partners who want to offer customization in the Zazzle marketplace for their product lines. That's how we're going to rapidly add more and more product lines with time. Ultimately, I think what Zazzle manufactures itself will be a small fraction of what's sold at the Zazzle marketplace."

Jill Sherman, founder of Modalyst, also sees a potential to scale up her company's marketplace and expand into new categories:

"We plan to be the leading wholesale marketplace for all categories. We're in apparel and accessories right now. Soon we'll be integrating many more categories; things like footwear, paper goods, fine jewelry and childrens' wear. There are a lot of untapped opportunities right now – wholesale online is a relatively new field."

On the production side, the digital shift also empowers smaller producers: indiepreneurials, producing individuals, non-commercial problem-solvers and generally smaller and more niche companies. This long tail of niche has not really been a very important competitive force on physical markets, but on digital markets, thanks to accessibility and aggregation, it is gaining a foothold that was previously difficult to achieve. The consumer market, for its part, enjoys a richer supply, including more unpredictable products, provided they are easy to search and find. As a consequence, Bobby Beaver explains, the marketplace becomes the business vehicle for a company's exposure and growth. "Rather than powering our growth through lots of marketing," he says, "we've leveraged the marketplace dynamics to grow our business."

3.3 THE NETWORK COMPANY

"If we think of ourselves as being in a very nascent, early stage of this peer economy, what I think will happen in the future is that: a) individuals will learn to be better service providers, and b) they'll find out what they actually love to do."

– Robin Chase, Co-founder of Zipcar, Founder & CEO of Buzzcar

Creating new value networks

Where open marketplaces and on-demand manufacturing still retain some physical aspects – e.g. production, distribution or logistics – other, almost purely digital, network companies are opening up new opportunities to connect users directly with resources. The so-called "sharing economy" is especially fertile ground for such companies, since its economic model is based primarily on tapping into the excess capacity of existing resources, rather than producing new goods for the consumer market.

Given this underpinning logic, it's no surprise that eBay – one of the earliest and best-known network companies – arose in the world's largest market for consumer goods as a platform for second-hand auctions. In other words, the company entered a category most consumers were already familiar with in the physical world. Today's platforms, however, are stepping further into a range of previously unexplored territories, including Airbnb for housing, Lyft for private transport, TaskRabbit for small tasks, and Lending Club for loans.

3. BUSINESS MODELS – THE NETWORK COMPANY

The trust brokers

As companies find new ways to directly connect peers and private resources, a growing number of individuals are becoming everyday service providers – to neighbors, to strangers and to others around the world. Here, the network company assumes the role of a trust broker, providing secure transactions, rule frameworks and rating systems that allow trustworthy members of the network to thrive. Where a traditional taxi service established trust through conventional branding and a taxi service corporation assuming legal responsibility, the network company achieves this through the network effects of their collective members. James Slezak at Peers.org explains:

"We don't get into a car with people we don't know for a good reason. And that's the whole reason why taxis here [in New York] are colored yellow, are registered and have a photograph of the guy driving. The trust mechanism [in a network company] is different but equally effective, and many would argue more effective. It's pretty simple: basically, in every interaction you have you rate the person on both sides."

From these fairly basic principles – connect users, implement community rules and ratings, provide secure transactions and take a small percentage of fees – network companies are driving the growth of entirely new cultures of exchange. As they do so, they will need to navigate immensely complex hurdles laid down by existing regulations and established industries. A lawsuit against Uber, for example, has recently resulted in the State of California creating a whole new class of business called the transportation network company, in order to govern the many emerging networked enterprises emerging within the transportation sector.

Today's regulations are gradually giving way to this rising form of business. Frameworks for taxation, governance, insurance and liability – all of which were developed for an industrial era where mass consumption and ownership were the norm, and before today's technologies existed – are now being renegotiated in order to manage the transition to a new form of business organization. Faced with a growing number of peer-to-peer markets that often violate local laws, new regulatory frameworks are already under development for industries as diverse as home-sharing, online labor markets and even autonomous vehicle networks. The incentives and disincentives produced by these new policies will have a wide-ranging impact on how tomorrow's network companies model, develop and monetize their businesses.

4.1 USER CENTRISM

"Every single step that you put between the customer and the actual function is friction. And today people don't live with friction. People see friction for what it is."

– Konstantin Peric, Bill & Melinda Gates Foundation

Today, most companies claim to in one way or another have "the customer in focus". However, few traditional companies are originally organized around the customer's needs as a guiding principle for all business decisions. More often, the claim to "customer focus" is a marketing whitewash that disguises long chains of bureaucracy, internal development and decision-making – all of which create distance between the business and its end customers.

Digital companies, on the other hand, tend to be far more user-focused, for several reasons:

> They are often founded on the premise of improving or simplifying the lives of end users

> Their business is built from the user's perspective, rather than on an established business model

> The digital technologies on which they build their products and services enable a much higher degree of user centrism

> They lack the legacy infrastructures, bureaucracies and operating models that force many traditional companies to continue thinking from the "inside-out", rather than from the "outside-in"

Like much else in the digital space, user centrism is simply a business necessity due to the rapid shift in power from producers and manufacturers to end users. In a digitally transformed market, where people are overwhelmed with a constantly expanding array of instantly available choices, the aim is to eliminate friction between the product and the end user in every possible way. Ezra Goldman, founder of Upshift, explains:

"If you're looking at a web app, for example, the difference between having to click through three menu options instead of two is enough for somebody to not use your service. Making it super simple and super easy is a very critical piece."

4. MARKET APPROACH – USER CENTRISM

Digital transformation has brought consumers a range of alternatives, making it faster and easier than ever to find and switch to new solutions, services and products. Traditionally, it was far simpler for companies to lock in their customers and manage, control and maintain the customer relationship. Although this often still holds true for devices, which can lock users into a particular ecosystem, generally anyone with a broadband connection can find alternatives with just another click or download. Konstantin Peric describes this as nothing less than a complete reversal from business-driven Customer Relationship Management (CRM) to Vendor Relationship Management (VRM), where end users are in full control:

"We can walk away from companies. We can walk away from an ordinary cab service and go to Uber instead. I can walk away from an ordinary hotel service and go to Airbnb instead. So I have the power. Today we are CRM:ed by all sorts of companies, but now we're moving to VRM. I can manage the vendors around me – and that is a major change. The implications of that change are very deep."

When the customer becomes truly empowered by a multitude of available options, and new tools to access them, businesses have little choice but to become much more elastic toward the demands of their customers. Konstantin Peric continues:

"Today, if I want to understand my financial situation I have to go to bank number one's website, to bank number two's website, credit card number one's website and so on. Basically what I want is to combine elastic services empowered by API's. […] The deep digital transformation will require companies to cut themselves in pieces and make these pieces available for people to combine."

The truly digital company therefore segments its offerings in any way necessary to provide immediate access to exactly what the customer wants, whenever and however he or she wants it – even if it's on the biggest competitor's platform. This "on-demand" relationship is a necessity not only for media outlets, which have initiated one of the first such waves of transformation, but for all other categories that go digital – from financial, transportation and healthcare services to education, utilities and consumer goods.

4. MARKET APPROACH – USER CENTRISM

Genuine user centrism, beyond the general "customer focus" value statements, is about organizing the value proposition and market offering around a frictionless user experience. Accessibility, user experience and user interfaces become top priorities, and are often developed in collaboration with actual users. Digital communication tools have made it far easier to engage in direct communication with a company's initiated user base, while all the data that a digital business generates has made it possible to monitor and track actual user behavior in real time and optimize accordingly. Often, this means that users themselves lead the way in product development, or as Mike Melli at Thumb puts it: "The users really shaped what we eventually started to embrace."

Mobile first
Ever since the global uptake of smartphones, the mobile experience has taken center stage. In the US, for example, mobile is the only media category that has been increasing its share of usage – from 4% to 20% between 2009 and 2013. Meanwhile, usage of TV, online, radio, print and other media have declined.[3] If this trend continues, and particularly as the range of mobile technologies expands, mobile devices will increasingly become the primary starting point for our expanding digital lives. Companies that understand this make sure to build brilliant user experiences that revolve around the mobile device. Bobby Beaver, Founder and CTO at Zazzle, says:

> "It's not just mobile but mobile first. Everybody is starting with their mobile experience and then working backwards into traditional. […] You have to reengineer your thinking about how customers are going to experience you and engage with your brand."

Building a "mobile first" experience is, of course, easier said than done. It involves deconstructing an entire user experience, which was previously coherent and contained within a physical shop or desktop browser, and offering it across a number of contexts and situations that are tailored to mobile behaviors. Doing this successfully requires a different mindset from just having a traditional online presence. Above all, it requires genuine understanding of the specific mobile contexts where each service is used.

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[3] eMarketer, August 2013.

4.2 CONTENT-DRIVEN MARKETING

"I think that in the digital world the number one thing you can do from a marketing aspect is to build a great product. Build something that somebody wants to use, because they are going to tell their friends about it. That's a byproduct of this connected world, where you've got millions of people who are connected, and where the word-of-mouth aspect has become disproportional."

– Mike Melli, Thumb

For digital agencies and marketing strategists, content-driven marketing is nothing new. Whether it's a viral video or an app, an endless range of content marketing tactics have been employed to build trust and deepen relationships between brands and their customers – often with mixed results.

For new digital companies, however, content-driven marketing centers around gaining traction for a new product in multiple channels. Rather than simply increasing brand exposure, which is the usual advertising agency approach, it is the company's core product itself – not additional advertising content – that is often used as the content to be spread and shared virally. In a sense, their marketing often consists of launching new products or product add-ons to their existing product or platform, and as these products take off virally, they also drive the core product and value proposition.

The content-driven marketing of digital companies is largely aimed towards gaining traction in all the relevant digital distribution channels. Nami Zarringhalam at Truecaller explains:

"At what stage do you go from having an app that is rated two or three stars to an app that is rated four or five stars? Understanding that is extremely important as it taps into the mechanisms of the distribution channels. Otherwise your app won't be top ranked. Your app won't show among the most popular apps. You won't be there unless you get high ratings. That's the case for all companies that are content-driven."

4. MARKET APPROACH – CONTENT-DRIVEN MARKETING

Zarringhalam goes on to explain that at Truecaller they have identified a mathematical formula which explains what people use, how they use it and how that connects to user acquisition. The formula is there to provide a better understanding of how to gain traction and scale up the business. Zarringhalam adds:

> "It's extremely important for all companies to find their own formula. It's almost the first thing you should focus on. When you have found it everything gets much easier: from getting capital to offering what the users want."

An interesting case of content driven marketing is the BitTorrent Bundle, a new concept that BitTorrent is currently developing.

> The BitTorrent Bundle offers a way to build a store directly inside a piece of content, rather than offering content in stores (digital or physical). Any piece of content that is distributed through legal or illegal services can be empowered with an internal digital store – or gates that can be opened, to use BitTorrent's own terminology – where the user can open up more elements and gain access to more of the content, add-ons, etc. For example, inside an illegally downloaded TV episode, it will be possible to access a store and continue watching it by paying for additional episodes of the series directly in the piece of content. BitTorrent can therefore make the content itself a distribution channel, connecting the publisher directly with the end user, with no intermediary stores or marketplaces. Matt Mason at BitTorrent explains:

> "With Bundles the idea goes back to our philosophy: Put the end user in control, let the publisher decide how much the content is worth, how much they should give to their fans for free and how much they should charge for. Let them be in control of all their information, their business model and their data, because they will make better business decisions than we would, as they know their fans better than we ever will."

In BitTorrent's new concept, a piece of content becomes both the marketing tool and the distribution tool, which is a complete reversal of the old model and a case for how digital technology makes it possible to rethink old business models at their core. The BitTorrent Bundle is an elastic atomization of the market offer that eliminates all unnecessary friction between content providers and users. "We thought: Instead of putting content in stores, what if we started putting stores inside content?" says Mason.

> "Basically, companies have to be innovation-driven as opposed to marketing-driven."
>
> – Terry Winograd, Stanford University

4.3 MULTIPLE BUSINESS MODELS

Many companies that operate in the digital space run multiple business models simultaneously, both on a corporate level and in-service. Often it's a necessity to base revenue on multiple revenue streams, since margins are low in many digitally transformed categories (consider, for example, the media category). Tommy Jarnemark at TV4, says:

"You need to create more business models around your assets. That's a really big challenge in the transformation process, to get people who have always represented this asset, like our program department, to realize that they are only responsible to make sure people are sitting there in front of the TV at eight o'clock on Friday nights. That's their mission, but maybe they don't represent the main revenue stream anymore. Perhaps there are several other contact points with the viewers that somebody else is responsible for. This also means that other people have to get their say on the executive level."

Diversifying into multiple businesses can be both a counter-strategy to the swarm of niche that is invading many digitally transformed markets and a natural consequence of running a versatile technology platform.

Corporate level diversification
On the corporate level, digital companies often engage in quite disparate businesses, running operations in very different categories. But this is not always as fragmented as it may seem. A single platform, such as an open marketplace, can serve as the backbone from which new business models are spun off into multiple categories with relatively little added infrastructure, distribution or marketing costs.

Scandinavia's Schibsted Media Group and the digital business group Millicom are two digitally transformed companies that are employing the strategy of operating multiple business models. Schibsted actively diversifies into new ventures in new realms of the digital economy and has, for example, staked bets in money lending (Lendo) and the sharing economy (FlexiDrive) – two categories quite separate from Schibsted's core business in publishing. Millicom is currently diversifying into mobile financial services on emerging markets on top of their core business as a mobile carrier and their extension into cable TV. Of course, the mobile financial services are there to support Millicom's core business, a strategy many telecom providers are exploring as they enter into the finance sector.

The phone app Rebtel is an example of a business that is diversifying based on the technology platform they have in place. Rebtel has been focused on international calls but is now moving into a completely different category (the category is classified information at the mo-

4. MARKET APPROACH – MULTIPLE BUSINESS MODELS

ment) just because the company feels that they have a technology platform from which they can easily do it. Anna Alenius-Mathson at Rebtel says: "We develop apps for the international community, meaning people with a need to communicate internationally."

In-service diversification

There are a number of different ways to monetize digital businesses: advertising (CPM, CPC, CPA), flat-fee subscriptions, pay-per-use or transaction models, premium and freemium models, sponsorships, partnerships, commission models, service charges, download fees, virtual in-service currencies, etc. Many digital businesses choose to combine two or more of these and other models in order to differentiate the prices of their offerings for different types of users. The Swedish TV and video streaming service Viaplay, for example, combines subscription-VOD with transaction-VOD within the same service. Newer titles are rented on a pay-per-use basis while the bulk of the content is available in its entirety for a monthly subscription fee. The social network Tagged combines advertising with a virtual in-service economy and a VIP subscription to monetize its user base. In some cases these different models of monetization are just different payment models for more or less the same service, whereas other businesses operate several different products within one service and monetize each product differently.

CONCLUSIONS

Although it may be difficult to foresee the exact impacts of new technologies, the one certainty is that they will emerge and, at least to some extent, reshape the playing field for businesses across all industries. Understanding this technological revolution means examining not just the technologies themselves, but the transformation in business logic that they entail. The challenge is therefore as much about organization, vision and strategy as it is about new technology.

As our interviews confirm, a new organizational model has already begun to take shape in the digital space – one that values personal talent, company culture and breakthrough user experiences above all else. Any friction between these three is eliminated through relentless experimentation and constant user feedback. And all necessary risks are taken willingly and early on, long before major investments or assets hang in the balance.

Put simply, this new breed of competitors is already conditioned to be highly adaptable to the fast-changing conditions of the Networked Society. Whether completely software-based or running complex manufacturing and distribution networks, they have made a concerted effort to remain nimble, creating digital networks for everything they might need to scale quickly when the opportunity arises: Before they market products, they build user bases; instead of amassing inventories, they manufacture on demand; rather than struggling to find a business concept or business platform, they launch concepts and platforms that are businesses in themselves.

What this means for existing enterprises remains, of course, to be seen. But to take the digitally mature category of media as an example, we can already see the speed at which these new operating models can move up the value chain, forcing established players to reorganize around entirely new business strategies in a matter of years. And if consumer demand is any indication, anything from health care and finance to transport and hotels could be the next industry that proves to be ripe for fundamental change.

For those who can find the right organizational mix to lead the way, the market remains wide open for innovation. But only those who understand the changing nature of business assets and core competencies will be poised to succeed.

REDEFINING BUSINESS ASSETS

"If you've got a 500 million dollar factory on your balance sheet – is that an asset? It's actually a huge liability, because you have to make stuff with that factory. So I think we move to sort of a more amorphous or ephemeral asset model, and you move up the things that help you innovate rather than produce."

– Aaron Dignan, Undercurrent

New business assets for a digital age
Traditionally, the value of a business is measured by a set of clearly defined assets: buildings, equipment, inventory, trademarks, copyrights, patents, goodwill, computer programs, and financial holdings. But as businesses turn increasingly digital, and as the knowledge economy matures, a company's know-how, relationships and human capital are gaining an outsized value that many businesses have yet to account for. In the digital space, it is these flexible resources that allow a company to adapt and innovate, that become most critical to future success.

In this study we have asked digital enterprises and startups how they define their business assets. What emerged is a somewhat different understanding focused not on hard assets or infrastructure, but on people, data and knowledge. The following are the some of the most important assets mentioned by the business leaders we interviewed.

> **The user base**
It is very common for digital businesses to define their user base as their most important business asset. Even if the users are thus far generating zero revenues, most digital businesses firmly believe that a large and active user base is critical to future monetization and for ongoing product development. Even the stock market clearly values the user base as a key business asset, as the initial valuations of Facebook and Twitter attest. Accordingly, many digital businesses set up milestones linked to the number of users acquired: for example, launching the alpha version of a service at 10,000 users, adding a new feature at 100,000 users, or making an IPO at one million users.

> **Data**
Data is the raw material of the digital space – particularly for those companies most adept at collecting, understanding and utilizing it in their business model. User data, search queries and behavioral analytics are all central to developing better products, enhancing user interfaces and optimizing marketing and communications. In addition, a wealth of new data streams are now being generated by an expanding Internet of Things, a trend which will make data collection and management one of the core value propositions for even traditional product manufacturers.

CONCLUSIONS – REDEFINING BUSINESS ASSETS

> **The people – in particular the developers**
> Most of the businesses we interviewed stressed the importance of their employees as one of their main business assets. With the right people onboard they see no limitations to what the company can accomplish – and develop in the future. Management, marketing people and sales people are all perceived as important, but for many digital businesses the developers are the most important asset in the people category. The developers are often perceived as the stars of the company and much effort and investment is going into getting the best developers onboard and making them feel at home in the company. In many digital businesses, the company is organized and set up for the benefit of the developers in the first place.

> **Networked relationships**
> Digital businesses, especially those organized as marketplaces or platforms, operate in networked ecosystems consisting of a number of different market actors. Some of the relationships connecting the business to this ecosystem arise organically, such as the networked sponsors of a crowdfunded business or the early adopters who become value inputs to product development. Others, such as ecosystem partners, manufacturing sources or outside developers, are carefully cultivated and leveraged over time as essential components of the company's business model. Due to the fluid, fast-changing nature of the Networked Society, these relationships may be all that remain from year to year as talent pools, owners and technological landscapes constantly shift and expand into new market niches.

> **The technology platform**
> Naturally, any digital company that has invested effort and capital into building its own technology platform considers this to be one of its core business strengths. In a sense, the technology platform is the factory of the post-industrial era – the source of output and business opportunities for many digital enterprises. In cases where it is leveraged as a unique asset within a particular ecosystem, the platform can even become a business in itself, simply by providing the technological base on top of which other partners and developers build added value. The social network Tagged, in order to boost the speed of innovation within its platform, has developed its own NoSQL graph database, which essentially simplifies and accelerates data management. FMI Games founder Chris Collins is similarly devoted to developing the company's core technology platform, saying:

"Our business asset is our technology. The technology allows us to produce more games. Our technology setup allows us to get those games produced in a distributed manner."

CONCLUSIONS – REDEFINING BUSINESS ASSETS

> Market insights

As in any new or quickly evolving market, successful digital businesses leverage a unique understanding of their industry, market and category to capitalize on new opportunities. Rather than focusing solely on the novelty or revenue model of their company's technical solutions, each business leader we interviewed emphasized the depth, creativity and utility of their business idea as central to future success. In fact, most viewed their competitive strength in direct contrast to the outdated models of legacy players – a genuine understanding of current user needs and technical solutions, and an ability to tackle them more quickly and effectively than anyone else. For these businesses, user-focused market insights, a natural understanding of digital technologies and a talented force of creative problem solvers are therefore critical business assets that make it possible to become a driving force in the growth of new digital markets.

> User experience

Competition in the digital space is very much a race to provide the best user experience. As digital – and especially mobile – interfaces become natural extensions of our daily lives, and as those lives become cluttered with more and more options, the ability to provide an organic, intuitive user experience is often crucial to user adoption. Once a breakthrough is made, as with the iPhone, this experience becomes the foundation for consumer trust, loyalty and devotion to future products and services – all of which are central to the user retention that is so highly valued in the digital era. Karl-Oskar Tjernström, Head of Marketing at MTG Pay-TV services, mentions Netflix as a prime example of a service that has leveraged an innovative user interface to dominate its market. While its competitors focused on distinguishing themselves through their content rights and offerings, Tjernström explains, Netflix transformed itself from a mail-subscription rental service into a giant of streaming video almost solely through its user interface design and recommendation system:

"The example of Netflix is very obvious. Using traditional logic it has been very easy to disregard Netflix by saying that they only have old content. We [Viaplay] can say that we have far more movies in our service. But they [Netflix] came in with a different way of thinking about this, with fronted recommendations and a much more intuitive user interface. It starts to dawn on people now that their product is better and that the product isn't the content."

CONCLUSIONS – REDEFINING BUSINESS ASSETS

> The algorithm

In a complex, technology-driven world, where more and more businesses are based on software platforms, the algorithm arises as another key business asset. Google, of course, based its original business model essentially around two algorithms: one for online search queries, and one that connects advertisers to these search results. The latter has become one of today's most profitable models for advertising-generated revenue. Many of the digital entrepreneurs interviewed in this study point to the development of algorithms as key to creating better-performing services. Particularly talented developers and software engineers in the financial industry, for example, can generate profits that were unheard of only recently, all thanks to an elegant and innovative algorithmic solution to an immensely complex set of data. The demand for such talent is only set to rise in the coming years, as big data applications and the Internet of Things unleash massive new possibilities to transform real-time data into unique user experiences.

> Trust

For end users, it's primarily about data privacy and service quality. For ecosystem partners, it's about reliability, performance or a shared vision. On all of these levels, businesses moving into and emerging out of the digital space rely heavily on the productive capacities of an engaged crowd and networks of partners and providers. Trust is therefore critical for everyone involved, since many are operating with unproven technologies, in unexplored marketplaces, and often under unclear regulatory structures. Rating systems, as mentioned previously, are a common solution for ensuring trust among users. With Uber or AirBnb, these systems serve to encourage quality while eliminating less serious individuals from the system. The online payment network Dwolla, on the other hand, heavily promotes the fact that their platform has significantly lower fraud rates than established credit card providers.

Building trust as a business asset is closely related to developing a brand in the traditional sense. The difference in a complex digital network, however, is that any breach of trust can bring serious consequences not just for the business in question, but for everyone with a relationship to, and reliance on, that system. So while a traditional business might operate in a vertical silo, and can therefore build trust as a hygiene factor towards customers, digital businesses essentially sell trust in every interaction, and therefore strive to be the most reliable service in their category, in terms of quality, functionality and security. Having a trusted service, platform or marketplace can alone be enough for a digital service provider to leap ahead in the race for a large user base.

DIGITAL CORE COMPETENCIES

As the value and conception of business assets evolves, so too does the understanding of the core competencies necessary to compete in digitally transformed markets. Naturally, each competence must fulfill three key criteria:

1. It must be difficult for competitors to imitate

2. It must be adaptable toward a wide range of products and markets

3. It must be perceived by end users as a distinct and valuable benefit

Among the businesses we interviewed that are inherently digital, or that have gone through a transformation to digital, a number of core competencies were mentioned that are essential to maintaining a competitive advantage in a fast-changing marketplace:

> Understanding internet logic
  In the Networked Society, a successful business increasingly depends on a deep understanding of online behaviors, internet-based network effects and the distinctive forms of business modeling that apply in the digital space. This understanding is of course relative to the strengths of existing and emerging competitors, and becomes a core competence only when it delivers a perceptible and lasting benefit to end users and their constantly evolving connected lifestyle. Even traditional manufacturers are entering into connected ecosystems in which a new set of industry logics applies, as Klas Bendrik at Volvo Cars explains:

"We are now stepping into the Networked Society, where it becomes important for us to have strategic competences in understanding these domains. Because that is the future environment that our cars and services need to fit into, and once they are launched they need to live and stay integrated in the Networked Society for the next five, ten, fifteen years."

CONCLUSIONS – DIGITAL CORE COMPETENCIES

> **Understanding datafication**

The process of datafication is a crucial part of this internet logic. For existing businesses, the first step is normally to translate products and services into data, while the second is to organize production and business operations around these datafied products and services. For newer startups, the process often takes shape in reverse: From their first phases of development, they are discovering new ways to capture, analyze and utilize existing data streams, which are used as the raw materials for new products and services. Alex Ward at Cardspring explains how his company took shape around its founders' understanding of existing data:

"CardSpring was founded on the idea that there is all of this incredible data and functionality that's trapped in the payments network every time you swipe any card: a debit card, a credit card, an EMV card or even when you make a payment with mobile. Every time you make a payment there's really rich data: how much you're spending, what time of the day you're going there, what location, whether you've been there before."

Spotting such an opportunity requires both a different mindset and an ability to create value from a nexus where semi-physical products, services and processes all have datafied representations. It's an area that's ripe for disruptive new business models, giving talented entrepreneurs the ability to repurpose, recombine and repackage data into more useful and relevant user experiences.

> **Technology, system and platform development**

In most markets, it's no longer sufficient to simply copy an existing business model and apply it in a digital format, as traditional webshops, online publications, and online services have done for more than a decade. Instead, nearly all of the business leaders we interviewed highlighted some type of in-house system or platform development as the company's true engine for growth and innovation. By investing heavily in a technological platform, a company and other outside developers can rapidly experiment with products and applications, using them almost as a proof-of-concept to demonstrate the value, flexibility and robustness of the platform.

> **Developing digital services**

As more and more products become networked, the market is wide open for the introduction of new services. Rather than owning and consuming, users are becoming more accustomed to renting, streaming, sharing, downloading and subscribing. Put simply, the product itself becomes an enabler for the service business, and the pressure is on to create user-centric experiences that are as empowering and frictionless as possible. Gaining a competitive advantage is no longer just about creating more efficient, better-performing products, but about leveraging the full ecosystem of information, interaction and transaction services that emerge around those products.

> **Creating user interfaces**

Every company with a website knows the necessity of creating a web presence that's both useful and engaging. In recent years, however, the importance of user interface design has risen to the forefront, as the contact points with end users have proliferated among mobile devices, apps, software and cloud services. Understanding this flow of user interactions, and optimizing user interfaces accordingly, is critical to creating consistent, positive user experiences that reflect the personality of the brand.

CONCLUSIONS – DIGITAL CORE COMPETENCIES

> **Agile development and innovation**
> The sheer speed of change in digital markets, combined with high user expectations for new innovative experiences, means that windows of opportunity are narrower than ever. The ability to rapidly develop products and services – and deliver them quickly to market – is decisive to staying ahead of fast-changing technologies and shifting user demands. Companies must not only stay keenly attuned to new market developments, but also have strong product development capabilities that allow them to quickly establish new products, refine them as new user behaviors emerge, and change course instantly as new opportunities arise.

Core competencies for a time of transformation?
Naturally, the above-mentioned core competencies are closely tied to the current digital transformation of society and markets, a time when traditional businesses are still in the process of adapting their outputs to a digital space defined by mobile devices, cloud services and ubiquitous connectivity. A key question is therefore whether these are merely markers of a transitional period, or whether these competitive strengths will remain as all businesses take on a number of digital layers to most of their core functions. In the near term, at least, it appears that all six of the new competencies we've outlined are essential for any tech-related enterprise, as the growth of markets continues to be driven by a global explosion of broadband, mobility and the cloud. In short, the question is not whether these skills are needed, but who can take them further, faster and in unexpected new directions.

Given the current pace of change, the complete transformation of most core business models is bound to occur sooner than expected, only to pave the way for new technologies to come. Just as smartphones, wireless connectivity, powerful broadband and cloud services have raised user demands to new heights, so too will the next wave of technologies. In the following Epilogue, we take a broader look at what's on the horizon to see what other transformational technologies might lie ahead.

EPILOGUE – NEW TECHNOLOGIES ON THE HORIZON

If the current state of transformation isn't already enough for businesses to cope with, those immersed in the digital economy are already staking their claims on what they see as the next game-changers. Although there is some consensus emerging around the types of technologies we can expect to see, predicting exactly how they will be used, combined and adapted to disrupt our current behaviors is a far more daunting task. Much like the revolutions of steam power, electricity and the internet itself, it is precisely the wide range of uses of these new general purpose technology platforms that makes them so promising. The following are some of the key technologies that have the potential to unleash new waves of business transformation within the not-too-distant future.

3D printing

3D printing is already a reality in both industrial and consumer applications. Even some of the world's largest industrial manufacturers are using additive manufacturing techniques to produce – and even crowdsource – the designs of highly specific components. Last year at GE, this meant turning to GrabCAD, an online engineering and design community with more than a million members, to redesign a lightweight bracket that would support the weight of a several-ton jet engine. The result was a bracket that was 84% lighter, designed by a young Indonesian engineer with absolutely no aviation experience. Representatives for GE and GKN Aerospace describe their larger shift in focus as a change from manufacturing products to manufacturing specific functions.

As the cases of GE and GKN Aerospace illustrate, significant changes are already under way in the industrial space. When various kinds of industrial components can be manufactured through 3D printing techniques, one implication is that many large-scale manufacturers will bring parts manufacturing in-house, thereby killing off smaller niche suppliers that have long provided key components within different industries. These in-house capabilities will likely increase the demand for talented industrial designers as the focus shifts more and more towards design for additive manufacturing.

On the consumer front, affordable 3D printers can be seen in use in any number of maker spaces that have recently opened up in cities throughout the world. MakerBot and Cube are two companies currently supplying consumer models of 3D printers, and we will certainly see more brands entering the market in the coming years. As these technologies mature, on-demand manufacturing capabilities may essentially move froms the early 20th century factory to the 21st century suburban garage, almost overnight.

3D printing clearly has the potential to disrupt a number of categories in the manufacturing space. It's easy to imagine, for instance, that consumer goods like toys, simpler household tools, spare parts and even food products might soon be manufactured directly in the home of the consumer. Some value chains, such as those for cheap consumer plastics, could be completely dismantled. Other companies will respond by developing and selling more exclusive product designs, rather than manufacturing, distributing and packaging individual products for online markets and store shelves. On the flipside, a number of manufacturers will reimagine their business models to tap into a growing movement of independent designers who can supply affordable, innovative and highly specific designs.

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[4] How GE Plans to Act Like a Startup and Crowdsource Breakthrough Ideas. Wired.com, April 11, 2014. http://www.wired.com/2014/04/how-ge-plans-to-act-like-a-startup-and-crowdsource-great-ideas/

[5] Hållbara Affärer Seminar, 2013.

EPILOGUE – NEW TECHNOLOGIES ON THE HORIZON

Robin Teigland foresees a possible future where 3D printing has eliminated the need for traditional manufacturing companies. In this scenario, a product company's primary role is to provide a vision of a product or function and to create it digitally, rather than to take responsibility for the entire value chain. We can already see this logic taking shape in crowdfunded projects, where new innovative product ideas emerge on a daily basis. As 3D printing removes some of the major hurdles in sourcing and scaling manufacturing facilities, even the smallest-scale startups will be able to sell a vision of a product, design it digitally, and manufacture it on-demand.

Wearable technology

Google Glass? Smart watches? Or smart rings? Whatever breakthrough device manages to follow the success of the smartphone, the market for wearables remains wide open for the taking. In a fast-expanding world of interconnected devices, it's only a matter of time before at least one of them is attached to our bodies, integrating our personalities, behaviors and biological patterns into the Networked Society in real time. Beyond interactive lenses and touchscreens, technologies currently under development include clothing (e-textiles), connected accessories or miniature earpieces with voice recognition and speech capabilities. Further down the road, implanted microchips and sensors inside our bodies are the next logical step, at which point the body itself becomes deeply integrated into the surrounding networked ecosystem.

Just as today's hyper-connectivity empowers users and changes market rules, wearable technologies will continue to remove much of the friction between technology and everyday life. Voice recognition, eye tracking and geolocation will complement or replace manual inputs such as tapping and typing. And users will passively share information between their own miniature sensors and those embedded in the connected environment. Technology will become increasingly omnipresent in all aspects of a person's behavior, forcing companies to design entirely new user experiences that adapt in real-time to changing contexts and preferences. The health care industry is likely to be a major driver in this development, as systems of mass care and treatment shift to personalized care, enabled increasingly by wearables capable of measuring and monitoring bodily functions.

Augmented reality

Augmented reality – a live environment augmented by computer-generated sensory input – is a natural consequence of wearables like Google Glass or bionic contact lenses. As far as near-term commercial applications, it could be used to provide enhanced product information, product recommendations, views of the contents of product packages, or automatic activation of different features. Augmented reality is also expected to have a major impact on marketing as objects and images in the physical world may trigger commercial communication like ad messages, videos, store navigation and additional product information. As with any wearable user interface, augmented reality will require companies to rethink how they design user experiences, maintain ongoing communications with customers and utilize the massive amounts of data generated in the process.

Cognitive computing

Eilif Trondsen, Research and Program Director of the Virtual Worlds Consortium for Innovation and Learning (VWC) at SRI Consulting Business Intelligence, expects cognitive computing to have a significant impact in the near future. He sums up the promise of cognitive computing, in which computers continuously learn rather than being hardwired solely to perform certain tasks, in the following way:

> "The kinds of computers that we see emerging in the future, you can interact with them differently. They will have speech recognition and image recognition, so you're basically talking about IBM's Watson in the sky."

EPILOGUE – NEW TECHNOLOGIES ON THE HORIZON

The demand for cognitive systems will be driven in part by a need to manage and analyze all of the "big data" that is already available to some extent in all organizations. Cognitive systems will be required to draw more relevant conclusions based on these massive quantities of data, since humans will always experience natural limits in time and cognitive capacity. For example, with the aid of cognitive systems, services will be able to cater to much more specific contextual needs and desires as devices and software learn from and analyze people's behavior in different situations. As the need to provide contextually relevant services becomes increasingly important in future markets, the advent of commercially available cognitive computing systems will mark a significant turning point in the evolution of digital products and services.

Virtual worlds

Virtual worlds have existed for some time, most often in gaming-oriented environments such as Second Life and massive multiplayer online role-playing games (MMORPG's) like World of Warcraft. But as broadband and computing capacity expand, virtual environments are becoming viable for a much broader range of uses. The virtual worlds of tomorrow will encompass both full-scale, immersive representations of the physical world and completely imaginary universes.

The most obvious business implication of virtual worlds is the possibility to move physical office spaces and collaboration into a digital environment. Meetings, workshops, seminars and presentations might be held using avatars, immersive environments or 3D digital models that allow "hands-on" interactivity in ways that today are impossible. The virtual office building will of course change how businesses are organized and give distributed workforces an entirely new set of tools for virtual collaboration.

For example, a business that wants to engage a plant overseas to manufacture their product lines might inspect the factory and machines in the virtual world before deciding on that particular supplier, much as we use Google Streetview today to explore a distant neighborhood. Moreover, the company will be able to suggest changes that need to be made in the factory to suit their manufacturing requirements. Chris Collins, founder of Tipodean Technologies, gives another, more current, example that combines virtual worlds with augmented reality:

"A great example would be if you were getting a building done and I take you to the building site. There's nothing on the ground and I say to you: Here's the iPad, hold the iPad up there. And I use augmented reality so you can see the building. I can do that now – we can do that now – but the cost for you to be able to do that is too expensive."

In a similar fashion consumers would be able to experience products before they purchase them, such as trying on clothes in the virtual world with a custom-measured avatar. The implications of this for clothing retailers, not to mention for the urban environment itself, would be nothing less than revolutionary.

If companies today have websites and apps, they might have complete virtual representations of themselves in the future. Whether these complete virtual representations will be available in a cohesive virtual world like Second Life, or linked together separately as with today's websites, remains to be seen. Most likely a company will need to offer access to their own virtual world from all contexts, just as companies today are represented on the web, in app stores and on Facebook – a sort of rudimentary virtual world in its own right.

Ericsson is the driving force behind the Networked Society - a world leader in communications technology and services. Our long-term relationships with every major telecom operator in the world allow people, businesses and societies to fulfil their potential and create a more sustainable future.

Our services, software and infrastructure - especially in mobility, broadband and the cloud – are enabling the telecom industry and other sectors to do better business, increase efficiency, improve the user experience and capture new opportunities.

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