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WORKING PAPER

How can traditional businesses react to the digital transformation tsunami? Four steps to success

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How can a company overcome a 90% drop in revenues? By using big data. But how? Where should it start? This is the situation that major Dutch healthcare company Mediq faced in 2012. It used to be just a drug retailer and distributor of pharmaceutical products from its warehouses and through its own 200+ pharmacies in the Netherlands. But in 2012 the Dutch government deregulated pharmaceutical fees, resulting in an immediate 90% drop in the company's profits. In order to survive, Mediq had to reinvent itself. It did so using big data.

Prior to 2012, Mediq's profits came from the fees it earned on the medicines it sold. Those revenues vanished with the deregulation. Mediq's solution was to harness the massive amount of patient information to which it had access and that it had not considered capitalizing on before its "big crash." However, this also meant completely changing its focus and the way the company functioned. It started from scratch, going back to its core essence and reviewing its mission in order to rebuild itself on solid foundations.

Under the leadership of the CEO, the top management team transformed the company's main mission from packaging and distributing medicines and medical supplies to taking care of patients. It designed a new business model that placed the patient, rather than medicines, at its center. Improving the quality of life of patients and avoiding unnecessary hospitalizations now drove the company's activities. Indeed, studies revealed that many hospitalizations in the Netherlands resulted from the misuse of medications. Preventing such occurrences would not only improve the lives and health of these patients but also save millions of euros in healthcare costs. With this new business model in mind, Mediq mandated an external company to estimate (based on big data) the annual hospital admissions due to medication misuse for each patient as well as the total cost that this represented for insurance companies. By knowing its customers, tracking their medical treatments and offering advice on their use, Mediq could drastically reduce the number of such cases and the associated costs.

The next step was to turn this great idea into a profitable new business model. Mediq could no longer survive on the fees paid by its patients, and besides, this was no longer its goal. Instead, part of its earnings would come from the savings achieved from implementing its new model. Indeed, Mediq approached insurance companies and convinced them, based on the results of its study, to split the savings they achieved as a result of Mediq's new model. At the time of writing, these earnings represented half of Mediq's total profits.

Traditional business models? Those days are gone

Zuora CEO Tien Tzuo, told Fortune magazine in 2015:

> Let's look at how business has been taught for the past 100 years. It is a truth universally acknowledged that the fundamental goal of business is to create a hit product. You then sell as many units of that product, thereby spreading your fixed costs over as many units as you can, and you compete on margins. Well, in my opinion that's all worthless. Those days are gone (Tzuo, 2015).

Mediq is good proof of this statement. Before reinventing itself, the company's profits came from packaging and distributing medicines and medical supplies. But its management team recognized the market opportunity of catering instead to the needs of patients. Its new business model was based on integrated pharmaceutical care (IPC) with key value drivers based on the tangible added value of knowledge-based services and compensation focused on providing patient care. In other words, Mediq changed its focus to improving the quality of life of patients and preventing avoidable hospitalizations by knowing its customers and tracking their medical treatments using big data and working within an ecosystem.

Many other organizations are increasingly following this trend, acknowledging that they are part of a business ecosystem – a network of organizations that includes suppliers, distributors,

manufacturers and so forth who compete and collaborate with one another to deliver a physical product or service. In such an ecosystem, each player affects and is affected by the others in a constantly evolving relationship and has to be flexible and adaptable in order to survive. (Investopedia, n.d.)

To add to this complexity, industry boundaries are blurring. Until recently, it was clear in which industry a company operated. Can we say the same today? Take the pharmaceutical industry. Some years ago its players were clearly defined and positioned in the value chain and it was difficult for them to navigate between industries. That is no longer the case. Mediq's new business model, for example, took it from pharmaceuticals distribution and logistics to healthcare. Similarly, Apple started out making computers but then moved on to also produce smartphones, digital media players and smart watches, and rumors suggest it may even be considering entering the car industry. Thus, Apple now competes in multiple industries, including telecommunications and watches, and it may soon move into the automotive industry.

Big data changes everything

In order to understand how big data is changing everything around us, we first need to understand how it is affecting consumers and their behavior because this evolution has modified the way companies communicate with them. More than that, to be able to engage with consumers who have integrated digital into their lives, companies are witnessing how, in some cases, they find themselves having to transform everything they do.

What are the implications of adapting to the digital revolution? These depend on each company's situation and can range from making strategic tweaks in order to find the best "digital fit" with the organization's big data environment to "transforming the DNA" and reinventing the company.

To adapt their company's strategy to meet the challenge of the new era, executives need appropriate business tools. Below we propose a four-step methodology that combines several such tools to help executives unlock new ways of thinking and embrace newly emerging concepts to begin their digital journey, whatever their industry or type of company.

New consumers expect new experiences

One thing that is triggering big data transformations is the evolution of consumer profiles. LEGO, the world's largest toy maker, remarked that consumers were increasingly integrating digital and physical worlds in their gaming and shopping experiences. Like other toy companies, and in order to fit into this new landscape and keep its consumers engaged, LEGO developed a new line of products, LEGO Fusion, that merge physical and digital realities.

However, this was not enough to succeed in the big data era. When users interact with companies, they want a consistent social media experience across all channels. To avoid fragmentation and ensure that data was sharable, LEGO designed its "Ecosystem" in a way that combined all its digital consumer platforms into a single experience for users. Information about each user was centralized and an improved database facilitated handling consumer data.

This tendency to combine physical and digital channels to enrich the consumer experience is apparent in many other areas. According to a Google report, "Consumers still visit stores for more than just transactions, but they now expect more out of any place they shop. They want informed, customized experiences" (Google, 2014a). These consumers use their smartphones as an information point to compare prices among stores or obtain further information about a product. Companies like US beauty and personal care retailer Sephora

work to fulfill these needs by providing apps for customers to use in their stores to obtain additional information about products on display, inventory and so forth (Google. 2014b).

More effective marketing

Until recently, companies believed they knew more or less who their clients were, where to find them and how to reach them through television and other mass media. The reality is that the error margin was high because they relied on information collected from a sample of volunteers who had agreed to have a device installed in their homes to log what was being watched on television. To ensure they were indeed reaching their real focus market, companies usually targeted a much wider audience. Not only was this extremely expensive but also there was no guarantee that their target group was effectively seeing the advertisements. Big data from cable and digital media makes it possible to know who is watching what and when because it tracks the entire audience – not just a sample – all of the time. Companies can use this information to devise accurate and micro-segmented campaigns aimed at specific groups of consumers, which is considerably more effective and much cheaper. Micromarketing products or services to a small segment of the market can now, thanks to big data, be used on a large scale.

Some savvy computer users are using software to simulate that they are using an old, cheap computer (instead of a brand new expensive one) for their online shopping. Indeed, big data provides companies with detailed information about consumers, which allows organizations to understand customers and their behaviors much better and therefore microsegment and target them more effectively, even at an individual level. This is the market of one: personalized marketing that establishes a one-to-one relationship between the customer and the organization and allows companies to tailor their offerings to each individual.

In this scenario, two users visiting the same website at the same time might see different offers according to what the company thinks each one may be interested in buying. Similarly, two users may be quoted a different price for the same product depending on the device being used – an old PC and a brand new smartphone for example – and what the seller estimates they will be willing to pay. Furthermore, websites can track visitors' habits and change their prices accordingly, offering loyalty discounts to repeat customers or anything else to delight consumers and encourage them to buy more. So using an old computer (or a program to make it look as if this is the case) to shop on the web can increase the chances of obtaining a better deal.

Big data to ensure a common language

Not everything about big data is positive for companies. Data can mean different things to different people and be used in various ways. In a large multinational for example, one country office might include the impact of its discounts on its net sales profits in its sales data; another might apply a different formula and exclude discounts from its net sales data. To be able to compare the information (e.g. revenues) from different country offices, companies need to ensure that everyone is using the same parameters. Some software companies offer programs to cleanse and integrate all the data to eliminate invalid information and ensure better quality final data.

LEGO was aware of such a problem. The company gathered information from its countries as well as from its partner retailers (Walmart, Amazon) and from social networks (LinkedIn, Facebook, etc.). However, the information was provided in different formats by different entities. It was vital for LEGO to agree on common definitions and ensure that everyone used common formats for all the data. Making sure that everybody in the company spoke the same

language and used the same terminology and database parameters was LEGO's first step in moving forward in the implementation of big data.

Starting out on the big data journey: Where does your company stand?

We have seen how big data is changing everything from the external environment to internal processes. We believe that adapting to big data is no longer a wish, it is a must. However, companies first need to understand to what extent they will need to implement it. Our research indicates that before a company starts out on the journey, its management team needs to agree on the scope of the change. This involves discussing, reviewing and agreeing on, as a team, what areas will be impacted by the change. In many cases members of the same team have different ideas about the scope of the big data journey they want to embrace. During a recent workshop with the C-suite of a multinational, the main concern of the 11 top executives in the room was to align their understanding of digitalization and big data. They considered this to be a mandatory step before moving on to agree on a common strategy.

There are three main levels of big data implementation:

1. **Digital fit**: A company can pursue digital "fits" to exploit the advantages of big data and seize the improvement opportunities it offers. In the logistics industry, for example, the implementation of a system to visualize delivery routes has allowed some organizations to save 15% to 20 % of their total transportation costs. Digital fits can be as significant for companies as the introduction of computers was. Initially, it was thought that they would change processes but not lead to fundamental shifts in the way organizations operated. Today we cannot imagine a company functioning without them.

2. **Digital masterplan:** A company that finds itself fighting to survive and that needs to revise its overall strategy in order to do so will require a digital master plan. Fast-moving consumer goods companies like toy manufacturers are witnessing the rise of a new consumer profile that combines digital and physical worlds (playing digital games and shopping online, for example). To respond, they will need a master plan to digitize their business.

3. **Digital DNA:** When a company goes through a transmutation that completely changes its business model and that its new strategy is driven by big data, we say that its DNA has become digital. Some organizations are already making big data the core of their business. Global financial company BBVA, for example, made its digital transformation one of its main strategic priorities, to the extent that it nominated its head of digital banking as the new CEO to lead its big data journey. At the same time it closed its digital banking unit because it wanted to make digital innovation a priority across the entire organization.

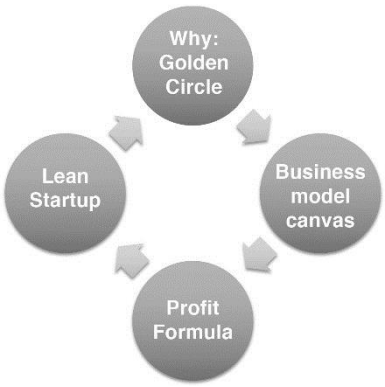
The C-suite executives of this multinational positioned their company within the digital masterplan level, knowing that each of the four divisions of the organization would work at different paces during the implementation – and their starting points would probably not be the same either.

The four steps to embark on the digital journey

To navigate this big data tsunami, executives will need appropriate business tools and will have to "unlearn" the old models, which are based on stable industries. The new tools are adapted to managing ecosystems.

Below we propose a four-step methodology that integrates a new set of business tools designed for embracing the big data era (see Figure 1).

Figure 1: A four-step model for adapting companies to the changing landscape



This methodology involves asking crucial questions at the beginning of the digital journey in order to work out how to adapt the company to the big data movement and compete in a blurry industry landscape. These questions are aimed at helping executives answer the following questions:

1. Why does the company exist?
2. How will its business model look in the big data era?
3. What is its profit formula?
4. How should the strategy be executed?

The first question to ask is, "WHY" does the company exist? We propose to use Simon Sinek's Golden Circle to address this. The second question is, "HOW" do I make the change suggested as an outcome of the first step? We suggest a simplified business map inspired by Osterwalder and Pigneur's (2010) business model canvas to help us in this task. The canvas (or map) is useful for understanding and capturing in a snapshot how a company functions. The third question is "WHAT" needs to be done to improve and maximize the company's profit? The profit formula tool is useful to work this out. Finally, we look at how to execute the new business strategy more efficiently and successfully using the principles of Lean Startup. Part of the Lean Startup concept is to always measure and collect feedback and learn from it, repeating the process again and again as a cycle aimed at adapting to customers' needs.

Asking the right questions: Why does my company exist?

When Mediq lost 90% of its source of revenue it had to think quickly about its next move. The top management took on the challenge of reinventing the company. Up until then, Mediq was industry driven and mainly focused on packaging and distributing drugs. Formulating new questions meant completely rethinking the way it made money. It took its cue from the information at its disposal, in particular that 19,000 hospitalizations per year in the Netherlands were avoidable. This represented around €85 million in potential savings. By placing the patient at the center of its WHY, Mediq switched from being industry driven to being socially driven. This shift would probably not have been possible prior to the big data era because Mediq would not have had the necessary tools.

Simon Sinek (2009) developed his "Golden Circle" to guide companies through the process of shifting their focus from WHAT they do to WHY they do it in order to define their purpose. Traditionally, companies based their selling arguments on WHAT they did. They communicated from the outside in, starting by explaining what they did, how they did it and, in a few cases (most of the time companies do not know), why they did it.

Sinek proposed to reverse the order and start communicating with customers from the WHY. Today's consumers care more about the reason a company is doing something and its purpose as a company than about the type of product or service it sells. Consumers want to feel engaged with what they are purchasing – they want the act of buying to become a complete and fulfilling experience. The only way for companies to satisfy that wish is to tell consumers WHY they are doing what they do.

In Mediq's case, the purpose of its existence changed when it reconsidered its WHY. As a result, it went on to change its business model, its mission and the way it made its money and products.

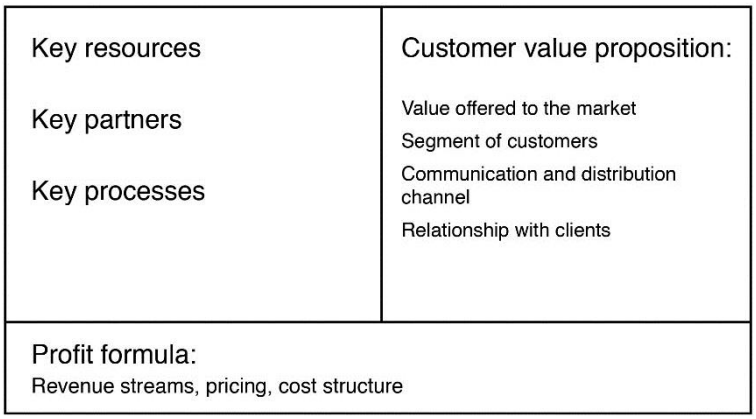
How will my company business model look in the big data era?

Having articulated the company's WHY, the next step is to visualize and synthesize the company and its ecosystem. A useful framework to do this is Osterwalder's Business Model Canvas, which helps to see the company as a whole and connect all the dots around it. Osterwalder originally proposed it as a tool for new technological startups that needed to be able to explain to investors, in a simplified manner, how they worked and where they would make their money (Osterwalder and Pigneur, 2010).

Others built on the business model concept by adding the profit formula. An article entitled "Reinventing your business model" (Johnson, 2008) reviewed and highlighted the importance of the new business models in reshaping industries and companies. According to the authors, a business model starts with the value proposition – the way the company creates value for its customers – and should always include a profit formula. The key resources (people, technology, products, facilities, equipment, channels and brand) and processes are the other two important elements to include.

Building on both these proposals we modified Osterwalder's canvas, adding the profit formula and reducing the number of boxes to just three, to differentiate three concepts: Internal resources, information about customers and the way the company wants to make money – the value proposition. The outcome is the simplified canvas depicted in Figure 2.

Figure 2: A simplified canvas – The map



This revised canvas was driven by the need to make it not only easier to understand the business model at a glance but also simple to explain. The three sections are:

- The key elements, which groups together the key resources, partners and processes because they all determine the way the company operates.
    - The **resources** include everything that is needed to make a product: the team, the factory, the brands, intellectual property, etc.

  - The **partners** are companies that the organization works with and interacts with to deliver its product(s) or service(s). They are mainly suppliers but can also include firms that the organization interacts and collaborates with in the ecosystem.

  - The **processes** are the ways in which the organization generates its product(s) or service(s). They can include the purchase-to-pay process, the order-to-delivery process, the order-to-cash process, etc. They also encompass other functions such as training, development, etc.

- The **customer value proposition**, which includes the value that a company brings to the market as well as all the elements that relate to communication, customer segmentation and the relationship with partners.

- The **profit formula**, which synthesizes the elements that are used as key indicators to create the profit formula, such as the revenue stream, pricing and the cost structure. We discuss the profit formula in detail a bit later.

Space Tango, a small company dedicated to launching nanosatellites into space for research purposes, was born, like Google, out of a great idea. However, its creators did not know how to make it profitable. The company needed to figure out how to make money using these small satellites. Would the anti-gravity experiments to discover life-saving learnings be its best profit formula? Or should it focus instead on selling the satellites themselves? In a context of blurring industry boundaries, new kinds of companies like Space Tango needed tools to work out the best way to turn their ideas into profitable businesses and design novel business models.

The exercise of completing the canvas revealed that Space Tango had a choice of three business models to potentially turn the company into a successful business:

1. **Selling satellites:** In this case Space Tango would obtain its revenues from each nanosatellite (CubeSat) that it sent to space. Space Tango would manufacture the satellites, equip them with whatever the client wanted to send to space, and then launch and place the satellites in their orbit. Space Tango's revenues would come from the margin it earned on the CubeSat multiplied by the number of CubeSats it sent to space.

2. **Selling experiments:** With this business model, Space Tango would sell experiments and focus on maximizing the use of the room available in the International Space Station (ISS) to place experiments there. It would prepare the experiments but someone else would send them to the ISS.

3. **Selling consulting services:** Space Tango's third potential business model consisted in providing consulting services to other companies.

4. In each of these business models, the way in which Space Tango would make its money – its profit formula – was different. Profit formulas may seem straightforward but they can, in fact, be quite complex, as explained below.

What is a profit formula?

Traditionally, companies that manufactured physical products used cost accounting to work out their margin. Their profit formula was simple. All they needed to worry about was the price of the raw materials and the margin they wanted to earn. Today things are not so straightforward. As Tzuo (2015) explained in an interview with *Fortune* magazine, not all companies sell physical products – some offer online services and others have different sources of revenue.

Going back to the Mediq example, before the company reinvented itself, its income came from its margins on the medicines and medical devices it sold. The shift in its purpose and business model fundamentally transformed its profit formula from a single traditional one to two new, apparently contradictory profit formulas. On the one hand it earned fees on the medicines it sold. On the other hand, it earned income by keeping its clients healthy since insurance companies paid Mediq based on the savings they achieved as a result of reducing hospitalizations. At the time of writing, each profit formula accounted for 50% of Mediq's revenues.

This shows that companies can apply a variety of profit formulas to succeed. The key is to find the one (or ones) that works best for a particular company and its business model.

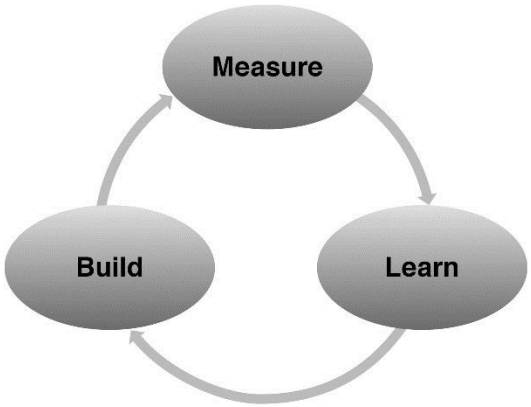
How should the strategy be executed?

The last step of our four-step framework is to implement the strategy in the most efficient way possible. A useful tool at this stage is Lean Startup.

Eric Ries designed the Lean Startup methodology to help startups go to market. It adapts Lean (the famous methodology introduced by Toyota for eliminating waste within a manufacturing process) to startups and their particular reality. Startups usually fail because they spend so much time perfecting a product that by the time it finally reaches the market, it fails to capture the interest of customers. Inspired by the few companies that did succeed – out of the millions that failed – Lean Startup offers a systematic approach to creating and managing startups and bring their products to market faster by eliminating wasted working time, investments, etc.

The initial product that the startup develops does not need to be perfect. On the contrary, most likely it will be basic and even unfinished (at this point it is called a minimum viable product) but good enough to fulfill its intended purpose and help the startup measure its effectiveness. A minimum viable product is a prototype that the company brings to the market to test how users react. It is crucial to collect the feedback from these early adopters and learn from it. This is what Lean Startup defines as *validated learning*. It serves to improve the product before it is manufactured on a larger scale. The testing never ends. The startup must measure and learn from the results of each iteration then *pivot*, i.e. adapt the product to the new reality (see Figure 3). Lean Startup is thus based on an ongoing experimentation, learning and adaptation cycle.

Figure 3: The LEAN startup cycle



Lean Startup is not only for startups or small companies. Big corporations like Accenture, Coca-Cola or General Electric are also using it to increase their teams' agility, speed, focus and drive – traits that such giants usually lack (Alsever, 2015). General Electric created a whole program, FastWorks, based on Lean Startup, to develop and launch a new turbine, which it did in less than two years, half the time it would normally have taken (GE, 2015).

Conclusion

Whilst historically companies' business models were stable and could remain pretty much unchanged for years, we are noticing a new trend that shows how, as part of their digital journey, big and well-established corporations are generating new models inside their organizations, and these models do not necessarily have much to do with previous ones or with each other.

The evolution toward the digital is complex. As we have seen, it often implies delving deeper into the company's essence and making changes from its core.

Even big data companies are finding it difficult to manage all the opportunities brought on by the digital era. The wide range of possibilities generated by blurring industry boundaries (where companies can enter new industry sectors that were closed to them previously) reveals that the situation is difficult to handle even for the most digital company on earth, Google. As Google CEO Larry Page said, he created Alphabet to make the company "cleaner and more accountable" (Google, 2015). Alphabet was born to bring together a collection of cross-industry projects and companies, and Google, which manages all activities related to Internet services, is now a subsidiary of Alphabet. All the projects are expected to become independent companies with their own brands. This shows that ultimately, expanding a business in new directions is a tempting opportunity that is, in many cases, worth pursuing. However, it also implies serious challenges that need to be considered.

One way of evaluating if such an adventure makes sense is to use a tool like the business model canvas or business map. Companies need to verify if a diversification move of this scale would bring them a competitive advantage or if embracing such a projects would mean they were merely acting as incubators.

As business models continue to evolve, the new ones bear little resemblance to the traditional ones. Big data is shaping and reshaping them for good, and companies need to use the tools at their disposal to continuously adapt to the new reality.

Are you ready?

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