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THE EXPONENTIAL ORGANIZATIONS

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"Are you working on something that can change the world? Yes or no?"

Larry Page

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INTRODUCTION

In the pages that follow the primary aim is to offer a detailed look at what is called "*time of exponential change*" and its main protagonist, the *Exponential Organization*, and how it will change the way enterprises work and live. It will be studied how CEOs and entrepreneurs, whose companies are leveraging a newly available set of externalities, are scaling their organizations at many times the normal rate of typical companies in order to better understand how accelerating technologies are changing the course of nations, industry and all of humanity. More important there will be also demonstrated how existing organizations have to adapt if they want to avoid certain failure. The intent of this thesis also lies in fostering the connection between the Exponential Organizations and the *Lean Startup methodology* to business creation. But ExO's are not exclusive for small and flexible startup in fact some degree of its concepts can also be found in bigger and more established firms: for this reason two case studies will be presented, one for a small startup (Github) and another one for a much massive company (Xiaomi).

Our environment is changing exponentially, mainly driven by exponential technologies and globalization. As a result, the world is becoming increasingly open and transparent and we are slowly moving from a world of scarcity to a world of abundance. Potent forces are emerging in the world—exponential technologies, the DIY (*do it yourself*) innovator, crowdfunding, crowdsourcing —that will give companies the power to solve many of the world's grandest challenges and the potential to meet the needs of every man, women and child over the next two to three decades. These same forces are now empowering smaller and smaller teams to do what was once only possible via governments and the largest corporations. There is a new entrepreneurial class powered with the latest generation of Internet-delivered technologies—everything from Google and Artificial Intelligence, to 3D printing and synthetic biology. As such, we will see an explosion in the rate of innovation, as millions of new innovators begin to experiment and upload their products and services and launch new businesses. If one may think that the rate of innovation has been fast in recent years he can rest assured: he hasn't seen anything yet.

However, our organizations are still linear: hierarchical, centralized, closed, top down and focusing on ownership due to scarcity of people, resources, assets and platforms. They evolved one hundred years ago for an era of economies of scale and relative stability and predictability. Now it is time to introduce the Exponential Organization leveraging openness, transparency and abundance in a new way. This is a new organizational model that is conducive to an exponential age. It closes the gap between the linear organization and its exponential environment. It is at least 10x more effective, efficient and/or faster relative to its linear peers in the same market. Today the only constant is change, and the rate of change is increasing. Your competition is no longer the multinational corporation overseas, it's now the guy in the

Silicon Valley or Bandra (Mumbai) garage using the latest online tools to design and cloud print their latest innovation. But the question remains: how can you harness all of this power? How can you construct an enterprise that is as quick, adept and innovative as the people who will be part of it? How is it possible to compete in this accelerated new world? How will enterprises organize to scale?

The answer is the Exponential Organization.

1. CHAPTER ONE: EXPLORING THE EXPONENTIAL ORGANIZATIONS

The model presented in this chapter is based on the work conducted by Salim Ismail in his book *"Exponential Organization: Why new organization are ten times better, faster and cheaper than yours (and what to do about it)"* unless stated otherwise.

1.1 THE OUTDATED LINEAR EQUATION

For most of recorded history, a community's productivity was a function of its human power: men and women to hunt, gather and build, and children to assist. Double the number of hands and the community doubled its output. In time, humanity domesticated beasts of burden and output increased further. But the equation was still linear. Double the beasts, double the output. As market capitalism came into existence and the industrial age dawned, output took a huge leap. Now a single worker could operate machinery that did the work of 100 labourers. The speed of transport, and thus distribution, doubled, and then, for the first time in human history, tripled. Increased output brought prosperity to many and to the standard of living. Starting at the end of the eighteenth century and continuing through the present—and largely the result of the intersection of the Industrial Revolution and the modern scientific research laboratory—mankind has witnessed a doubling of the human lifespan and a tripling of inflation-adjusted per capita net worth for every nation on Earth. During this most recent phase of human productivity, the limiting factor to growth has shifted from the number of bodies (human or animal) to the number of machines and the capital expense deployed. Companies have grown ever larger, and they now span the globe. With size has come increased global reach, the potential for sector domination and, ultimately, enduring and hugely lucrative success. But such growth takes time and typically has required enormous capital investment. Pharmaceutical, aerospace, automotive and energy companies routinely find themselves making investments whose returns might not be known for many years. Although a workable system, it is far from an optimal one. Too much money and valuable talent is locked up in decade-long projects whose likelihood of success can't be measured almost until the moment they fail. All of which adds up to enormous waste, not least in terms of lost potential to pursue other ideas and opportunities that could benefit mankind. This new age calls for a different solution to building new business, to improving rates of success and to solving the challenges that lie ahead.

That solution is the *Exponential Organization*.

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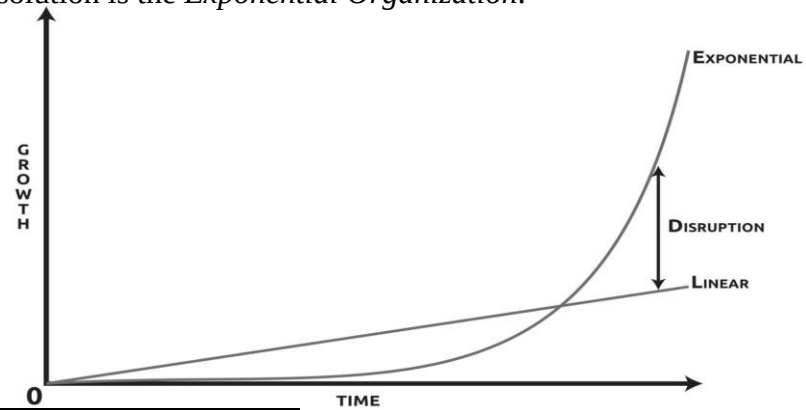


[1] ***Kurzweil's and Moore's Law on the exponential growth of a company***

The evolution of the Exponential Organization can be studied by analysing how this concept represented a critical breakthrough inside the Innovation Theory and the traditional ways of business thinking. Over the course of the last twenty-five years, academic thinking on disruptive innovation has evolved through three distinct eras. Before the information age, conventional wisdom held that new markets were created from the top down. Innovators create differentiated goods targeted to customers who could afford to pay more and were willing to do so. Often earning the title of "luxury goods," thanks to learned efficiency and economies of scale these goods would later trickle down to mass markets in the form of similar if scaled-down versions sold at lower prices. According to Harvard Business School professor *Michael Porter*[2], companies can achieve competitive advantage only by innovating along one of three "generic" strategies, each of which implements the top-down approach in a different way. Companies are urged either to differentiate their market offerings with special features that justify a premium price, or to optimize production efficiencies and sell at a lower price than competitors. Porter's third generic strategy is a variation on the first two, focused on serving just one segment of the market extremely well. But in his important 1997 book *The Innovator's Dilemma*, Clayton Christensen challenged the top-down view of innovation, and argued persuasively that disruptors often work from the bottom up, this is the second era of disruptive innovation theory. To avoid the "innovator's dilemma," Christensen urges incumbents to watch for disruptive technologies in the form of lower-quality substitutes that enter the market first by picking off the least-profitable customers and then, as the technology improves, moving up to become competitive with market leaders. In this model, executives who see the early signs of disruption are believed to have plenty of time to respond by testing the new technology and preparing to shift when price and performance make it acceptable to mainstream customers. In the third stage of strategic thinking on innovation, W. Chan Kim and Renée Mauborgne, the authors of *Blue Ocean Strategy*[3], update the bottom-up view of gradual disruption with examples of innovators who stop thinking about traditional products and traditional competitors altogether. Rather, these disrupters tap into new and unmet needs in existing, even mature, categories—coming at them more or less sideways. By understanding the range of values customers place on different product and service feature combinations, according to this view, innovators can offer more of some and less of others, targeted at a particular segment of the market. We have entered now a fourth stage of innovation—the era of *Big Bang Disruption*[4] and *Exponential Organization*[5] . The new disrupters attack existing markets not just from the top, bottom, and sides, but from all three at once. By tying their products to the exponential growth and falling costs of new technologies, their offerings can be simultaneously better, cheaper, and more customized. Not just for one group of users, but for all (or nearly all) customers. The suddenness with which this radical change can occur presents an insurmountable obstacle for traditional academic approaches to strategy. The meticulously prepared strategic plans of Porter can be neutralized in an instant. The relatively

[2] *Porter, M. E. The Competitive Advantage: Creating and Sustaining Superior Performance. NY: Free Press, 1985*

[3] *Kim, W. C., & Mauborgne, R. (2005). Blue ocean strategy: How to create uncontested market space and make the competition irrelevant. Boston, Mass: Harvard Business School Press.*

[4] *Downes , L. , Nunes , P. (2014) , Big Bang disruption , Egea*

[5] *Ismail , S. (2014) , Exponential Organization : Why new organization are ten times better, faster and cheaper than yours (and what to do about it) , ExO Partners LLC*

leisurely pace of response recommended by Christensen, and even the clever search for blue oceans no one else has yet navigated, can each be catastrophic.

Making these types of breakthroughs may still require intense research, development and testing — but taking advantage of them does not. The abundance of ever-cheaper, more powerful technology allows small teams with the right approach to accomplish goals previously only achieved within the province of governments and major companies — and to do so faster and more effectively than their bigger competitors.

From crowdfunding to big data analytics, the tools available to businesses have been diversifying and amplifying exponentially for years now. The incentives for businesses to utilize them have, too.

But exponential companies aren't simply more competitive. They're also, in many cases, the only types of organizations set up for long-term survival.

Not very long ago, vertical integration was the cutting edge of global business. Indeed, well into the last century, the companies considered to be at the forefront of innovation were those resting atop the largest and most sprawling networks of operation. Today's business leaders stake their success on the opposite model of development. Increasingly, "agility" is the determining factor of market competitiveness, "leanness" its new underlying impetus. The fear of being outmaneuvered in the digital age has sent even corporate giants like General Electric scrambling to adopt methodologies from the startup community.

One of the last persistent hangovers from the previous mindset is the presumption of scarcity. For businesses operating under the notion that the resources available to them are fixed and at a premium, the goal has been and always will be to control as many stages of production and distribution as possible. Technological capabilities may be rising exponentially, but so are the demands presented by the so-called digital revolution. Given the continued penetration of mobile devices and mobile application software, and the advent of the Internet of Things, the sheer amount of available information presents potentially insurmountable challenges for manually dependent big data analytics. What should be an abundance of data becomes an acute scarcity of actionable business insights within a linear framework. Only exponential organizations are structured in such a way that allows them to realize the full potential of the digitized business economy currently taking hold.

Evolving as an exponential organization, in that sense, is as much a necessity as it is a choice.

But the shift toward an economy of abundance is already under way. And it is only a matter of time before the broader business community reaches the understanding that the exponential organization not only offers distinct strategic advantages in today's business world, it may very well come to define it.

1.2 THE CONCEPT OF "EXPONENTIAL ORGANIZATION"

The concept of the Exponential Organization (ExO) first arose at Singularity University, founded in 2008 with the mission of helping a person or a company positively impact the lives of a billion people. The formal definition of an ExO is:

"An Exponential Organization (ExO) is one whose impact (or output) is disproportionally large—at least 10x larger—compared to its peers because of the use of new organizational techniques that leverage accelerating technologies."[6]

Rather than using huge amounts of people or large physical plants, Exponential Organizations are built upon information technologies that take what was once physical in nature and dematerialize it into the digital, on- demand world. In fact instead of owning assets or workforces and incrementally seeing a return on those assets, ExOs leverage external resources to achieve their objectives. For example, they maintain a very small core of employees and facilities, allowing enormous flexibility as margins soar. They enlist their customers and leverage offline and online communities in everything from product design to application development. They float atop the existing and emerging infrastructure rather than trying to own it. And they grow at incredible rates precisely because they aren't dedicated to owning their market, but rather to enlisting it to their purposes.

Everywhere we can see this digital transformation taking place: In 2012, 93% of U.S. transactions were already digital; physical equipment companies like Nikon are seeing their cameras rapidly being supplanted by the cameras on smartphones; map and atlas makers were replaced by Magellan GPS systems, which themselves were replaced by smartphone sensors; and libraries of books and music have been turned into phone and e-reader apps. Similarly, retail stores in China are being replaced by the rise of e-commerce tech giant Alibaba, universities are being threatened by MOOCs such as TedX, and the Tesla S is more a computer with wheels than it is a car.

That is the very definition of a paradigm shift. There's an important lesson illustrated in each of these anecdotes, which is that an information-based environment delivers *fundamentally disruptive opportunities*. There are thousands of similar disruptions taking place across the global economy, where just such a profound shift is occurring from a physical substrate to an information substrate. That is, at the heart of every one of these disruptions—these evolutionary leaps—can be found a fundamental change in the *role of information*. Together they show that we are shifting to an *information-based paradigm.*

[6] *Ismai , S. (2014) , Exponential Organization : Why new organization are ten times better, faster and cheaper than yours (and what to do about it) , ExO Partners LLC*

In his book "*The Singularity is Near: When Humans Transcend Biology"* Kurzweil identified a hugely important and fundamental property of technology: when you shift to an information-based environment, the pace of development jumps onto an exponential growth path and price/performance doubles every year or two. This evolution from Moore's law (Moore's law refers to an observation made by Intel co-founder Gordon Moore in 1965. He noticed that the number of transistors per square inch on integrated circuits had doubled every year since their invention. Moore's law predicts that this trend will continue into the foreseeable future. In other words Moore's law suggests exponential growth*)* clearly shows how there is a growing recognition that the pace of change formerly seen in computing is now mapping into other technologies with the same effect. Innovations and the exploit of new and radical business technique are also reducing costs across a host of other technologies, including the following:

Technologies	Cost (averages) for equivalent functionalities	Scale of costs reduction
3D printing	$40,000(2007) to $100 (2014)	400x in 7 years
Biotech (DNA sequencing of one whole human DNA profile)	$10 million (2007) to $1000(2014)	10.000x in 7 years
Drones	$100.000(2007) to $700(2013)	142x in 6 years

In each of these domains, at least one aspect is being information-enabled, which then catapults it onto the bullet train of Moore's Law as the pace of development accelerates into a doubling pattern. We are rapidly changing the filter through which we deal with the world from a physical, materially-based perspective to an information- and knowledge-based one. And this is just beginning. Ten years ago we had five hundred million Internet-connected devices. Today there are about eight billion. By 2020 there will be fifty billion and a decade later we'll have a trillion Internet-connected devices as we literally information-enable every aspect of the world in the Internet of Things (The internet of things (IoT) is the network of physical devices, vehicles, buildings and other items—embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data).

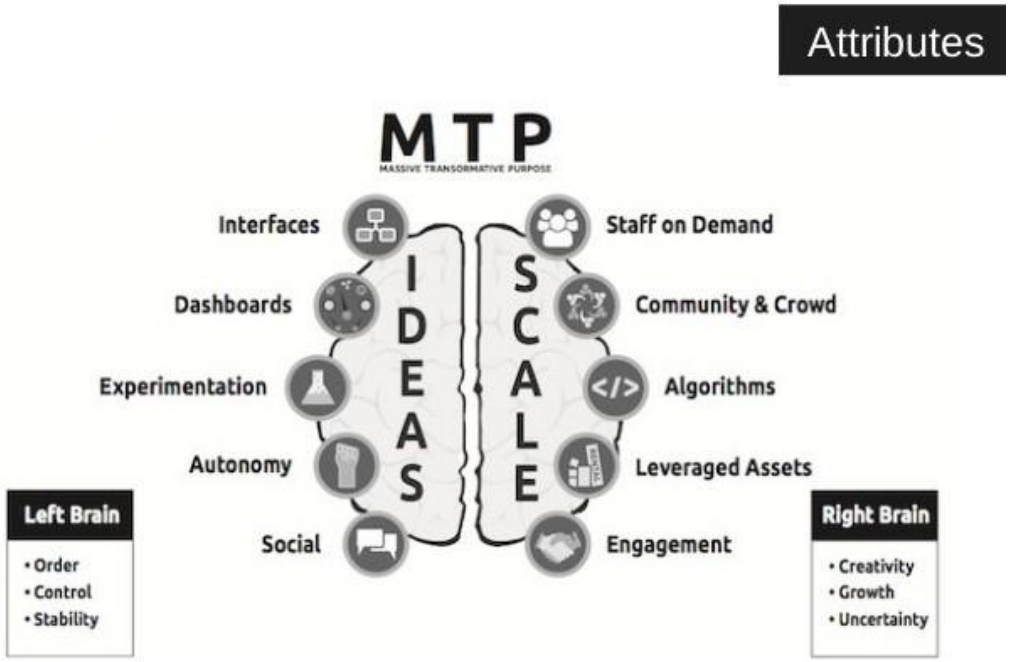
We like to think that thirty or forty years into the Information Revolution we are well along in terms of its development. But according to this metric, we're just 1 percent of the way down the road. Exponential Organizations have the capability to adapt to this new world of deep and ubiquitous information and convert it to competitive advantage. The ExO, in fact, is the appropriate commercial response to our new exponential world.

1.3 MASSIVE TRANSFORMATIVE PURPOSE (MTP)

The modern corporation takes great pride in how fast it can bring products and services to market compared to companies in the past. Annual reports, advertisements and speeches try to impress us showing how companies have virtualized, accelerated supply chains, shortened approval cycles and improved distribution channels. The result is that it now takes an average of between two hundred fifty and three hundred days for a typical Consumer Packaged Goods (CPG) company to move a new product from invention to retail stores' shelves—and that, believe it or not, is considered a blistering pace. Consider Quirky, an invention platform that connects inventors with companies that specialized in a specific product category with the aim of empower everyday problem solvers to share their ideas with the world and a pioneering Exponential Organization in the same CPG industry. It accomplishes this same cycle in just twenty-nine days. That's twenty-nine days from idea generation to seeing the product on sale at your local Walmart. A traditional car company spends about $3 billion to bring a new car model to market. Local Motors, an ExO, accomplishes the same thing for just $3 million—a 1,000x improvement. Next, consider Airbnb, a company that leverages users' extra bedrooms. Founded in 2008, Airbnb currently has 1,324 employees and operates 500,000 listings in 33,000 cities. However, Airbnb owns no physical assets and is worth almost $10 billion. That's more than the value of Hyatt Hotels, which has 45,000 employees spread across 549 properties. And while Hyatt's business is comparatively flat, Airbnb's number of room-nights delivered is growing exponentially. At its current pace, Airbnb will be the biggest hotelier in the world by late 2016. The eye- opening factor lies in the fact that each of these Exponential Organizations is *fewer than six years old*[7].

There are two fundamental drivers that enable ExOs to achieve this level of scalability. The first is that some aspect of the company's product has been information-enabled and thus, following Moore's Law, can take on the doubling characteristics of information growth. The second is that, thanks to the fact that information is essentially liquid, major business functions can be transferred outside of the organization—to users, fans, partners or the general public. Based on several studies and researches conducted by Salim Ismail, Michael Malone and Yuri van Geest—which includes the top one hundred fastest growing startups worldwide over the last six years—it is possible to identify common traits across all ExOs and their major characteristics. They include a *Massive Transformative Purpose (MTP)*, as well as ten other attributes that reflect the internal mechanisms and externalities they're leveraging to achieve exponential growth. We use the acronym SCALE to reflect the five external attributes, and the acronym IDEAS for the five internal attributes. Not every ExO has all ten attributes but the more it has, the more scalable it tends to be. A good metaphor used to frame ExO's attributes is the two hemispheres of the brain. The right brain manages growth, creativity and uncertainty, while the left brain focuses on order, control and stability.

[7] *Ismail , S. (2014) , Exponential Organization : Why new organization are ten times better, faster and cheaper than yours (and what to do about it) , ExO Partners LLC*



Internal mechanisms and externalities to achieve exponential growth.

Exponential Organizations, almost by definition, think BIG. There's a good reason for that: if a company thinks small, it is unlikely to pursue a business strategy that will achieve rapid growth.[8]

That's why, when we look at the *position statements* of existing Exponential Organizations, we encounter statements of purpose that might have seemed outrageous in past years:

- **TED**: "Ideas worth spreading."
- **Google**: "Organize the world's information."
- **X Prize Foundation**: "Bring about radical breakthroughs for the benefit of humanity."
- **Quirky**: "Make invention accessible."
- **Singularity University**: "Positively impact one billion people."

With a closer inspection it is possible to note that each of the statements is also very *aspirational*. None states what the organization does, but rather what it aspires to accomplish. The aspirations are neither narrow nor even technology-specific. Rather, they aim to capture the hearts and minds—and imaginations and ambitions—of those both inside and (especially) outside the organization. This, then, is the *Massive Transformative Purpose,* or *MTP*[9]—the higher, aspirational purpose of the organization. Every ExO has one.

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8 Salim Ismail (2014), Exponential organizations, ExO Partners LLC

9 It's important to note that an MTP is not a mission statement.

The most important outcome of a proper MTP is that it generates a *cultural movement*: the MTP is so inspirational that a community forms around the ExO and spontaneously begins operating on its own, ultimately creating its own community, tribe and culture. Think of those lines outside the Apple Store or the waiting lists for TED's annual conference. Each has an emergent ecosystem so excited about that product or service that it literally pulls the products and services out from the core organization and assumes its own ownership, complete with marketing, support services, and even design and manufacturing. A strong MTP also serves as an excellent recruiter for new talent, as well as a magnet for retaining top talent—both increasingly difficult propositions in today's hypercompetitive talent marketplace. In addition, an MTP serves as a stabilizing force during periods of random growth and enables organizations to scale with less turbulence. The MTP is not only an effective attractor and retainer for customers and employees but also for the company ecosystem at large (developers, startups, hackers, NGOs, governments, suppliers, partners, etc.). As a result, it lowers the acquisition, transaction and retention costs of these stakeholders.

Now that the meaning and purpose of the Massive Transformative Purpose is clear it's time to look at the five external characteristics that define an Exponential Organization, for which we use the acronym *SCALE*:

- Staff on Demand
- Community & Crowd
- Algorithms
- Leveraged Assets
- Engagement

1.3.1 STAFF ON DEMAND

For any ExO, having Staff on Demand is a necessary characteristic for speed, functionality and flexibility in a fast-changing world. Leveraging personnel outside the base organization is key to creating and running a successful ExO. The fact is, no matter how talented the employees are, it is very likely that most of them are becoming obsolete and uncompetitive. The average life of a learned skill used to be about thirty years. Today it's down to about five years. For any company today, having a permanent, full-time workforce is very dangerous as employees fail to keep their skills up to date, resulting in personnel in need of greater management. In our fast-changing global and Internet-driven marketplace, increasingly desperate organizations are turning to external and temporary workforces to fill their expertise gaps. While maintaining permanent staff is likely to remain more important in certain equipment- and capital-intensive industries such as shipping, mining or construction, in any information-enabled business a large internal staff seems increasingly unnecessary, counterproductive and expensive. And the old argument that freelancers and contractors only increase the bureaucracy needed to manage them quickly falls away too: thanks to the Internet, the cost of finding and tracking outside staff drops almost to zero. In addition, due to the rapid rise in the number of Internet users, the volume and quality of freelancers has gone up dramatically in the last ten years. For example when Procter and Gamble needs to know how and where its merchandise is being placed on Walmart shelves around the world, it can use *Gigwalk*[10]'s platform to instantly deploy thousands of people who are paid a few dollars to walk into Walmart and check the shelves. Results come in within an hour. In the past, having a large workforce differentiated your enterprise and allowed it to accomplish more. Today, that same large workforce can become an anchor that reduces maneuverability and slows you down.

Moreover, traditional industries have great difficulty attracting on-demand high-skill workers such as data scientists because the available positions are perceived as being low in terms of opportunity and high in terms of bureaucratic obstacles and for this reason 98 percent of recent data science graduates went to work for Google, Facebook, LinkedIn or various startups. Nearly three billion more people and their brains soon will be available to work via smartphones, tablets or at Internet cafes. The capabilities that will be unleashed are beyond imagination. Against this onslaught, what traditional organization, bogged down with permanent, full-time employees, can endure?

1.3.2 COMMUNITY AND CROWD

- *COMMUNITY*

The collaborative power of communities is critical to any ExO. Whatever the case is there are communities out there filled with other passionate, purpose-driven people devoted to solve the same issue. The recent rise of the *Quantified Self (QS)* movement is a great example of a community with an MTP. Operating in 120 cities and in forty countries, approximately 1,000 companies and 40,000 members currently participate in the QS ecosystem. Anyone interested in setting up a medical device company or addressing a major area such as cancer or heart disease can find and join a rich community of interested fellow participants. Another example is *www.meetup.com*. Founded by Scott Heiferman in January 2002, Meetup helps convene more than 150,000 interest-based groups—made up of about ten million members—in 197 countries around the world. Given those numbers, the odds are pretty good that a passionate and purpose-driven community concerned with a specific problem space already exists in a company's country. However, in any community-driven startup, there's a tension between the good of the community and the good of the company. Whenever this moment comes up, always bet on the community, because that's the difference between long-term thinking and short-term thinking. Basically, if you get the community right, opportunities will arise. If you get community wrong, the engine of innovation dissolves and you won't have a company anymore. Since May 2007, Chris Anderson has been building a community called *DIY Drones* . Now almost 55,000 members strong, this community has been able to design and build a drone that is very similar to the Predator drone used by the U.S. military (in fact, the DIY drone features 98 percent of the Predator's functionality).But there's one major difference: A Predator costs $4 million. The DIY drone costs just $300.Granted, a great deal of that 2 percent difference in performance can be attributed to the weapons systems…but still, how is this possible? It's possible because Anderson has tapped into a large group of passionate enthusiasts who contribute time and expertise. Throughout human history, communities started off as geographically based (tribes), became ideological (e.g., religions) and then transitioned into civic administrations (monarchies and nation-states). Today, however, the Internet is producing *trait- based communities* that share intent, belief, resources, preferences, needs, risks and other characteristics, none of which depend on physical proximity. For a company, its "community" is made up of core team members, alumni (former team members), partners, vendors, customers, users and fans.

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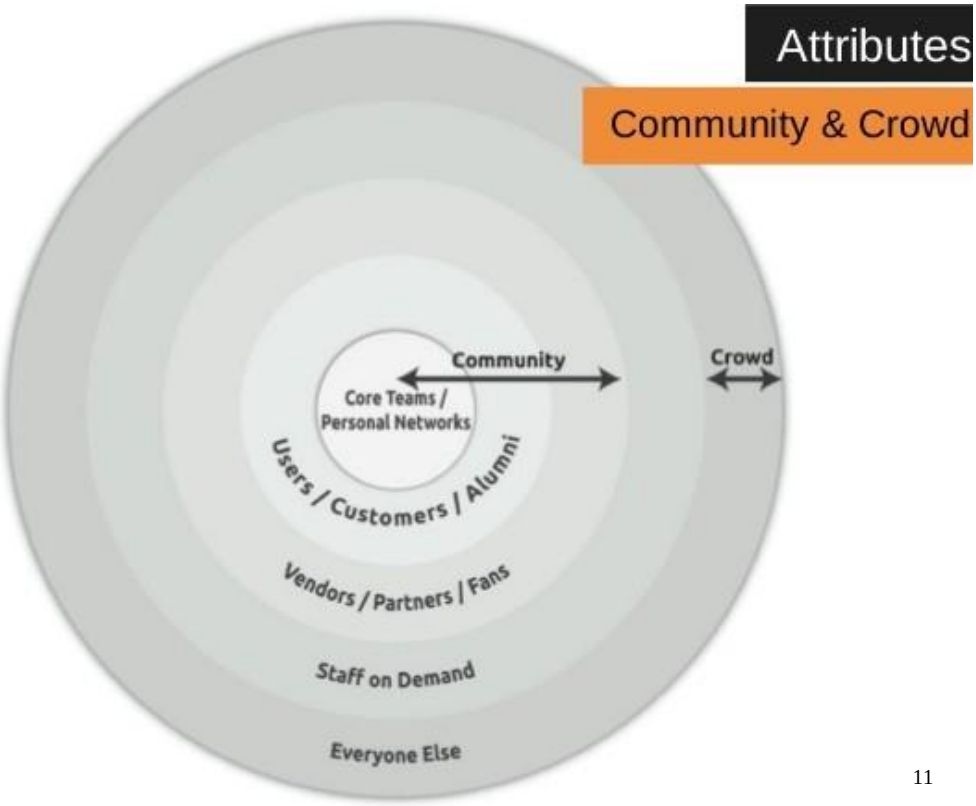
10 *Gigwalk is a mobile app for Android and iOS that allows you to find quick jobs ("Gigs") in your area. A Gig is represented by a pin on the map in our mobile application and can take anywhere from 5 minutes to a few hours to complete and pay anywhere from $3 to $100.*

The “crowd” can be thought of as everyone outside those core layers.



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Community & Crowd : sphere of layers

It is important to note that an Exponential Organization interacting with its community is not simply a transaction. True community occurs when peer-to-peer engagement occurs. The more open the community, though, the more traditional and best-practice-oriented the leadership model has to be. A strong leadership is required to manage the community, because although there are no employees, people still have responsibilities and need to be held accountable for their performances. Typically, there are three steps to building a community around an ExO:

- *Use the MTP to attract and engage early members*. The MTP serves as a gravitational force that attracts constituents into its orbit. Tesla, Burning Man, TED, Singularity University and GitHub are good examples of communities whose members share common passions.
- *Nurture the community*. Unlike digital marketing, where ROI is sustained almost as soon as spending happens, communities are a long-term investment that is significantly more strategic and some of the most important elements include listening and giving back.

11 *Salim Ismail (2014), Exponential organizations, ExO Partners LLC*

- *Create a platform to automate peer-to-peer engagement*. GitHub, for example, has its members rate and review other members' code. Airbnb hosts and users fill out evaluation forms; taxi disrupters Uber, Lyft and Sidecar encourage clients and drivers to rate one another.

- *CROWD*

As mentioned earlier, the crowd is made up of concentric rings of people outside the core community. The crowd is harder to reach, but its numbers are much greater— even a million times greater—and that's what makes pursuing it particularly compelling. While similar, there is a distinct difference between Crowd and Staff on Demand. Staff on Demand is hired for a particular task and usually via a platform. Staff on Demand is *managed*—workers are told what it is they have to do. Crowd, on the other hand, is *pull-based*. A company opens up an idea and let people find it.
ExOs can leverage the crowd by harnessing creativity, innovation, validation and even funding:

- *Creativity, innovation* and the overall process of generating, developing, and communicating new ideas can be accomplished through the use of tools and platforms. Some platforms to aid this process include IdeaScale, eYeka, Spigit, InnoCentive, SolutionXchange, Crowdtap and Brightidea.
- *Validation* is achieved by obtaining measurable evidence that an experiment, product or service succeeds in meeting pre-determined specifications. Tools such as UserVoice, Unbounce and Google AdWords can accomplish this.
- *Crowdfunding* is a growing trend to help fund ideas using the web to assemble very large numbers of comparatively small investors—thus not only raising capital, but also reflecting the interest of the market. Two well-known examples of crowdfunding companies are Kickstarter and Indiegogo.

Already, ExOs are leveraging community and crowd for many functions traditionally handled inside the enterprise, including idea generation, funding, design, distribution, marketing and sales. This shift is powerful and taps into what university professor and social media guru Clay Shirky calls cognitive surplus. *"The world has over a trillion hours a year of free time to commit to shared projects,"* he said in a recent TED radio broadcast. And that's just today. By 2020, when three billion additional minds using inexpensive tablets join the two billion currently online, Shirky's trillion hours per year will triple. As Silicon Valley visionary Bill Joy famously said, *"The smartest people in the world don't work for you.*" For ExOs, their external focus is such that their communities of hundreds and thousands, along with crowds of millions and, ultimately, billions, become extensions of the companies themselves. As a result of both Staff on Demand and Community & Crowd, the core full-time employees of an organization

become smaller and its flexible workforce larger. As a result, organizations are not only much more agile, they are also better at learning and unlearning due to the diversity and volume of a flexible workforce. Ideas are also able to circulate faster.

1.3.3 ALGORITHMS

In 2002, Google's revenues were less than a half-billion dollars. Ten years later, its revenues had jumped 125x and the company was generating a half-billion dollars every three days. At the heart of this staggering growth was the PageRank *algorithm*[12], which ranks the popularity of web pages. Google isn't alone , today the world is pretty much run on algorithms.

In particular, there are two types of algorithms that are at the frontier of this new world: Machine Learning and Deep Learning.

- *Machine Learning* is the ability to accurately perform new, unseen tasks, built on known properties learned from training or historic data, and based on prediction. An example of Machine Learning comes via Netflix, which in 2006 set out to improve its movie recommendations. Rather than limit the challenge to its in-house workforce, Netflix launched a $1 million (incentive) competition with a stated goal of improving its movie-rating algorithm by 10 percent. The contest ended early, in September 2009, when one of the 44,014 valid submissions achieved the goal and was awarded the prize.
- *Deep Learning* is a new and exciting subset of Machine Learning based on neural net technology. It allows a machine to discover new patterns without being exposed to any historical or training data. Leading startups in this space are DeepMind, bought by Google in early 2014 for $500 million and Vicarious, funded with investment from Elon Musk, Jeff Bezos and Mark Zuckerberg. Twitter, Baidu, Microsoft and Facebook are also heavily invested in this area. Deep Learning algorithms rely on discovery and self-indexing, and operate in much the same way that a baby learns first sounds, then words, then sentences and even languages.

There is an interesting difference of opinion over how much data should be used based on the nature of the market in which the organization operates. While conventional wisdom says to gather as much data as possible (hence the term Big Data) in uncertain markets, it is better to simplify, use heuristics and rely on fewer variables. In stable and predictable markets, on the other hand, it is better to use algorithms with more variables. Needless to say, the impending explosion of data resulting from the billions and trillions of sensors that will soon be deployed makes algorithms a critical future component of every business.

12 *In mathematics and computer science, an algorithm is a self-contained step-by-step set of operations to be performed. Algorithms perform calculation, data processing, and/or automated reasoning tasks.*

Given that they are much more objective, scalable and flexible than human beings, algorithms are not only the key to the future of business in general, but they are also critical for organizations committed to driving exponential growth.

1.3.4 LEVERAGED ASSET

In the business world, leasing everything from buildings to machinery has been used as a common practice to shift assets from the balance sheet. And while not owning assets has been standard practice for heavy machinery and non-mission-critical functions (e.g., copiers) for decades, recently there's been an accelerating trend towards outsourcing even mission-critical assets. The information age now enables companies to access physical assets anytime and anywhere, rather than requiring that they actually possess them. Technology enables organizations to easily share and scale assets not only locally, but also globally, and without boundaries. As with Staff on Demand, ExOs retain their flexibility precisely by not owning assets, even in strategic areas. This practice optimizes flexibility and allows the enterprise to scale incredibly quickly as it obviates the need for staff to manage those assets. Non-ownership, then, is the key to owning the future—except, of course, when it comes to scarce resources and assets. When the asset in question is rare or extremely scarce, then ownership is a better option. But if your asset is information-based or commoditized at all, then accessing is better than possessing.

1.3.5 ENGAGEMENT

User engagement techniques, such as sweepstakes, quizzes, coupons, airline miles and loyalty cards have been around for a long time and are a way of enabling collaborative human behaviour—social behaviour—to come into play. The truth is this: connected individuals can now do what once only large centralized organizations could. But in the last few years, such techniques have been fully information-enabled, elaborated and socialized. Engagement is comprised of digital reputation systems, games and incentive prizes, and provides the opportunity for virtuous, positive feedback loops—which in turn allows for faster growth due to more innovative ideas and customer and community loyalty. Properly implemented, Engagement creates network effects and positive feedback loops with extraordinary reach. The biggest impact of engagement techniques is on customers and the entire external ecosystem. However, these techniques can also be used internally with employees to boost collaboration, innovation and loyalty.

Incentive competitions are a form of engagement that has been recently popularized by the X Prize Foundation and others. This engagement technique is typically used to find promising people in the crowd and move them into the community. Competitions are also used to challenge, leverage and motivate the community in order to solicit potentially radical breakthrough ideas.

An incentive prize creates a clear, measurable and objective goal, and offers a cash purse for the first team to reach that objective. The advantage such competitions offers is their ability to deliver huge leverage and efficiency. Incentive prizes are also tools that can be used by individuals, startups, governments, and medium and large corporations, but they are unique in that they allow small teams or lone innovators to launch or transform industries. By tapping into the deep-rooted human desire to compete, these competitions push teams to deliver their very best work. This is the most elemental and foundational aspect of a startup. It is critical to be excited and utterly passionate about the problem space a company plan to attack. So, begin by asking the question: *What is the biggest problem I'd like to see solved*? Identify that problem space and then come up with an MTP is the best way to address it . A profit motive alone is insufficient to build an ExO or, frankly, any startup. Rather, it's the burning passion to solve an obsessive, complex problem that keeps an entrepreneur going even against all odds that sure are frequent in the story of every startup.

Obviously, creating such a community requires a great product and a compelling vision. But it also demands a fair amount of time. It took eight years after the introduction of the Macintosh for Apple Computer to become a phenomenon, and another sixteen years for the company to reach its status as a cultural icon.

Exponential Organizations don't have that amount of time. Nor are they likely to have a charismatic leader like Steve Jobs. Instead, they must move quickly and systematically, using proven techniques and tools.

Now that we have covered the external attributes of an ExO, in the next chapter we will examine the internal attributes to see how an organization manages the chaos and keeps from breaking apart while running at such a high speed.

1.4 IDEAS

The sheer output to be processed when SCALE elements are leveraged requires that the internal control mechanisms of an ExO be managed carefully and efficiently. With exponential output, the internal organization needs to be extremely robust, precise and properly tuned to process all the inputs. Exponential Organizations also have distinctly different internal operations that encompass everything from their business philosophies to how employees interact with one another, how they measure their performance (and what they value in that performance), and even their attitudes toward risk. ExO's internal mechanisms be expressed with the acronym IDEAS:

- Interfaces
- Dashboards
- Experimentation
- Autonomy
- Social Technologies

1.4.1 INTERFACES

Interfaces are filtering and matching processes by which ExOs bridge from SCALE externalities to internal IDEAS control frameworks. They are algorithms and automated workflows that route the output of SCALE externalities to the right people at the right time internally. A classic example is Google's AdWords, which is now a multi-billions dollar business within Google. A key to its scalability is self-provisioning—that is, the interface for an AdWords customer has been completely automated such that there is no manual involvement. Interfaces help ExOs filter and process outputs from external attributes (SCALE) in a systematic and automatic way into the core organization. The use of Interfaces results in more effective and efficient processes, reducing the margin of error. While growing exponentially as a company, Interfaces are critical if an organization is to scale seamlessly, especially on a global level. Most of these Interfaces processes are unique and proprietary to the organization that developed them, and as such comprise a unique type of intellectual property that can be of considerable market value. ExOs invest considerable attention to Interfaces and a great deal of human-centered design thinking is brought to bear on these processes in order to optimize every instantiation. Possibly the most dramatic example today of an Interface is Apple's App Store, which now contains more than 1.2 million apps that have been downloaded a collective seventy-five billion times. Apple has about nine million developers within that ecosystem who have earned more than $15 billion. To manage this unique environment, Apple's Interface is comprised of an internal editorial board that vets new applications and requested changes, as well as recommendations from other employees, who make up an informal network. New products and policies are announced at WWDC conferences, and Apple uses a sophisticated algorithm to help determine which apps are leading their categories and which should be featured on the home page. As might be expected, this process is unique to Apple, as are most interfaces at ExOs.

1.4.2 DASHBOARDS

Given the huge amounts of data from customers and employees becoming available, ExOs need a new way to measure and manage the organization: a real-time, adaptable dashboard with all essential company and employee metrics, accessible to everyone in the organization. There has always been a tension in business created by the need to balance instrumentation and data collection versus running the company and getting things done. Collecting internal progress statistics takes time, effort and expensive IT.

That's why results were usually tracked annually or, at best, quarterly. Today's startups (as well as more mature enterprises) are leveraging wireless broadband, the Internet, sensors and the cloud to track this same data in real time.

Today we are seeing a different approach to gathering data than in the past. Traditional vanity metrics (stats such as the number of visitors or mobile app downloads) are being replaced by real value metrics including repeat usage, retention percentage, monetization and *Net Promoter Score (NPS)*[13].

13 *Net Promoter or Net Promoter Score (NPS) is a management tool that can be used to gauge the loyalty of a firm's customer relationships. It serves as an alternative to traditional customer satisfaction research and claims to be correlated with revenue growth.*

Even as the instrumenting of businesses accelerates, a similar transformation is also taking place at the level of individual employee and team performance tracking. The dreaded annual performance review is demotivating for most employees, and is especially so for high achievers because of the long delay between accomplishment and recognition. During that interval, top employees are at risk of becoming frustrated, bored, and moving on— costing fast-growth companies the employees they can least afford to lose. In response, many ExOs are adopting the *Objectives and Key Results (OKR)* method. Invented at Intel by CEO Andy Grove and brought to Google by venture capitalist John Doerr in 1999, OKR tracks individual, team and company goals and outcomes in an open and transparent way. OKRs are about focus, simplicity, short(er) feedback cycles, and openness. As a result, insights and improvements are easier to see and implement. In contrast, complexity, secrecy and broad goals tend to impede progress, often leading to unintended consequences. Specificity and rapid feedback cycles energize, motivate and drive company morale and culture. So why are dashboards key for ExOs? Because growing at a rapid pace requires that instrumentation of the business, individual and team assessments be integrated and carried out in real time, not least because small mistakes can grow very big very fast.

1.4.3 EXPERIMENTATION

Experimentation is the implementation of the *Lean Startup*[14] methodology of testing assumptions and constantly experimenting with controlled risks.

In a recent commencement address at Singapore Management University, John Seely Brown made the compelling point that all corporate architectures are set up to *withstand* risk and change. Furthermore, he said, all corporate planning efforts attempt to scale efficiency and predictability, meaning they work to create static—or at least controlled-growth—environments in the belief that they will reduce risk. But in today's fast-changing world, Seely Brown continued, just the opposite is true. Mark Zuckerberg agrees, noting, *"The biggest risk is not taking any risk."* Constant experimentation and process iteration are now the only ways to reduce risk. The traditional waterfall approach to product development is a linear process (most often referred to as NPD, for New Product Development) that uses sequential steps such as idea generation, screening, product design, development and commercialization. This process not only burns up a great deal of precious time but, more importantly, increasingly results in new products that don't fit—or, because the market is changing so quickly, no longer fit—the needs of the customer, culminating in a product no one wants. Inevitably, even more time and money is spent adapting the product to fit the customer, a process that once again takes too long as the market moves on.

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14 Lean startup is a method for developing businesses and products first proposed in 2008 by Eric Ries. Based on his previous experience working in several U.S. startups, Ries claims that startups can shorten their product development cycles by adopting a combination of business-hypothesis-driven experimentation, iterative product releases, and validated learning. Ries' overall claim is that if startups invest their time into iteratively building products or services to meet the needs of early customers, they can reduce the market risks and sidestep the need for large amounts of initial project funding and expensive product launches and failures.

In the end, of course, the product fails. In sum, NPD has become a process in which thinking and doing are separated for a long time period and where data-driven and behavioural customer feedback is delivered too late in the development process. By comparison, consider the same scenario using the Lean Startup method: The company first researches the needs of the customer, then conducts an *experiment* to see if a proposed product matches those needs. By relying on quantitative and qualitative data, a company forms a *conclusion.* This process of constant learning can be accomplished in just a couple of weeks or months, at minimal cost. Best of all, it usually becomes clear early on if a product is doomed to failure. A final and critical pre-requisite for experimentation is a willingness to fail. Thirty years ago, Regis McKenna, a Silicon Valley marketing pioneer, was the first to note that whatever its reputation for success, the Valley was in fact built on failure—or more precisely, a willingness to accept and even reward "good" failure. When failure is not an option, you end up with safe, incremental innovation, with no radical breakthroughs or disruptive innovations. By integrating experimentation as a core value and adopting approaches like Lean Startup, enterprise failures—while still accepted as an inevitable part of risk—can be quick, relatively painless and insightful. Google, for example, is particularly good at experimentation: If a product is not meeting its goals, and resources could be better leveraged elsewhere, the product is shut down. Recriminations are limited, the company quickly moves on and the employees involved never experience career-limiting consequences. Some corporations have even taken to celebrating failure in order to counteract what they see as a cultural resistance among their employees to the very idea of failure. This doesn't mean, of course, that just any failure or mistake is encouraged or celebrated. But if a team is operating within strategic, commercial, ethical and legal frameworks and avoids recreating old mistakes, a failure can and should be celebrated for the learning such experimentation offers.

1.4.4 AUTONOMY

We describe Autonomy as self-organizing, multi-disciplinary teams operating with decentralized authority. Valve Software, a game company, is a most unusual enterprise. It has 330 staffers but no classic management structure, reporting lines, job descriptions or regular meetings. Instead, the company hires talented, innovative self-starters, who decide which projects they wish to join. They are also encouraged to start new projects, so long as they fit the company's MTP. Autonomy is a prerequisite for *permissionless Innovation*[15]. Extreme autonomy—relying on small, independent, multi-disciplined teams—has worked well for Valve.

It has a higher revenue-per-employee number than any other gaming company, and its approach enables changing roles and activities for all workers. This organizational style also creates a sociable, open and trusting culture featuring a highly satisfied staff. From teleworking to outsourcing to flattened, virtual

15 *The notion by which experimentation and new business model should be applied by defaul* **.**

organizations, there has been a clear and steady trend toward increased autonomy in the workplace. As a result, we predict the lightweight OKR approach will gradually replace traditional top-down managerial oversight. Furthermore, many Exponential Organizations are organizing internally—though not in traditional departments with layers of middle management, but rather by self-organized, interdisciplinary teams and with radically decentralized authority. The need for autonomy and decentralization is further driven by increasingly critical and knowledgeable consumers who expect zero latency service and delivery, and are quick to complain on review sites if their ever-climbing expectations are not met. One survey by McKinsey found that after experiencing poor customer experience, 89 percent of consumers switched their business to a competing company. On the flip side, 86 percent said they were willing to pay more for better customer experience. These hypercritical and demanding consumers can only be satisfied with companies placing their most empowered and proactive employees on the front line. Autonomy is said to increase agility, efficiency, transparency, innovation and accountability within an organization. The approach encourages individual team members to take initiative and gives them a process by which their concerns or ideas can be addressed. The system of distributed authority also reduces the burden on leaders to make every decision alone. Importantly, Autonomy does not imply a lack of accountability: There are still hierarchies in a network, but the hierarchies tend to be competence-based hierarchies, relying more on peer accountability than on authority-based accountability—that is, accountability to someone who knows something, rather than to someone simply because they occupy a position, regardless of competence. It is a change in the role of the manager, not an abolition of the function.

The following shows an example of an enterprise at the cutting edge of organizational autonomy:

- **Zappos.com (1999)** – 4,000 employees
  - *Market*: Online retail market for shoes and clothing
  - *How is the company organized?*

    • Company places great emphasis on company culture and core values.

    • Zappos pays people to leave if they don't fit into the company culture.

    • Employees encouraged to go beyond traditional customer service.

    • Representatives encouraged to make decisions on their own.

  - *What is the financial impact?* In November 2009, Zappos.com was acquired by Amazon.com in a deal valued at $1.2 billion on the day of closing. Gross sales exceeded $1 billion in 2008 (20 percent better than the year before) and 75 percent of its customers are repeat buyers. Company profitable since 2006.

Perhaps the most critical step in building an ExO involves establishing its *culture*. Think about PayPal's culture of close friendship rather than formal work relationships. In a fast-scaling organization, culture—along with the MTP and Social Technologies—is the glue that keeps a team together through the quantum leaps of an ExO's growth. Needless to say, given that even defining the term culture has proven enduringly

difficult, this is a particularly challenging step. Culture is a company's greatest intangible asset. From the "HP Way" and IBM's "Think" to Google's playrooms and Twitter's warehouse, it is hard to overstate culture's added value. Very few people would argue that a big part of Zappos' success (and its billion-dollar valuation) is not due to its company culture. Establishing a corporate culture starts with learning how to effectively track, manage and reward performance. And that begins with designing the OKR system outlined before, and then continues through the process of getting the team habituated to transparency, accountability, execution and high performance.

1.4.5 SOCIAL TECHNOLOGIES

Social technology is an overused industry phrase that has the effect of pushing old business environments to become more digital, low-latency environments. Social technologies create horizontal interactions in vertically organized companies. Social technology is finding fertile ground because the workplace has become increasingly digitized. It started with email, which provided asynchronous connectivity; next came wikis and intranets that provided synchronous information sharing; today we have activity streams that provide real-time updates throughout organizations. From an ExO perspective, Social Technologies are comprised of seven key elements: *Social objects, Activity streams, Task management, File sharing, Telepresence, Virtual worlds and Emotional sensing*. When implemented, these elements create transparency and connectedness and, most importantly, lower an organization's information latency. The ultimate objective is what the Gartner Group calls a *zero latency enterprise*—that is, a company in which the time between idea, acceptance and implementation all but disappears—and implementing one can provide significant return on investment. Employee relationship management is just one type of *social object* that is being information-enabled. Also in the mix are location, physical objects, ideas and knowledge—including updates to pricing data, inventory levels, meeting room occupancy and even coffee refills. All are now being broadcast company-wide and are the basis of activity streams to which anyone in the organization can subscribe. *Task management* is also becoming increasingly social. In the past, it was mostly used as a to-do list, but it is now shifting towards a more agile approach. Teams are continuously measuring themselves by pushing codes and closing tickets, living by the metrics that task management software provides. Tools, from Google Drive, Box, Dropbox and Microsoft's OneDrive, regarding *File sharing* are vital to sharing information and providing updates to a single instantiation of customer information. For example, Citibank once had more than three hundred different customer databases, each consuming valuable overhead and costing enormous sums in duplication and redundancy. Such drag on costs and operations is simply not acceptable in an Exponential Organization—or, indeed, for any company trying to compete in the 21st century.

Telepresence has been around for many years in the form of videoconferencing. Although videoconferencing was quite a hassle in the past, an organization can now leverage services such as Skype and Google Hangout, which are fast, easy to use and available on every device. Telepresence enables employees to work proactively from any location and interact on a global scale, reducing travel costs and improving well-being. But while Telepresence lets people interact in a real environment, virtual reality allows interaction, collaboration, coordination and even prototyping in a *virtual world.*

Emotional sensing, the last key element of social technology, makes use of sensors—such as health sensors and neurotechnology—within a team or group to create Quantified Employees and a Quantified Workforce[16]. Employees will be able to measure everything about themselves and their work, preventing illness, burnout and irritation, and also improving team flow, collaboration and performance. While work in the past was mostly focused on the importance of the Intelligence Quotient (IQ), the Emotional Quotient (EQ) and Spiritual Quotient (SQ) are now becoming increasingly important metrics as well. The entire social paradigm presents several critical implications for ExOs. Organizational intimacy is increased decision latency is reduced, knowledge improves and is more widely spread, and serendipity increases. This is perhaps the best time in the history of business to build a new enterprise. The confluence of breakthrough technologies, acceptance (and even celebration) of entrepreneurship, different crowdsourcing options, crowdfunding opportunities and legacy markets ripe for disruption—all create a compelling (and unprecedented) scenario for new company creation. Furthermore, traditional risk areas have been mitigated like never before.

In short, social technologies enable the real-time enterprise. Finally, the social paradigm also serves as a gravity force, keeping the organization tightly connected to its MTP and ensuring that its diverse parts don't drift away in pursuit of conflicting, even opposing, goals.

Some of the peculiar traits previously discussed, in particular Experimentation, are part of and based on another revolutionary way of conceiving business administration: the "Lean StartUp methodology" which, due to the high relevancy of the topic , will be studied in depth in the next paragraph.

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16 The Quantified Self is a movement to incorporate technology into data acquisition on aspects of a person's daily life in terms of inputs , states and performance . Such self-monitoring and self-sensing, which combines wearable sensors and wearable computing, is also known as lifelogging.

1.5 THE LEAN STARTUP PRINCIPLES APPLIED TO AN EXO

Launching a new enterprise—whether it's a tech start-up, a small business, or an initiative within a large corporation—has always been a hit-or-miss proposition. According to the decades-old formula, you write a business plan, pitch it to investors, assemble a team, introduce a product, and start selling as hard as you can. And somewhere in this sequence of events, you will probably suffer a fatal setback. The odds are not with the company: As new research by Harvard Business School shows, 75% of all start-ups fail.

But recently an important countervailing force has emerged, one that can make the process of starting a company less risky.

It's a methodology called the "*lean start-up*[17] " and it favours experimentation over elaborate planning, customer feedback over intuition, and iterative design over traditional "big design up front" development.

Although the methodology is just a few years old, its concepts—such as "minimum viable product"—have quickly taken root in the start-up world, and business schools have already begun adapting their curricula to teach them.

The lean start-up movement hasn't gone totally mainstream, however, and we have yet to feel its full impact. But as its practices spread, they are changing the conventional wisdom about entrepreneurship radically . New ventures of all kinds are attempting to improve their chances of success by following its principles of failing fast and continually learning. And despite the methodology's name, in the long term some of its biggest payoffs may be gained by the *large* companies that embrace it and can be amplified in combination with all the changes in structures also deriving from an Exponential Organization perspective.

1.5.1 THE LEAN STARTUP METHODOLOGY TO BUSINESS CREATION

The *Lean startup* is a method for developing businesses and products first proposed in 2008 by Eric Ries. It is claimed that startups can shorten their product development cycles by adopting a combination of business-hypothesis-driven experimentation, iterative product releases, and what he calls *validated learning*[18]. If startups invest their time into iteratively building products or services to meet the needs of early customers, they can reduce the market risks and sidestep the need for large amounts of initial project funding and expensive product launches and failures.

Originally developed with high-tech companies in mind, the lean startup philosophy has since been

[17] *Ries , E. (2011) ,The lean Startup , Crown Business*

[18] *Validated learning is a process in which one learns by trying out an initial idea and then measuring it to validate the effect. Each test of an idea is a single iteration in a larger process of many iterations whereby something is learnt and then applied to succeeding tests.*

expanded to apply to any individual, team, or company looking to introduce new products or services into the market. Today, the lean startup's popularity has grown outside of its Silicon Valley birthplace and has spread throughout the world, in large part due to the success of Ries' bestselling book, *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*.

The lean manufacturing system considers as waste the expenditure of resources for any goal other than the creation of value for the end customer, and continually seeks ways to eliminate such waste. In particular, the system focuses on minimizing inventory throughout the assembly line. Additionally, immediate quality control checkpoints can identify mistakes or imperfections during assembly as early as possible to ensure that the least amount of time is expended developing a faulty product. Another primary focus of the lean management system is to maintain close connections with suppliers in order to understand their customers' desires.

Similar to the precepts of lean management, Ries' lean startup philosophy seeks to eliminate wasteful practices and increase value-producing practices during the product development phase so that startups can have a better chance of success without requiring large amounts of outside funding, elaborate business plans, or the perfect product. Ries believes that customer feedback during product development is integral to the lean startup process, and ensures that the producer does not invest time designing features or services that consumers do not want. Because startups typically cannot afford to have their entire investment depend upon the success of one single product launch, Ries maintains that by releasing a minimum viable product that is not yet finalized, the company can then make use of customer feedback to help further tailor their product to the specific needs of its customers. The focal points of this new approach can be divided into three parts that well represent various steps an ExO has to perform to start ahead of it’s competitors but only the last two are not redundant for the main aim of this work: “*Vision*,” “*Steer*,” and “*Accelerate*.”

- “Vision” makes the case for a new discipline of entrepreneurial management. To achieve that learning it all start by defining a purpose and then an idea; it is possible to note that startups—in a garage or inside an enterprise—can use scientific experimentation and team-building technique to discover how to build a sustainable business.

- “Steer” dives into the Lean Startup method in detail, showing one major turn through the core Build-Measure-Learn feedback loop. Beginning with leap-of-faith assumptions that cry out for rigorous testing, the lessons here show how to build a minimum viable product to test those assumptions, a new accounting system for evaluating whether you’re making progress, and a method for deciding whether to pivot or persevere.

- In “Accelerate,” we’ll explore techniques that enable Lean Startups to speed through the Build-Measure-Learn feedback loop as quickly as possible, even as they scale.

1.5.2 STEER: TESTING AND MONITORING AN EXPONENTIAL ORGANIZATION

At its heart, a startup is a catalyst that transforms ideas into products. As customers interact with those products, they generate feedback and data. The feedback is both qualitative (such as what they like and don't like) and quantitative (such as how many people use it and find it valuable).

Lean Startup Management (LSM) is all about building a structure for innovation by building, measuring and learning. A central component of LSM is the build-measure-learn loop. A company starts with developing a hypothesis which need be validated by creating a minimum viable product. From this point, the company will start measuring and learning by creating feedback loops with future customers. The linear linkages can be drawn using different measurement metrics to test and validate product iterations, eventually leading to launch the final product in the market. Eric Ries claims that the key to entrepreneurial success is related to the learning progress an organization undertakes, a process that he describes as validated learning. Ries (2011) therefore presents a feedback loop (Figure 19) which contains Build, Measure, Learn. That guides and facilitates the desired learning progress. Speeding up the time required to go through the different stages would therefore also accelerate the process of making the product more applicable to customer needs. Decision making during the lean startup stages often leads to changes that will kill current operations. Therefore, the credibility of the data is necessary to ensure the acceptance of the decisions based on it. The final stage, learn, requires the evaluation of the measured data and the choice whether to pivot (change aspects of the current strategy) or persevere (continue with the current strategy). The learned insights are then implemented as new features to complete the loop.

While it sounds simple, the Build Measure Learn approach to product development is a radical improvement over the traditional *Waterfall model* used throughout the 20th century to build and ship products. Back then, an entrepreneur used a serial product development process that proceeded step-by-step with little if any customer feedback. Founders assumed they understood customer problems/needs, wrote engineering requirements documents, designed the product, implemented/built the hardware/software, verified that it worked by testing it, and then introduced the product to customers in a formal coming out called first customer ship.

Waterfall Development was all about execution of the requirements document. While early versions of the product were shared with customers in Alpha and Beta Testing, the goal of early customer access to the product was to uncover bugs not to provide feedback on features or usability. Only after shipping and attempting to sell the product would a startup hear any substantive feedback from customers. And too often, after months or even years of development, entrepreneurs learned the hard way that customers were not buying their product because they did not need or want most of its features.

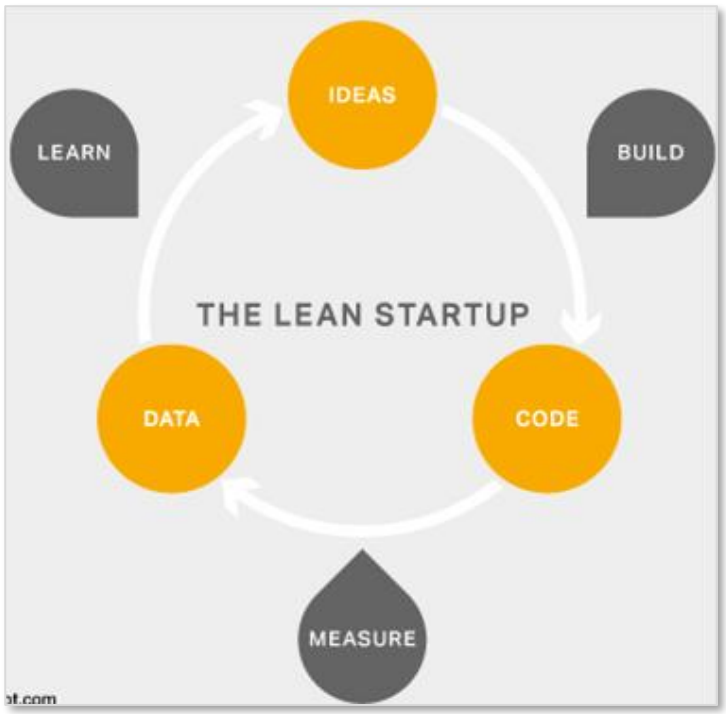
It often took companies three tries to get products right. Version 1 was built without customer feedback, and before version 1 was complete work had already started on version 2 so it took till version 3 before the

customer was really heard (e.g. Microsoft Windows 3.0). Best practices in software development started to move to agile development in the early 2000's. This methodology improved on waterfall by building software iteratively and involving the customer. But it lacked a framework for testing all commercialization hypotheses outside of the building. Then came the Build-Measure-learn focus of the Lean Startup. The goal of Build-Measure-Learn is not to build a final product to ship or even to build a prototype of a product, *but to maximize learning through incremental and iterative engineering*. (Learning could be about product features, customer needs, the right pricing and distribution channel, etc.) The "build" step refers to building a minimal viable product (an MVP.) It's critical to understand that an MVP is not the product with fewer features. Rather it is the simplest thing that you can show to customers *to get the most learning at that point in time*.

Early on in a startup, an MVP could simply be a PowerPoint slide, wireframe, clay model, sample data set, etc. Each time you build an MVP you also define what you are trying to test/*measure*. Later, as more is learned, the MVP's go from low-fidelity to higher fidelity, but the goal continues to be to maximize learning not to build a beta/fully featured prototype of the product. The three-circle diagram of *Build Measure Learn* is good approximation of the process. Unfortunately, using the word "build" first often confuses people. The diagram does seem to imply build stuff and show it to the world. A more detailed version of the Build Measure Learn diagram helps to clarify the meaning by adding three more elements: *Ideas*-Build-*Code*-Measure-*Data*-Learn.

The five-part version of the *Build Measure Learn* diagram helps us see that the real intent of building is to test "ideas" – not just to build blindly without an objective. The circle labeled "code" could easily be labeled "build hardware" or "build artificial genome." The circle labeled "data" indicates that after we measure our experiments data will be used to further refine all the learning. And the new learning will influence our next ideas. So we can see that the goal of Build-Measure-Learn isn't just to build things, the goal is to build things to validate or invalidate the initial idea.

So the *Build–Measure–Learn* loop emphasizes speed as a critical ingredient to product development. A team or company's effectiveness is determined by its ability to ideate, quickly build a minimum viable product of that idea, measure its effectiveness in the market, and learn from that experiment. In other words, it's a learning cycle of turning ideas into products, measuring customers' reactions and behaviours against built products, and then deciding whether to persevere or pivot the idea; this process repeats as many times as necessary. The phases of the loop are: Ideas → **Build** → Product → **Measure** → Data → **Learn**.



The Build-Measure-Learn Loop

[19]

This rapid iteration allows teams to discover a feasible path towards product/market fit, and to continue optimizing and refining the business model after reaching product/market fit. Of course also here there are some peculiar step that an ExO can follow in order to optimize itself and stay on the right track.

-Build a Business Model Canvas

Once a core idea or breakthrough has been identified, the next step is to elaborate how to get it to market. A suggested tool for this is the Business Model Canvas (BMC), which was created by Alexander Osterwalder and has been popularized by the *Lean Startup model (*Ries , E. (2011) ,*The lean Startup ,* Crown Business) . The Business Model Canvas is a strategic management and lean startup template for developing new or documenting existing business models. It is a visual chart with elements describing a firm's or product's value proposition, infrastructure, customers, and finances. It assists firms in aligning their activities by illustrating potential trade-offs. The process begins by diagramming the various components of the model (value propositions, customer segments, etc.). A warning: At this stage, it is important that the BMC is simple and not too complex . Experimentation will lead to the best path and provide the next level of fidelity.

It is also important to understand that if a company is going to achieve a 10x improvement, there's a strong likelihood that your company will require a completely new business model. As Clayton Christensen illustrated in *The Innovators Dilemma*, which was published in 1997, disruption is mostly achieved by a

[19] *Eric Ries (2011) , The lean Startup, Crown Business*

startup offering a less expensive product using emerging technologies and meeting a future or unmet customer need or niche. Christensen emphasized that it is not so much about disruptive products, but more about new business models threatening incumbents. For example, Southwest Airlines treated its planes like buses and created an entire niche for itself. Google created the AdWords business model, which never existed before the advent of web pages. In the near future, micro-transactions, enabled by crypto-currencies like Bitcoin, will create entirely new financial business models that have never existed before. In his 2005 book, *Free: The Future of a Radical Price*, Chris Anderson built on the lower cost positioning of the disruptor, noting that pretty much all business models, and certainly those that are information-based, will soon be offered to consumers for free. The popular "freemium" model is just such a case: many websites offer a basic level of service at no cost, while also enabling users to pay a fee to upgrade to more storage, statistics or extra features. This step is about creating new business models, which increasingly tend towards free and freemium models. These new business models have new value drivers to generate revenues, differentiate them from competitors, and allow for a long-term strategy to align with adjacent ExOs in a particular industry to fully disrupt incumbents, rather than just one individual good or service offered.

-Build the MVP

A key output of the Business Model Canvas is what's called the *Minimum Viable Product*, or MVP. The MVP is a kind of applied experiment to determine the simplest product that will allow the team to go to market and see how users respond (as well as help find investors for the next round of development). A minimum viable product has just those core features sufficient to deploy the product, and no more. Developers typically deploy the product to a subset of possible customers—such as early adopters thought to be more forgiving, more likely to give feedback, and able to grasp a product vision from an early prototype or marketing information. This strategy targets avoiding building products that customers do not want and seeks to maximize information about the customer per dollar spent. Feedback loops can then rapidly iterate the product to optimize it and drive the feature roadmap of its development. Gathering insights from an MVP is often less expensive than developing a product with more features, which increase costs and risk if the product fails, for example, due to incorrect assumptions. Learning, testing assumptions, pivoting and iterating are key in this step.

-Validate Marketing and Sales

Once the product is being used in its chosen market(s), a customer acquisition funnel will need to be established to help drive new visitors to the product. Its role is to qualify potential customers and convert them into users and paying customers. A good starting point for this is Dave McClure's AARRR, an onomatopoeically titled "*Pirate*" model for startup metrics. The model tracks the following layers and key metrics:

- *Acquisition*: How do users locate you? (Growth metric)
- *Activation*: Do users have a great first experience? (Value metric)
- *Retention*: Do users come back? (Value metric)
- *Revenue*: How do you make money? (Value metric)
- *Referral*: Do users tell others? (Growth metric)

1.5.3 ACCELERATE: STRENGTHENING AN EXPONENTIAL ORGANIZATION

Most of the decisions startups face are not clear-cut. How often should you release a product? Is there a reason to release weekly rather than daily or quarterly or annually? Product releases incur overhead, and so from an efficiency point of view, releasing often leaves less time to devote to building the product. However, waiting too long to release can lead to the ultimate waste: making something that nobody wants. How much time and energy should companies invest in infrastructure and planning early on in anticipation of success? Spend too much and you waste precious time that could have been spent learning. Spend too little and you may fail to take advantage of early success and cede market leadership to a fast follower. What should employees spend their days doing? How do we hold people accountable for learning at an organizational level? Traditional departments create incentive structures that keep people focused on excellence in their specialties: marketing, sales, product development. But what if the company's best interests are served by cross-functional collaboration? Startups need organizational structures that combat the extreme uncertainty that is a startup's main enemy and the best weapon against it often a cohesive environment focused on strong cultural value.This is a profound point, one often missed by founders. It is about understanding the evolutionary trajectory of technology. That is, which functionalities and capacities will become feasible in two or three years given the pace of Moore's Law? When you develop a product with the near future in mind instead of the present, it greatly increases your chances of success.

-Building and Maintaining a Platform

Leading platform expert Sangeet Paul Choudary identified the four steps needed to build a successful platform (as opposed to a successful product):

1. Identify a *pain point* or *use case* for a consumer.
2. Identify a *core value* unit or social object in any interaction between a producer and consumer. This could be anything. Pictures, jokes, advice, reviews, information about sharing rooms, tools and car-rides are examples of things that have led to successful platforms. Remember that many people will be both producers and consumers, and use this to your advantage.
3. Design a way to facilitate that interaction. Then see if you can build it as a small prototype that you can curate yourself. If it works at that level, it will be worth taking to the next level and scaling.
4. Determine how to build a network around your interaction. Find a way to turn your platform user into an ambassador.

To implement platforms, ExOs follow four steps in terms of data and APIs (Application Programming Interface):

1. *Gather:* The algorithmic process starts with harnessing data, which is gathered via sensors, people, or imported from public datasets.
2. *Organize:* The next step is to organize the data. This is known as ETL (extract, transform and load).
3. *Apply*: Once the data is accessible, algorithms such as machine or deep learning extract insights, identify trends and tune new algorithms. These are realized via tools such as Hadoop and Pivotal, or even (open source) deep learning algorithms like DeepMind or Skymind.
4. *Expose*: The final step is exposing the data in the form of an open platform. Open data and APIs can be used such that an ExO's community develops valuable services, new functionalities and innovations layered on top of the platform by remixing published data with their own. Examples of companies that have successfully exposed their data this way are the Ford Company, Uber, IBM Watson, Twitter and Facebook.

The world that is emerging is very different from the one we've known. Power is becoming easier to acquire but harder to keep. Thanks to strong viral and social network effects that allow startups to scale rapidly, it is now easier than ever before to start new companies and disrupt industries. But when it comes to social networks, the reverse is also true. Facebook, for example, is an incumbent, and its network effects and lock-in make it hard to usurp—underscoring the great advantage a platform has over a product or service.

It's already becoming clear that lean start-up model and the Exponential Organization practices are not just for young tech ventures. Corporations have spent the past 20 years increasing their efficiency by driving down costs. But simply focusing on improving existing business models is not enough anymore. Almost every large company understands that it also needs to deal with ever-increasing external threats by continually innovating. To ensure their survival and growth, corporations need to keep inventing new business models. This challenge requires entirely new organizational structures, platforms and skills.

A lower start-up failure rate could have profound economic consequences. Today the forces of disruption,

globalization, and regulation are buffeting the economies of every country. Established industries are rapidly shedding jobs, many of which will never return. Employment growth in the 21st century will have to come from new ventures, so there is a deep interest in fostering an environment that helps them succeed, grow, and hire more workers. The creation of an exponential economy that's driven by the rapid expansion of start-ups has never been more imperative. In the past, growth in the number of start-ups was constrained by five factors in addition to the failure rate:

1. The high cost of getting the first customer and the even higher cost of getting the product wrong.
2. Long technology development cycles.
3. The limited number of people with an appetite for the risks inherent in founding or working at a start-up.
4. The structure of the venture capital industry, in which a small number of firms each needed to invest big sums in a handful of start-ups to have a chance at significant returns.
5. The concentration of real expertise in how to build start-ups, which in the United States was mostly found in pockets on the East and West coasts. (This is less an issue in Europe and other parts of the world, but even overseas there are geographic entrepreneurial hot spots.)

The lean approach reduces the first two constraints by helping new ventures launch products that customers actually want, far more quickly and cheaply than traditional methods, and the third by making start-ups less risky. The combination of all these forces is altering the entrepreneurial landscape. Today open source software, like GitHub, and cloud services, such as Amazon Web Services, have slashed the cost of software development from millions of dollars to thousands. Hardware start-ups no longer have to build their own factories, since offshore manufacturers are so easily accessible. Indeed, it's become quite common to see young tech companies that practice the lean start-up methodology offer software products that are simply "bits" delivered over the web or hardware that's built in China within weeks of being formed.

Another important trend is the decentralization of access to financing. Venture capital used to be a tight club of formal firms clustered near Silicon Valley, Boston, and New York. In today's entrepreneurial ecosystem, new super angel funds, smaller than the traditional hundred-million-dollar-sized VC fund, can make early-stage investments. Worldwide, hundreds of accelerators, like Y Combinator and TechStars, have begun to formalize seed investments. And crowdsourcing sites like Kickstarter provide another, more democratic method of financing start-ups.

The instantaneous availability of information is also a boon to today's new ventures. Before the internet, new company founders got advice only as often as they could have a meeting with experienced investors or entrepreneurs. Today the biggest challenge is sorting through the overwhelming amount of start-up advice they get. The lean concepts provide a framework that helps you differentiate the good from the bad.

Lean start-up techniques were initially designed to create fast-growing tech ventures but the concepts are equally valid for creating the common small businesses that make up the bulk of the economy. If the entire

universe of small business embraced them, there is the strong suspect that it would increase growth and efficiency, and have a direct and immediate impact on GDP and employment.

2 CHAPTER TWO: EXOs IN MEDIUM AND LARGE MARKET

In the last chapter, we discussed how to start an Exponential Organization using the Lean Startup principles but the ExO model is not exclusive to entrepreneurship and startup companies. In fact, it is possible to take an established mid/large-market firm and lead it to exponential growth. This chapter will take a look at a mid-market enterprise and at a much bigger company and show how they can take advantage of the ExO philosophy proving that forward-looking companies can implement too the ideas discussed in the previous chapter. Unlike startups (where there is the possibility to build all of the internal operations from zero around exponential growth), with established companies, the solution is inevitably customized: the firm must start with what already exists and build from there. In other words, there is no universal template for "going exponential''. For that reason, a case studies of two very different companies that became Exponential Organizations, GitHub and Xiaomi, will illustrate how to take an established organization whose growth has plateaued in a stable business environment and then transform it into an ExO and achieve the desired 10x performance improvements promised by the model.

2.1 GITHUB INC.

Imagine a self-running company: no tier of "managers," just people creating value by doing what they love and letting the rest fall into place. How much money would you save by eliminating all that bureaucracy? How much faster could you move? How much conflict could you erase? How much bigger could you grow? How much more creative would the culture be?

There is at least one company that has been experimenting to get closer to the ideal: *GitHub*.

Ever since Linus Torvalds created *Linux* in 1991 and first established the "*open source*[20]" paradigm, a vast global community has been steadily creating new software for millions of applications. One such initiative, the website *SourceForge* (www.sourceforge.net), has more than 430,000 open source projects on it, some of which have achieved remarkable success. Aside from Linux itself, perhaps the best-known open source project is the Apache Web Server, a free piece of software created in 1996 by a team led by open source guru Brian Behlendorf, which competed with and subsequently humbled mighty Microsoft. Today, Apache runs the majority of the websites around the world—a fact that remains little known. Celebrated—even recognized—or not, open source software runs the Internet (and thus the world) today. After that

[20] *Open-source software (OSS) is computer software with its source code made available with a license in which the copyright holder provides the rights to study, change, and distribute the software to anyone and for any purpose. Open-source software may be developed in a collaborative public manner. The open-source model, or collaborative development from multiple independent sources, generates an increasingly more diverse scope of design perspective than any one company is capable of developing and sustaining long term. A report by the Standish Group (from 2008) states that adoption of open-source software models has resulted in savings of about $60 billion per year to consumers.*

extraordinary initial success, the open source movement settled into a stable, stratified environment over much the last decade, with the community producing little in the way of new innovation. Everything changed in 2008, however, when Chris Wanstrath, P.J. Hyett and Tom Preston-Werner founded a company called *GitHub*. Development of the GitHub platform began on 1 October 2007 and the site was launched in April 2008 becoming , with 605 employee worldwide and more then 38 million projects hosted , one of the most famous platform for people who want to build softwares . The firm is a privately owned, for-profit company, but it is built (like a lot of software companies) on an open-source project . The mission , an extended version of the MTP of the company , is summarized in an available letter from the CEO and Co-Founder, Chris Wanstrath:

"At GitHub our goal is to help everyone build better software. To do that, we know we must create a company where anyone, regardless of what they look like or where they come from, can grow and thrive. When we deliberately seek different perspectives, life experiences, and identities, we can build better products for developers all around the world."

One may have heard that GitHub is a code sharing and publishing service, or that it's a social networking site for programmers. Both statements are true, but neither explain exactly why GitHub is special.

At the heart of GitHub is Git, an open source project. Matthew McCullough, a trainer at GitHub, explains that Git, like other version control systems, manages and stores revisions of projects. Although it's mostly used for code, McCullough says Git could be used to manage any other type of file, such as Word documents. It is practically a filing system for every draft of a document. Some of Git's predecessors, such as *CVS* and *Subversion*, have a central "repository" of all the files associated with a project. McCullough explains that when a developer makes changes, those changes are made directly to the central repository. With distributed version control systems like Git, if you want to make a change to a project you copy the whole repository to your own system. You make your changes on your local copy, then you "check in" the changes to the central server. McCullough says this encourages the sharing of more granular changes since you don't have to connect to the server every time you make a change.

GitHub is a Git repository hosting service, but it adds many of its own features. While Git is a command line tool, GitHub provides a Web-based graphical interface. It also provides access control and several collaboration features, such as a wikis and basic task management tools for every project.

The flagship functionality of GitHub is "forking" – copying a repository from one user's account to another. This enables you to take a project that you don't have access to and modify it under your own account. If you make changes you'd like to share, you can send a notification called a "pull request" to the original owner. That user can then, with a click of a button, merge the changes found in your repo with the original repo. These three features – fork, pull request and merge – are what make GitHub so powerful. Before GitHub, if you wanted to contribute to an open source project you had to manually download the project's source code, make your changes locally, create a list of changes called a "patch" and then e-mail the patch to

the project's maintainer. The maintainer would then have to evaluate this patch, possibly sent by a total stranger, and decide whether to merge the changes. This is where the network effect starts to play a role in GitHub. When you submit a pull request, the project's maintainer can see your profile, which includes all of your contributions on GitHub. If your patch is accepted, you get credit on the original site, and it shows up in your profile. It's like a resume that helps the maintainer determine your reputation. The more people and projects on GitHub, the better idea picture a project maintainer can get of potential contributors. GitHub also provides a centralized place where people can discuss the patch. Lowering the barrier to entry democratizes open source development, and helps young projects grow. Besides its public facing open source repositories, GitHub also sells private repositories and on-premise instances of its software for enterprises. These solutions obviously can't take full advantage of GitHub's network effect, but they can take advantage of the collaboration features. That's how GitHub makes money, but it's not alone in this market. The money may be in private and on-premise hosting, but the love is in the public repositories. Perhaps most importantly, GitHub has become the Library of Alexandria for code examples. Since Git encourages granular recording of changes, programmers, be they absolute beginners or experts, can trace the steps of some of the greatest developers in the world and find out how they solved thorny problems.

2.2 THE ExO'S PRINCIPLES INSIDE THE COMPANY

GitHub has successfully transformed the open source community by implementing virtually all of the ExO principles. Here it can be reported how the company has implemented an MTP, as well as SCALE and IDEAS:

- ***MTP***: "*Social Coding*[21]"
- ***Staff on Demand***: GitHub can (and does) leverage the entire open source community for internal work.
- ***Community & Crowd***: Thanks to coding lessons and a collaborative environment, new developers (Crowd) are quickly turned into users (Community). In addition, GitHub has created a new office for any and all stakeholders to drop by and contribute or learn. There is open event space available for offline communities to gather and organize programs. GitHub explicitly doesn't use "lock-in" as a tactic, but rather focuses on respecting its users and being the best platform in the market space.
- ***Algorithms***: In GitHub's system, feedback is codified into algorithms and used for improved version control and workflow.
- ***Leveraged Assets***: GitHub doesn't own any of the projects hosted on its platform, which itself runs on the cloud. The company does use some of the software from various projects to enhance the platform itself—thus enlisting users into improving their own work environment.
- ***Engagement***: Game dynamics are extensively used, with leaderboards and a reputation system. This

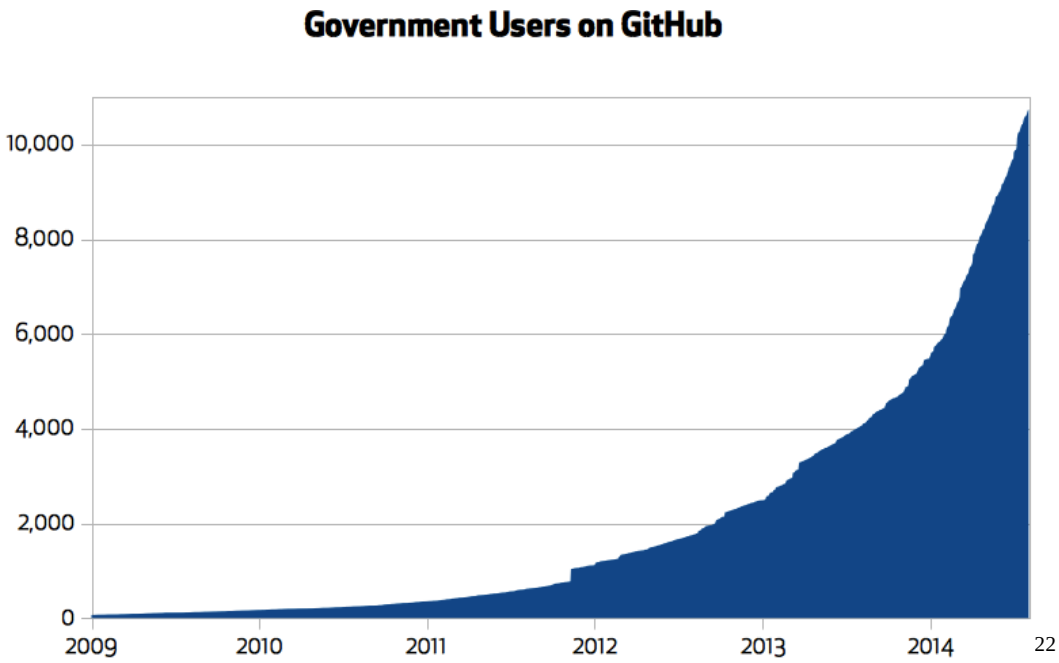
[21] *Social coding is an approach to software development that places an emphasis on formal and informal collaboration.*

keeps users engaged without forcing their participation. Feedback on new code is accomplished in almost real time.

- ***Interfaces***: The company has customized a number of functions to support its developers, including instant messaging, rating and reputation systems, and software coding lessons. All are embedded within the platform. The core strength of the product is its highly automated control mechanism and workflow management, which integrates outputs of different external organizational attributes (such as software incentive competitions and gamification programs), as well as crowd and community deliverables.
- ***Dashboards***: GitHub monitors value metrics about the platform. This information is available internally via a sophisticated and intuitive control panel.
- ***Experimentation***: Due to its decentralized, responsive, transparent and self-organizing company culture, there is continuous and open iteration of new ideas in every department across the organization. To avoid chaos, GitHub has developed open, easy-to-use internal platforms and effective communication. Given the freedom employees have to join any project, they need ready access to training materials and documentation from across the organization; without them, switching projects creates too much friction as newcomers struggle to get oriented. In this way, new team members are able to be productive from the first day they join a project.
- ***Autonomy***: Authority and decision-making are completely decentralized. Teams self-organize, and the staff for any given project make the key decisions on that team's initiatives. That said, everyone in the company is encouraged to contribute to and act as advisor on decisions that are being made elsewhere in the organization. As a result, the recruiting process is primarily focused on self-starters who have passion, purpose, and potential. Within the company, this is called "*open allocation*," which essentially translates to: always work on stuff you are personally excited about or that you find fulfilling.
- ***Social Technologies***: With all employees across all departments using GitHub internally, social constructs and technologies are deeply embedded into GitHub's platform and culture. Indeed, it can be said that every aspect of the product has a social feature. Thus, the office of the company is the chat room; email is used only for sending platform reminders and alerts about changes to the platform. This "conversational culture" boosts team morale and productivity. Senior management also has a motive for enforcing this culture: clear communication is a top priority in such an experimental, networked organizational model. Team members rely on face-to-face conversations, calls or Hangouts for strategic discussions, while using GitHub, chat or email for more operational work.

How well has GitHub done with this revolutionary, exponential, corporate culture? In six years, the company has created a community of more than six million developers working collaboratively on more than thirty-eight open source software projects. Even more important is that in Silicon Valley today,

software developers' hiring prospects and even salaries are largely determined by their individual ratings on GitHub. And because of the power and influence of that rating system, developers are constantly adding code to GitHub projects in order to boost their personal ratings. This secondary benefit further adds value to the community and the company. In short, GitHub is not only a great example of an Exponential Organization, but its product is also a powerful template for the ExO organizational model: collaborative, open, transparent, community-driven and peopled by staff well equipped and willing to self-select projects. It also offers 10x improvements across the board for different functions, jobs and departments. GitHub is an emergent organization driven by passion and purpose and although is currently optimized for developers, similar platforms will eventually emerge for lawyers, doctors, publicists and other professionals. The platform has already been extended into enterprise software development with a successful paid business model, and can or soon will be used by governments, non-profits and educational institutions. GitHub charges users a monthly subscription—ranging from $7 to $200—to store programming source code. Andreessen Horowitz, one of the world's leading venture capital firms, recently invested $100 million in GitHub. It was the VC firm's largest investment round ever. To understand its rationale, see GitHub's usage by governments around the world (and notice the exponential curve).



[22]

2.3 OPEN ALLOCATION

At GitHub, people work on an *open allocation* basis, a concept strictly connected with both Ex0's and Lean management principles . Unlike traditional companies where projects are assigned top-down, GitHubbers tackle whatever projects they want, without any formal requests or managerial interference. Sure, GitHub is only a medium sized company, so there are limitations to this experiment, but Valve Software (400+ employees) has grown to be a $2.5B company with a very similar open allocation structure. Organizations using open allocation do not give middle managers unilateral control over their reports' work. People

[22] *Salim Ismail (2014), Exponential organization , ExO Partners LLC*

management, product direction, and project-specific leadership are, in this way, decoupled. One argument in favour of this is that when the people defining projects no longer have the unilateral ability to terminate employees or deprive them of opportunity, better projects and leaders (those that can convince, rather than coerce) will emerge. Middle management may play roles, however, in mentoring, handling of conflict (as an absolute last line of dispute resolution), and (especially) ensuring that new hires are appropriately integrated into the open allocation system.

Leadership in GitHub organization is typically organic; the person to propose the project will lead it, if he or she can convince others to follow. When projects end, the leaders may rotate back into being "followers". Leading and following are temporary distinctions and largely by choice; one may choose to follow in order to learn more about a different part of the business, for example. Ideally, the leader for each project will be the most committed, capable or passionate person involved, and companywide rank (which may not exist at all) has little to no bearing on the selection. The main benefits from this internal structure are:

- ***Information***: In a closed-allocation company, the people doing the work and those deciding what is to be worked on are typically disjoint sets. This means that impractical projects are often proposed because the people responsible for the firm's executive function are deprived of important knowledge—in particular, whether the people doing the work consider the project worth investing their time, energy, and reputation. (If the answer is negative, they typically cannot communicate it, especially in at-will employment situations.)
- ***Peer review*** can be used and encouraged not only for source code, but also design, business strategy, and publicity. More people are allowed into the issues they consider important.
- ***Motivation***: Employees who have chosen their projects are more likely to be productive and highly motivated. There is more personal pride at stake when the person selected or defined where to put his or her efforts.
- ***Personal responsibility***: People can no longer blame bad project assignments or inept immediate managers for underperformance, since those are results of their own choices. A person who worked on a bad project, in an open-allocation environment, is at fault.
- ***Efficiency***: Hierarchies of people (which frequently duplicate efforts) are replaced with conceptual hierarchies, but extra-hierarchical collaboration (the norm, in an open-allocation company) allows cross-domain knowledge to be formed and deployed. An employee who wants to start a new project that may add value to the business can do so immediately, but those that require investment of others' resources and time require convincing them that the idea is valuable. In essence, workers are trusted with their own time, but disallowed from attempting to control others' time.
- ***Communication***: In the ideal open-allocation environment, anyone can communicate with anyone else in the company, without having to pass a message up and down a management relay. Traditional companies often have small units that are responsible for "innovating" while the rest of the company toils away under a more hierarchical system. What’s fascinating about GitHub’s approach is that it applies a single innovation-

centric model across the entire organization. If anyone can join any project, then workers need readily accessible training materials and documentation—otherwise, switching projects comes with too much friction as the new person struggles to get oriented. In some ways, the structure of a company like GitHub is just a distribution network for information about *the purpose of this company and how it works*—and subsequently *what it should be making*. Keeping everyone aware of the incremental adjustments in direction is really important—otherwise, word about these small corrections doesn't make it to certain units of the business, which don't adjust, eventually leading to huge gulfs in purpose between teams. That's how you end up like Apple in 1980's one team building a revolutionary product like the Macintosh and another team slogging away at an overpriced failure like the Apple III.

- ***Low turnover***: Open-allocation companies typically have low turnover. People rarely leave, because the work environment is considered superior to the norm; they are rarely fired, because there are so many avenues toward success that most people can find a project where they can perform well.

2.4 XIAOMI TECH.

There are currently more than 1.4 billion smartphones in the world. In comparison there are only 2 billion computers in the world, and with a market growth of 1.8 million smartphones per day, having a smartphone is basically the norm nowadays. The smartphone is always within arm's reach, and a recent study by Forbes in 2013 even shows that 9 out of 10 searches on your smartphone, leads to some sort of action, and more than half of these actions leads to some sort of purchase . In other words, the smartphone has become an essential part of our consumer behavior.

The multi-billions dollar smartphone industry is currently being led by five large companies, Samsung, Apple, Xiaomi, Lenovo, and LG. As of third quarter in 2014 these combined had more than a 50 % market share. The year-on-year growth within the smartphone industry reached 27 % in the second quarter of 2014. Android managed to capture a market share of around 85 % of this increase. An interesting development amongst these five major companies within in the smartphone industry is being illustrated by the latest report done by the International Data Corporation (IDC), depicting the smartphone vendor market share. The mentioned development shows the rise of a relatively new company, which by the third quarter this year was able to overtake the third place within the smartphone industry, with a 5.2 % market share. The name of the company that through the past four years has gone from zero percent market share to respectively 1.0 % to 2.1 % and now has risen to 5.2 %, is Xiaomi.

It's hard to fully capture the incredible ascent of *Xiaomi Tech*, a Chinese company. The firm was founded by eight partners in the year 2010 and was funded by a Singapore based investment group called Temasek Holdings and Chinese venture capitalists called IDG Capital along with Qiming Venture Partners. They were one of the first companies that were endorsed by core mobile companies, Qualcomm. Xiaomi continues to use their processors for their devices even today.

One of the first devices that came out of Xiaomi was Mi2. This was the first device that featured the revolutionary and famous Qualcomm *Snapdragon chip*[23]. The device sold close to 10 million units within the first 11 months of its inception, thus allowing Xiaomi to gain a foothold in markets such as Australia, United States, Europe and New Zealand. Focused on low-end Android smartphones, the company sold twenty million handsets in 2013, recording annual revenues of more than $5 billion . In 2014, they managed to raise close to $1 Billion in equity funding with the help of a Hong Kong based investment group,All-Stars Investment Limited. Lei Jun, one of the founders, is seen as a Chinese Steve Jobs. That's not just because he was heavily inspired by Apple's design, marketing and supply chain management, but also because of Xiaomi's intense focus on performance, quality and customer experience—characteristics that Lei Jun wants to make available to everyone at affordable prices. Xiaomi offers a curated Apple smartphone experience with the software development, speed and processes of Google Android, all at a low price. The company currently outsells Apple in China and is closing in on Samsung and it is the 4th largest smartphone maker. The company sold over 60 million smartphones in 2014 and has over 8,000 employees, mainly in mainland China, India , Malaysia, and Singapore, and is expanding to other countries such as Indonesia, the Philippines and Brazil. At the end of December 2014, Xiaomi became the world's most valuable technology start-up after it received US$1.1 billion funding from investors, making Xiaomi's valuation more than US$46 billion.

In selling Xiaomi employs a strategy very different from other smartphone makers such as Samsung and Apple. To sell high-quality cell phones at so low a price, Xiaomi keeps each model on the market far longer than Apple does. On average, a new version of a phone is launched every 265 days in the industry – down from 345 days in 2009. But Xiaomi doesn't renew its product for two years. Then, rather than charge high prices to cover the high cost of state-of-the-art components, Xiaomi prices the phone just a little higher than the total cost of all its components. As component costs drop over the two-year period by more than 90%, Xiaomi maintains its original price, and pockets the difference. Apple, on the other hand, collects its highest profits with the introduction of each model and needs to come up with new model after new model to keep those margins up. It also profits by selling phone-related peripheral devices, smart home products, apps, online videos and themes. According to Xiaomi's vice president Hugo Barra in late 2014, the company sees hardware sales as a means of delivering software and services in the long term, "*We are an Internet and a software company much more than a hardware company*." However, financial data available at the time indicated that this is most likely a plan for the far future: 94% of the company's revenue came from mobile phone sales, a higher proportion than even Apple. To further reduce overhead costs, Xiaomi does not own any physical stores, selling exclusively from its online store. It also avoid traditional advertising and relies on social networking services and word-of-mouth to publicise its products.

In a classical reaction to disruptive innovation, the largest smartphone manufacturers were at first not motivated to seriously challenge Xiaomi and even now that the company is becoming a significant

[23] *Snapdragon semiconductors are embedded in devices of various systems, including Google Android mobile and Windows Phone devices. They are also used for netbooks, in cars, wearable devices and other devices.*

competitor, the incumbents are still barely reacting, launching simplified versions of their mature flagship products, as Apple did with the iPhone 5c.

A recent social branding report on Xiaomi produced by *Resonance China* picks apart a large variety of the startup's strategies and shows how they're working out quite nicely. The beauty of these is that Xiaomi can export them all to its new markets even into challenging emerging nations across Southeast Asia or eventually, Latin America.

It is possible to condense Xiaomi's business strategies into these moves:

1. *Xiaomi is basically an ecommerce company*

Serial entrepreneur and Xiaomi co-founder Lei Jun likes to say that his newest startup is an ecommerce company – which is one of many reasons he dislikes the frequent comparisons between Xiaomi and Apple. He thinks that likening it to Amazon is closer to the mark. Xiaomi has its own E-store and also has a storefront on Alibaba's Tmall. The numbers back up Lei Jun's claim. Xiaomi's website is the third largest business-to-consumer (B2C) ecommerce store in China in terms of sales volume (behind Tmall and closest rival JD). Xiaomi generally only sells its devices in limited flash sales – typically in batches of about 50,000 to 100,000 in China, but in smaller amounts overseas – so as to ensure it only manufactures what it's sure to sell. The upstart company's sales pitch doesn't stop once someone has bought a smartphone. New customers will find that their phone comes with a Xiaomi store app pre-installed. That online commerce focus finds its apotheosis in the *Xiaomi.com* website. Xiaomi's web home updates daily to put an emphasis on which products are next available in its ongoing flash sales. "*Xiaomi's product page mimic best practices from Tmall,*" says Rand Han, the founder and managing director of Resonance China. Tmall is China's biggest brand-oriented online marketplace, with tens of thousands of vendors such as Uniqlo, Costco, and Burberry. That makes Xiaomi's website layout familiar to the hundreds of millions of shoppers on Tmall and other popular ecommerce sites in China. Apple's website segregates all that stuff into the Apple Online Store, but for Xiaomi it's front and center. Xiaomi has 451 national service centers, but they're not stores – although they do look rather a lot like Apple's iconic shops with their pine desks and lots of space for playing around with the gadgets. These relatively small shops – usually just outside of a city's main shopping area – save Xiaomi spending on premium retail real estate. When Xiaomi ventures offline – such as with events or its service centers – it's all very much secondary to its ecommerce core.

2. *Creates scarcity*

Xiaomi's flash sales help it rein in inventory and reduce wastage, avoiding the kind of over-production disasters seen recently with Amazon's Fire Phone and Microsoft's Surface RT.

While that makes it harder to get a Xiaomi gadget, the company has managed to spin that into a positive, creating periodic hype as flash sales of a limited number of devices open up each week. Xiaomi's social media accounts, particularly on Weibo and WeChat, play a key role in driving people to the registration page

for each new flash sale. Then, once a flash sale is completed, Xiaomi makes use of the quick sell-out in further social media postings, declaring that, for example, 50,000 Mi4 smartphones sold out in just 25 seconds. Not everyone welcomes flash sales. The process is certainly a lot more complex than the usual click and checkout on most ecommerce sites. The system seems to have met with more criticism outside of China than it has in Xiaomi's home nation. When Xiaomi launched in India in September, it faced a backlash as demand outstripped supply by a factor of two-to-one, resulting in a wave of disappointed and frustrated comments on the brand's Facebook India page. Despite those drawbacks, new phone makers that are emulating Xiaomi, such as OnePlus, are also using flash sales.

3. *Lowers the price of "premium"*

For Apple, premium starts at about US$700. For Samsung it's about US$600. But Xiaomi chopped that in half in 2011 when it debuted the first of its smartphones, which packed premium specs (but a rudimentary, blocky design) into a tiny price – just US$325. Xiaomi has kept that price for its flagship phone, which is now the Mi4. Xiaomi has also upped its hardware design game so that the aesthetics of the phone itself are no longer too much of a compromise compared to models from Apple and HTC. This combination of low cost and high value is a strong message to Chinese consumers. Inspired by Apple, Xiaomi also educates consumers on its design philosophy, emphasizing a focus on simplicity and functionality in its products.

Xiaomi's own version of Android, called MIUI, has also helped with this premium feel as it's better looking than most Android phone out there.

4. *Runs its own community*

Along with its careful social media strategy, Xiaomi is also pro-active in running its own community forums. This is where the brand's most hard-core fans, dubbed "Mi fans," meet to discuss gadgets, share knowledge, and generally hang out. This is something common to Chinese companies, but largely unused by major brands overseas. Xiaomi's, main platform has 30 million registered users and sees 579,000 new posts daily. Lots of supermarkets and quite a few other retailers now have loyalty programs, but it's not something that people associate with gadget brands. Xiaomi, however, has a well-established program under the VIP Users Center part of its forum-platform. Being a Xiaomi VIP entails getting points with each new purchase, which counts towards your status in the Xiaomi online community as well as for discounts on future purchases. VIPs can also opt into participating in online "missions" and special events offline.

2.5 ExO'S CHARACTERISTICS INSIDE XIAOMI

Imagine selling twenty million smartphones in just three years—from a standing start. Xiaomi, which has done just that, embodies ten of the eleven ExO attributes, the most peculiar are:

- ***Mtp***: The "MI" in the logo stands for "Mobile Internet". It also has other meanings, including "*Mission Impossible*", because Xiaomi faced many challenges that had seemed impossible to defy in the early days.

  "Quality technology accessible to everyone"

  The mission statement for Xiaomi reflects the three key values that the company emphasizes:

1. *A premium product*: Xiaomi ensures that its products not only meet market industry standards but also exceeds them. The products they make are second-to-none and can compete with any of the higher end brands that competitors offer.
2. *Lowest prices*: The focus on producing great products is matched only by the emphasis on providing products at incredibly low prices that normally wouldn't be offered for such premium items.
3. *More than just hardware*: Xiaomi envisions itself as an internet and software company above all else. The company wants to bring the internet, and all its uses, to markets where smartphones are only just the starting point.

- ***Autonomy***: Xiaomi has an extremely *flat structure* consisting of core founders, department leaders and about 8,000 employees, a system that enables short-line communication and decision-making in a fast-paced organization. Some employees, including 1,500 people working at a call centre, perform e-commerce, logistics and after-sales. The rest of the workforce works in R&D, which, at 30 percent of the workforce, is significant. The biggest different between Xiaomi and Baidu, which is another famous company in China, is that the pace of the company is much faster. However, there are several disadvantages for this kind of structure, for example, it is more difficult to control a large number of subordinates and it is more difficult to know what subordinates are doing or what problems they are having. Knowing these problems, Lei Jun broke down the team responsible for a task to not more than 10 people in their span of control. This way, it is easier for supervisor to control the group. The current structure of the Xiaomi organization is a divisionalized form. The divisionalized form has both strengths and weaknesses. First of all the structure is known for having vertical lines of communication, and skills. The recent structure of Xiaomi is placing each of the founders in control of an area. They have to manage their departments input and output independently from the others.

With this structure information within the company is traveling through multiple channels, before reaching its final destination. This type of structure is also known for having independent teams, working without including other departments in the process. Furthermore, the management of Xiaomi is very focused on having contact with the fans, which can be seen though the interaction on the social media platforms, which is being prioritized on a daily basis.

- ***Experimentation***: The culture of the individual teams is that of a traditional clan or tribe family-like and focused on mentoring, collaboration and adhocracy. Dynamic and entrepreneurial, with a focus on risk taking, Xiaomi only hires people who are passionate about their work and who are experts in their respective fields. Job incentives are available in the form of profit sharing and job rotation, which means employees are free to switch jobs at any moment.

  In its report "*How China is innovating*", McKinsey argue that Chinese brands adopt an approach of "innovation through commercialization". Instead of spending time on internal R&D to make the product "perfect", Chinese brands tend to launch their ideas into the market quickly and improve them through a few rounds of commercial realization and testing. Xiaomi embraces the competitive context of the Chinese market. In response to Chinese companies launching products that are not perfect, Xiaomi go one step further and essentially say to customers, "The product launched is not going to be perfect, but please get involved and help us make it perfect with you."

- ***Community & Crowd*** *and* ***Engagement***: A big difference relative to Apple is how extensively Xiaomi leverages its ecosystem. Lei is convinced that customers are the company's best source in terms of product design and services. As a result, Xiaomi employees are required to spend at least thirty minutes a day interacting with customers on user forums and social networks. Xiaomi also holds special events for its community of almost ten million fans, and stages elaborate product launches, much as Google and Apple do. Xiaomi's most loyal followers are called "Mi fen" (米粉 in Chinese), translating as "Xiaomi fan" . As Lei predicted, the community also helps with product development. Of the twenty-five languages currently available on its operative system (OS) , Xiaomi developed just three : the rest were created by users. This user community helps the company not only with products but also with support. Xiaomi has a fully peer-to-peer customer service platform that is driven and organized by the users themselves. During its 2014 Mi Fen Festival, fans bought $242 million worth of products in just twelve hours. Xiaomi came up with a game for the festival called Kings of Knockout, in which users could win discount coupons. The game was heavily promoted on the Chinese social network site Weibo, as well as on Twitter, Facebook and Google. Recently appointed global vice president Hugo Barra, ex-VP of Google Android, thinks that this type

of informal and playful engagement is the biggest reason for Xiaomi fans' loyalty to the brand. The fact that Xiaomi is able to gather knowledge from their users concerning new ideas, needs, innovations and desires for apps or products, have been a big part of their success. Having a forum where the users diverse capabilities are able to foster new ideas and innovations, is truly something Xiaomi have been able strive upon. Being able to gather lots of information from a huge database with actual users that all have a different point of view is facilitating a unique opportunity for discussion and problem solving. For Xiaomi to utilize the output from their users in the best manner, locating and cooperating with certain users are necessary. By locating and working alongside their lead users, Xiaomi is able to not only utilize their feedback and input, but as well influence them in regards to adopting new innovations and products. Hence locating the essential users are of great importance to Xiaomi.

- ***Leveraged Assets***: Company's marketing costs are relatively low, since Xiaomi sells its products directly online, using no resellers. In fact, all marketing is done via social media, with consumers spreading the word virally, at no cost for the company. Although it was initially very difficult for Xiaomi to find manufacturing partners for its smartphones, the company now uses *Foxconn*[24] and other partners for its product lines . Xiaomi also discloses the names and parts numbers of all its suppliers, which helps protect those suppliers from the many counterfeit devices flooding the Chinese market. Rather than manufacturing the smart phone (many Chinese mobile phone manufacturer already existed in the market), Xiaomi first focuses on creating an active mobile phone community call "MI Talk", in which people can discuss their user experience, how to customize their android system, and what functions they really need in their next mobile phone. Six months after the community is launched, there were over 3 million users active in the community. After gathering enough feedback from users, the company established a technical team to deeply customize the Android system, and publish its improved mobile operating system on line. But how can Xiaomi develop and manufacture its Phone in such a fast pace? The answer lies into its supply chain:

1. *Procurement*: In order to shorten the procurement process and lower the cost, most of the electronic components are imported from countries nearby such as battery from Thailand, screen from Sharp and camera from Sony. Once these components are ready, they will be shipped to Shenzhen, one of

[24] *Foxconn Technology Group is a Taiwanese multinational electronics contract manufacturing company headquartered in New Taipei City, Taiwan. Foxconn is the world's largest contract electronics manufacturer, and the third-largest information technology company by revenue. Foxconn is primarily a contract manufacturer and its clients include major American, Finnish, Japanese, and Canadian electronics and information technology companies. Notable products that the company manufactures include BlackBerry, iPad, iPhone, iPod, Kindle, PlayStation 4, PlayStation 3, Xbox One, Nokia and Wii U.*

the biggest port city near Hong Kong, and assembled there in local foundry.

2. *Manufacturing*: Xiaomi's manufacturing model is similar to Dell's, which is based on users' demand. First potential Xiaomi Phone users will place orders online and once the company has gathered enough order, they then will purchase components from its suppliers.

3. *Inventory Management*: Since Xiaomi only purchases components and manufactures Xiaomi Phones after users have placed orders, there is no surplus raw material to be managed. Once a phone assembly is complete, it will be delivery to several warehouses across China. In the warehouse there are two team, one team is to receive and double-check phone from foundry, and the other team will pack the phone with accessories, attached the order to the package, and delivery it to the user. Such a high turnover rate leads to 80% less inventory in the warehouse, while the other 20% is occupied by replacement battery and accessories.

4. *Delivery*: In order to reduce the cost of shipping, Xiaomi established its warehouse near warehouses of other big E-commerce companies, and established cooperation on warehouse management and shipping, therefore the enterprise can take advantages of E-commerce's delivery system, to lower its cost and ensure that the product can reach its user faster.

5. *Sales Strategy*: Xiaomi makes use of *Hunger Marketing*[25] by lower the yield of production on purpose, to create a situation where there is relatively high demand over the supply. Every time Xiaomi launches only a small number (near 100-300 thousand) of Xiaomi phones, and once its online order platform is launched, thousands of people will fight for a phone, and all orders are fulfilled within 30 minutes. Usually companies will use Hunger Marketing to maintain a relatively higher price for its product, but Xiaomi is trying to maintain stable or even lower its price , in fact how Xiaomi applied Hunger Marketing is largely different from how Apple executes it as well. Besides applying the usual tactic of restricting supply by producing "just in time" inventory, Xiaomi couples it with the allure of low prices, for phones commonly sold at half the prices of an Apple iPhone 6. Xiaomi assumes that once the product is beyond customer's expectation with such a low price, more people will be attracted and get a company product and since China is a big market, profits will increase eventually.

- ***Social technologies***: With the social media gaining an increasingly more important role in the globalized corporate world, the demand for a clear social media strategy is more important than ever.

[25] *"Hunger marketing" refers to a kind of marketing strategy where the commodity provider reduces production in order to create demand. If the product is popular, this strategy will allow the provider to achieve control of supply and demand while maintaining a high commodity price and profit purpose.*

For Xiaomi this strategy has been developed to grasp the demands of their huge fan base. First of all the vision of Xiaomi is in regards to what the fans of the company wants. In Xiaomi the management is quite use to incorporating the social net- working websites in their working process. These websites include the Chinese SinaWeibo, RenRen and Facebook as well as numerous forums regarding Xiaomi's products. On these sites, the management including the CEO Lei Jun, post around 100 responses every day to their fans questions regarding the company and its products. Many companies would most likely have sales staff or even a PR-manager maintaining the contact with the company's fans, however in the case of Xiaomi, the management is valuing and dedicating their time to the fans' concerns, which as a result creates a good relationship that facilitates active forums on the social media platforms. Xiaomi has built a vast network where fans can talk to each other and effectively communicate with the company. This have resulted in a very active fan base who is surrounding the company and constantly pitches new ideas about how to improve products as well as how to market these. But of course it is not possible for Xiaomi to have an extensive collaboration with all the fans without wasting resources. This is why the company have developed a system to identify which fans they want to collaborate with. What Xiaomi successfully has done is codify their systems to calculate the value for each of their fans. These values are being calculated through internal *algorithms* that are sorting the fans' value based on factors such as: number of comments, participation level and level of importance. This could be described as technological knowhow or specified skills in regards to design and product development. With the outset in the score-based system they are able to categories their fans in certain groups. By doing this they are able to identify the individuals they want to approach in order to create collaborations with these individuals to solve a task. To keep the fans excited, they give fans with high grades more permissions and perks and thereby more responsibility.

So, can established companies adopt ExO processes and produce 10x results? The answer, as seen in this chapter, is a resounding yes. But it is always challenging, and there is no well-marked path for getting there. When it comes to established companies, every ExO solution is a custom creation. Experience has shown that transforming an existing enterprise into an Exponential Organization requires two things. The first is a company culture that can quickly adapt to rapid, often radical, change. GitHub was almost entirely virtual from the start, so could easily change the requirements for participation. Needless to say, imposing the ExO model on a more traditional company—one with a hardened culture or a rigid managerial hierarchy—is much more difficult. Still, it can be done. It is theoretically clear that any stabilized environment or mid-market company can leverage ExO principles and transform itself to achieve exponential growth. That leads us to the second requirement for turning an established company into an exponential one: a visionary leader

who has the full support of the board and senior management. Accelerating a company to blinding speeds, empowering employees and customers, and emplacing a sophisticated and sweeping technical infrastructure takes a leader who not only thinks big and acts decisively, but who also has the backing of the most powerful people in the company—people who won't shut the whole thing down once things get scary. For established companies wishing to go exponential, the character and courage of the board of directors and executive row will often prove more decisive than their competence. ExO attributes can and are being implemented by large organizations. What was little more than a loose theory has now taken the form of a global movement.

Apple is a good example of how a large company approaches this challenge. Apple's core competency has always been design, and how it launches that design follows a set path. In short, Apple's formula has been to:

1. Leverage core design capabilities.
2. Form small teams of change-makers extracted from the larger organization.
3. Send those teams to the edge of the organization.
4. Combine design with cutting-edge new technology.
5. Utterly disrupt a legacy market.

That's not a bad template to follow. Starting with the iPod, which disrupted music players, then iTunes, which fragmented music delivery, then the iPhone, and most recently, the iPad, Apple has demonstrated what an ExO can do at the edge of an existing organization. It has also demonstrated just how big the payoff can be. In 2012, for example, an astounding 80 percent of Apple's revenues came from products that were fewer than two years old. Those new revenues helped to make Apple the most valuable company in the world.

Amazon represents another archetype of this philosophy. Jeff Bezos has repeatedly shown the courage to proactively cannibalize his own businesses (e.g., the Kindle at the expense of physical books), launch edge ExOs (Amazon Web Services), buy companies that disrupt his own (Zappos) and pursue transformative technologies (delivery drones). Such bold leadership is critical in the age of the ExO.

Experts continue to debate whether Chinese businesses are truly disruptive. For some industries in the West, this question appears a bit ridiculous. The American textile and apparel industries, for example, will tell you that the evidence can be found easily everywhere. American and European metals industries and producers of wind turbines and solar panels will echo that same impression.

But despite all the pain they have experienced, these industries are wrong. Far from being disruptive, Chinese textile, apparel, appliances, metal, and solar and wind players have done little that has been different from the practices they found in these industries when they entered them. They've simply undercut Western competitors by offering cheaper prices. They have been displacers, not disrupters. The difference between *displacement* (outperforming existing market incumbents at their own game) and *disruption* (changing the

game) is strategically important, no matter how similar the pain they cause is. Displacement generally is easier to combat than disruption. And while China has been more of a displacer than a disrupter to date, that is changing. China has not been a huge *technology* innovator, despite being the world's second-largest investor in R&D, but Chinese businesses have found ways to use innovations in processes, business models, and customer experience to their disruptive advantage. Xiaomi's phones are not technologically disruptive in hardware terms, but they are revolutionary in customer experience terms; customers come to expect and appreciate their weekly OS updates. Again, this is true disruption (although not particularly successful outside of China so far).

We in the West have long prided ourselves on our business process acumen, strategy savvy, and customer centricity while stereotyping Chinese competition as being nothing more than low cost. As a result, we have missed China's transition from displacer to disruptor. Today China's businesses are becoming considerably more disruptive than we have given them credit for, making Chinese competition more formidable in the future. This is not to say the road ahead for China will be a smooth one. The major barrier the country must overcome is entrepreneurial. Bill Fisher and David Simon spoke with several Chinese entrepreneurs in Kunshan last month — young and old, working in both the private sector and the public. They consistently characterized their peers as too short-term oriented to create truly disruptive change, and the country's cumbersome state-owned enterprises as too slow. Entrepreneurs in Chinese industries from animated media to applied medical research said that China's insistence on domestic standards are resulting in less-ambitious innovation and that the education system is not supporting appropriate talent development. The former country head of a major multinational pharmaceutical company (a Chinese-American one) observed that "made for China," rather than "made for the world," often is easier, cheaper, and more profitable than pursuing truly disruptive changes. Nonetheless, there are enough suggestions of business model disruption appearing in China that it is highly conceivable that soon we might be entering a period of two-speed change. The first will be continued displacement by ever-more-competitive Chinese companies who compete on cost. The second will be disruptive business model innovation , fueled by ExO's structures occasionally appearing in less-familiar sectors of the Chinese economy, powered by emerging entrepreneurs.

This presents Western companies with a fresh challenge. Displacement can be combatted in a number of ways, from process improvements to government trade actions, and cost advantages tend to be temporary sources of competitiveness, but disruption presents a more profound challenge. It calls for real transformation in incumbent companies — something that is notoriously difficult to achieve.

Large organizations everywhere are realizing that to remain competitive they must address their historic biases and impose a new reality, one that willingly refuses anachronistic business practices—no matter how effective they were in the past—in favour of new ones that are better equipped for an ever-faster-moving world. While large organizations may struggle to adapt structurally to this new age, they still have one key advantage: intellectual capital. Large companies didn't get big by accident. Most of the world's global brain trust is running these organizations, and that brain trust has the capacity to come up with some amazing ways to capture or adapt ExO principles. What's needed is vision and will.

3 CHAPTER THREE: IMPLICATIONS OF EXPONENTIAL ORGANIZATIONS and PERSONAL CONCLUSIONS

3.1 INFORMATION AND DEMONETIZATION

Everywhere you look, the new information paradigm, created as a result of Moore's Law and other fundamental forces that bear upon the digital world, is accelerating the metabolism of products, companies and industries. In industry after industry, the development cycle for products and services grows ever shorter. And like the shift from film photography to digital photography, once you change the substrate from a material, mechanical basis to a digital and informational one, the output is an inevitable explosion. In 1995, 710 million rolls of film were developed at thousands of processing centres. By 2005, nearly 200 billion digital photographs, equalling about eight billion rolls, had been taken and edited, stored and displayed in ways that were unimaginable just a few years before. Today, web users upload almost one billion photographs per day to sites like Snapchat, Facebook and Instagram. This process of "virtualizing" one industry after another is advancing exponentially. And this is just the beginning: as we add trillions of sensors on every device, process and person, the process will accelerate even faster to an almost unimaginable pace (Big Data). Finally, according to Ericsson Research, within the next eight years we will see the next generation of mobile networks (5G) sporting speeds of five gigabits per second. Just imagine what that will make possible. Many products are now launched early—unfinished and in perpetual beta—for the sole purpose of gathering data from users as early as possible to determine how to "finish" the product. Data collected from these early users is quickly analysed for insights on bugs that need fixing and the features users most want to see. Once the changes are implemented, the product is rereleased and analysed and the process continues. These days, product development cycles are measured not in months or quarters, but in hours or days. The Lean Startup movement, with its paradigm of constant iteration/experimentation, began on the Toyota car production line in the 1970s, moved to the Internet in the 1990s, and is today showing that it is applicable to almost any type of business. The open source movement has further accelerated this trend. A single developer working on, say, a printer driver, can now benefit from the transparency of a hundred other developers who've worked on similar projects. When network effects kick in, the overall community begins learning at a much-accelerated pace. We can see this happening in web-hosted developer communities such as GitHub. Similar trends can also be seen in many other hardware arenas. Thus, while a basic 3D printer in 2007 cost nearly $40,000, the new Peachy Printer—recently funded on Kickstarter—is now available for just $100. This "going digital" is fundamentally shifting the competitive landscape in many sectors, allowing new entrants from unexpected places and so as a result, whatever business a company is in, chances are its competitors are not what they used to be. A final outcome

of this trend is that we seem to be entering an era of "winner-takes-all" markets : there's really only one search engine (Google), one auction site (eBay) and one e-commerce site (Amazon). Network effects and customer experience lock-in seem to be at the root of this fundamental change in the nature of competition.

Another one of the most important—and least celebrated—achievements of the Internet during the last decade was that it cut the marginal cost of marketing and sales to nearly zero. By this we mean that with the web, it is possible to promote an online product worldwide for a tiny fraction of what it cost just twenty-five years ago. And, in concert with a viral referral loop, customer acquisition costs can also be cut to what was once deemed impossible: zero. It is precisely this advantage that allowed businesses such as eBay and Amazon to scale with extraordinary speed to become some the world's biggest companies. The virtual advantage of these companies devastated their competitors—in particular, the traditional print classified advertising business. What's important to understand is that in the age of the Exponential Organization, the new information-enabled technologies will power exponential cost drops not just in sales and marketing, but also across every business function.

In a 2003 Harvard Business Review article entitled "*One Number You Need to Grow*," introduced the concept of a *Net Promoter Score* (NPS), which measures the loyalty that exists between a provider and a consumer. An NPS can be as low as −100 (everybody is a detractor) or as high as 100 (everybody is a promoter). An NPS that is positive (i.e., higher than zero) is considered good, and an NPS of 50 is excellent. The NPS is largely based on a single, direct question:

How likely is it that you would recommend our company/product/service to a friend or colleague?

If you have a high NPS, then your sales function is free. If you are using peer-to-peer models, your service costs can also essentially be free. Using crowdsourcing and community ideation (such as *Quirky*), your R&D and product development costs can also approach zero. And it doesn't stop there. What we're now seeing with ExOs—and this is tremendously important—is that *the marginal cost of supply goes to zero*.

A case in point: it costs *Uber* essentially zero to add an additional car and driver to its fleet. By the same token, Quirky can find its next consumer product for essentially zero. With *Airbnb*, for example, the marginal cost of a new room to rent is essentially zero. Not so for Hyatt or Hilton.

ExOs are able to scale their businesses with near 100 percent variable costs, even in traditionally capital-expenditure-heavy industries. As shown in their book "*Abundance"*, Peter Diamandis and Steven Kotler argue that as technology brings us a world of abundance, access will triumph over ownership. By comparison, scarcity of supply or resources tends to keep costs high and stimulates ownership over access. Note that in traditional industries that can be fully information-enabled, new competition has produced a staggering drop in revenues for old companies. The business models for music, newspapers, and book publishing have all suffered through this transformation, and today look almost nothing like they did ten years ago. Thus, the newspapers that have survived have largely shifted their revenue efforts to their web

pages; the albums and CDs of the music industry have atomized to the selectable singles world of MP3 files; and many of today's bestsellers enjoy most of their profits from e-book sales.

3.2 DISRUPTION IS THE NEW NORM

In his influential bestseller "*The Innovator's Dilemma"*, Clayton Christensen points out that disruptive innovation rarely comes from the status quo in fact established industry players are rarely structured or prepared to counter disruption when eventually it appears. History has shown that the best inventions or solutions rarely come from experts; they almost always come from outsiders. That is, from people who aren't domain experts but who offer a fresh perspective. Today, the outsider has all the advantages. With no legacy systems to worry about, as well as the ability to enjoy low friction and take advantage of the democratization of information and—more important—technology, the newcomer can move quickly and with a minimum of expense. Thus, new actors and entrants are well equipped to attack almost any market. Indeed, the rate of change is so high everywhere these days that you now must assume that someone will disrupt you, and often from a direction you least expect. As Steve Forbes sees it, "*You have to disrupt yourself or others will do it for you*." This applies to every market, geography and industry.

A century ago, competition was mainly driven by production. Forty years ago, marketing became dominant. And now, in the Internet era, as production and marketing have been commoditized and democratized, it is all about *ideas and ideals*. Marketing has increasingly become product innovation—i.e., a good product sells itself. As young people and startups have plenty of ideals and ideas, the competitive advantage—as well as the field of competition—migrates towards their game and sphere of influence. This is one of the key reasons why disruption today is more likely to come from startups than from existing direct competitors. This pattern will take longer to impact older, capital-intensive industries such as oil and gas, mining and construction. But with no doubt: disruption is coming. Consider that solar energy, which is powered by information technology, has been doubling in its price-performance every three years. In fact, in another four years, it's estimated to reach *grid parity*[26] in the U.S., when it will change the energy equation forever. Meanwhile, other traditional industries, including real estate and automotive, are already succumbing to this new approach. The automobile industry in particular has had its model shocked by the emergence of the all-electric *Tesla car*. While the Tesla is a high-performance luxury car, it's much more than just that. In fact, in Silicon Valley, it is common to describe it is as a computer that happens to move—and move very well. Who would ever have predicted that in just three years a Silicon Valley team of (mostly) electrical engineers would have created the safest car ever built?

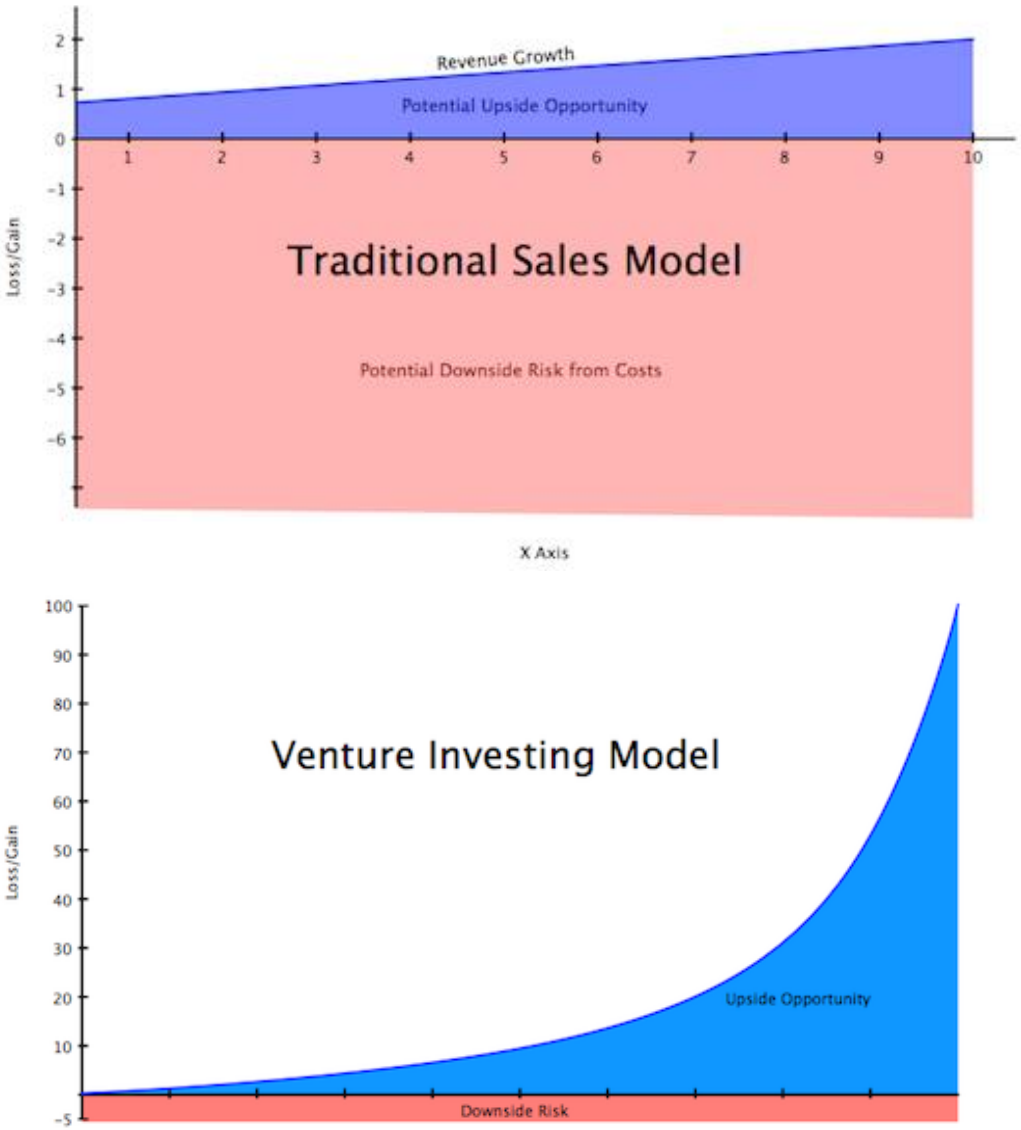
We see a consistent set of steps around disruptive innovation comprising the following:

[26] *The term "grid parity" is meant to describe the point in time, at which a developing technology will produce electricity for the same cost to ratepayers as traditional technologies. That is, when the new technology can produce electricity for the same cost as the electricity available.*

- Domain (or technology) becomes information-enabled
- Costs drop exponentially and access is democratized
- Hobbyists come together to form an open source community
- New combinations of technologies and convergences are introduced
- New products and services appear that are orders of magnitude better and cheaper
- The status quo is disrupted (and the domain gets information-enabled)

We are seeing this evolution occur in drones, DNA sequencing, 3D printing, sensors, robotics and, certainly, Bitcoin. In each domain, an open source, networked community has sprung up, delivering an accelerated stream of innovation exactly in line with the steps listed above. The reason "Disruption is the New Norm" is that democratized, accelerating technologies, combined with the power of community, can now extend Christensen's Innovator's Dilemma to an unstoppable force.

Ronald Coase won the 1991 Nobel Prize in Economics for his theory that larger companies do better because they aggregate assets under one roof and, as a result, enjoy lower transaction costs. Two decades later, the reach delivered by the information revolution has negated the need to aggregate assets in the first place.For decades, scale and size have been desirable traits in an enterprise. A bigger company could do more, the argument went, because it could leverage economies of scale and negotiate from strength. That's one reason why, for generations, business schools and consulting firms have focused on the management and organization of extremely large companies. And Wall Street has gotten rich trading the stock of giant companies, which often merge to create even more gigantic organizations. All that is changing. In "*The Start-up of You"*, Reid Hoffman shows that transaction costs are no longer an advantage and that each individual can (and should) manage himself or herself as a business. Why? One reason is the unparalleled and unprecedented ability of a small team today to do big things—an ability that grows ever greater if the exponential technologies described in Chapter One are put to use. Both now and in the coming years, adaptability and agility will increasingly eclipse size and scale. A telling example is how Netflix, with its centralized DVD rentals and small footprint, easily outmaneuvered and eventually destroyed Blockbuster, despite its 9,000 stores and distributed geographical assets. Richard Branson's Virgin Group is structured to maximize the benefits of a small-form factor. Its global research centre is home to the company's R&D department and a unit that spins out new businesses under the umbrella brand. The Branson group now consists of more than four hundred companies, all operating independently. Collectively, they are worth $24 billion. One key advantage of a small team is that it can take on much bigger risks than a large one can. This can be seen clearly in the graph below—courtesy of Joi Ito, director of the MIT Media Lab—which shows how startups are characterized by high upside potential and low downside, while large organizations are characterized by just the opposite.



Traditional Sales vs Venture Investing Model

A fundamental question we regularly hear is: How big can an ExO get? We think the more important question is: *What happens to an ExO after it grows up*? While this new paradigm is still in its early days, preliminary indications are that when successful, ExOs will build on the leverage created by their externalities and become *platforms*. But that answer creates its own set of questions, the most important of which right now is: How can ExOs leverage the benefits of SCALE elements like crowdsourcing, community management, gamification, incentive competitions, data science, leveraged assets and staff on demand to become platforms? We believe the answer is that they will wire themselves into the infrastructure and start enabling other ExOs to emerge from and operate off of those platforms. Perhaps the earliest example of this platform model was Google. Its search prowess allowed it to scale quickly, and once the company hit critical mass, the AdWords platform enabled self-provisioning advertising platforms from which other companies could grow. Google in turn took its share by taxing that growth. Facebook was also successful at becoming a platform, relying on its extraordinary market penetration and knowledge about its users to spawn such ExOs as Zynga and its recent mobile efforts. Amazon is another success story, as is Apple's App Store ecosystem, which is probably the clearest example of an ExO product becoming a platform. So, the answer to the question of how big an Exponential Organization can get yields yet another,

more precise, question: *How quickly can you convert exponential growth into the critical mass needed to become a platform*? Once that happens there is no practical limit.

Now that the digitized information has hit, the global economy has changed forever. The era of traditional, hierarchical market dominated by heavy and non-flexible companies is coming to an end. The world now belongs to smarter, smaller and faster-moving enterprises. This is certainly true now for information-based industries, and it will soon be true for more traditional industries as well.

PERSONAL CONCLUSIONS

All the new models and approaches to business , from the ExOs to the Lean Startup , reported in this work are picturing a world in a phase of profound radical fracture from what enterprise-thinking used to be. Is it possible to summarize some general lessons learned while working on this thesis :

1 – Exponential Organizations will dominate (for the foreseeable future) the competitive arena and yesterday's successful organizations cannot continue to succeed without changing the ways in which they operate because they will be subjected to premature obsolescence now more than ever . The ultimate "prediction" of Moore's Law in fact is that (nearly) everything will be going up in capability and going down in price/cost, and since all this will occur exponentially (not linearly) old enterprises will have to do a lot of catching-up if they don't want to shut down their businesses.

2 – The first and most important step in order to build an enterprise that will successfully last is identify problems and MTPs (Massive Transformative Purposes) clearly because ,as previously said, it will be very hard for a new company to compete if it does not apply the ExO structure and surely there cannot be an exponential organization if a solid intent to change the world or to address an overwhelming problem is not formulated in a clear way. The second step is that to survive, and thrive, every company must become a true learning organization (learning new technologies and their ever-new uses/applications) and every person must become a genuine life-long learner

3 – A Problem rises in this world of frenetic disruptions: where will the jobs be for the lesser-educated? There is the high possibility that the sum of these disruptions could reduce the number of people that work if those remain without a particular qualification or if they have adapted to a working field where innovations and critical changes never occurred until the rise of the Exponential organizations.

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