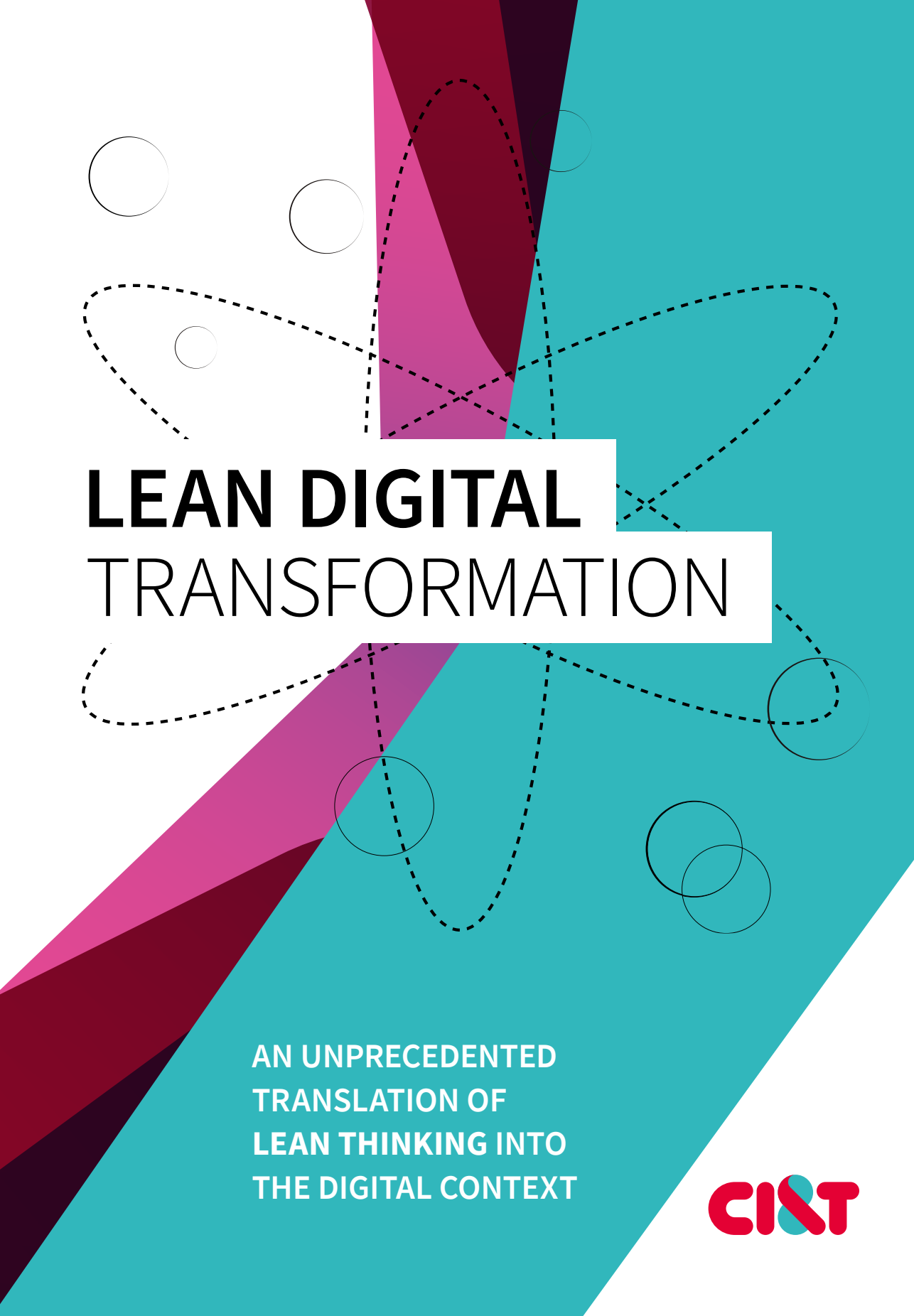




LEAN DIGITAL TRANSFORMATION

AN UNPRECEDENTED
TRANSLATION OF
LEAN THINKING INTO
THE DIGITAL CONTEXT





Sailing through rough seas



Storms often catch us by surprise. And the reality is that whether in business or in nature, being able to adapt to these unanticipated events can mean the difference between success and failure. For instance, when ships are in the grips of a storm, one thing an experienced sailor focuses on is something called *steering-way*. This means that a ship moves forward with enough power to retain steering control, rather than getting tossed around by the raging sea. Similarly, when new or disruptive technologies create challenges for your company, you have two choices: power through by steering your business on the right course, or drift off into the horizon.

CI&T is a company that seems to benefit from shocks and unforeseen events - though this was not always by design. Looking back over the last two decades, it seems as though we've thrived and grown as a company during the storms. But let me assure you that we don't thrive on adventure or risk. Without even realizing it, we've created an animal that knows how to take advantage of volatility. And this is the type of expertise that's often missing from CEOs' and business leaders' daily playbook.

In response, we've produced this book to explore how to deal with the rapid pace of change we're seeing today. However, our intention is not to theorize about the impact of digital transformation on businesses, or to attempt to *list 5 Steps to [fill in the blank]*. Nor is it a

manifesto about how organizations can successfully adapt to change.

Our aim here is to share a bit of our decades-long learning experience - which is based on the challenges we've witnessed when reinventing CI&T, and our successful track record helping large and complex organizations become faster, more innovative and more digital.

This contribution to the Zeitgeist is an unprecedented translation of **Lean thinking** into the digital context - one that is driven by **design**, and having as its endpoint the creation of a culture focused on **learning**. In practice, this **new culture** has proved to be a competitive advantage when the seas are rough and uncertainty is on the horizon.

This is the adventure we call **Lean Digital Transformation**.

Welcome and have a good journey!



Cesar Gon
Founder & CEO, CI&T

INDEX



Why start
now?

PAGE 07



Between
squirrels
and giant
snails

PAGE 15

Lean Digital:
A Scale Toward
Success

PAGE 25



Learnings from
the **journey**

PAGE 33



Lean Digital Transformation is a journey that has a beginning, but it's never ending. So be prepared to follow the inevitable changes that happen within the marketplace - not to mention the evolving tastes of consumers. I hope you don't find the idea of this too daunting, however. If so, rest assured that once you come out on the other side, both your business and customers will be thanking you.

WHY START

NOW?

In recent decades, we've witnessed a profound transformation in the world thanks to the innovative ways in which we're able to communicate, consume information and purchase products or services. Periodically, technologies emerge that break the *status quo*. As physicist Thomas Khun said in his book *The Structure of Scientific Revolutions*, "Every revolution in science changes the historical perspective of the community that experiences it." What we are seeing, however, is a revolution that happens with unprecedented speed. **Today, the biggest change is the speed of change.** And those who learn faster win the game.

In 1997, Harvard professor, Clayton Christensen, coined the term "disruptive innovation." He referred to a world in which the emergence of smaller firms take advantage of market shares that are overlooked by large companies. With fewer resources, these companies offer products that may have been previously unavailable to consumers. Admittedly, the quality of these new products and services may be lower than what we're accustomed to - which is something that many consumers are willing to overlook.

After 20 years, that concept has undergone a fundamental shift, to now include

The term "disruptive innovation" has come to define technologies that are able to generate new business and revolutionize entire markets.

technologies that are able to generate new business and to revolutionize whole markets - not only the emerging ones. Sectors such as transportation, hotels, telecommunication and banking are suffering major disruptions with the entry of new and unexpected players.

For example, telecom companies have reported multibillion dollar losses as a result of the expansion of apps like Skype and WhatsApp. A study¹ published by the British research agency, Ovum, points out that between 2012 and 2018, major companies in the industry, such as China Mobile, Deutsche Telekom and Telefonica will lose about

\$386 billion in revenue because of apps that revolutionize the way people communicate.

Or let's consider how transportation has undergone radical changes with the arrival of ridesharing services like Uber. Today, Uber has become synonymous with disruptive innovation; and "Uberization" has become a technologically driven economic movement that describes the on-demand or sharing economy.

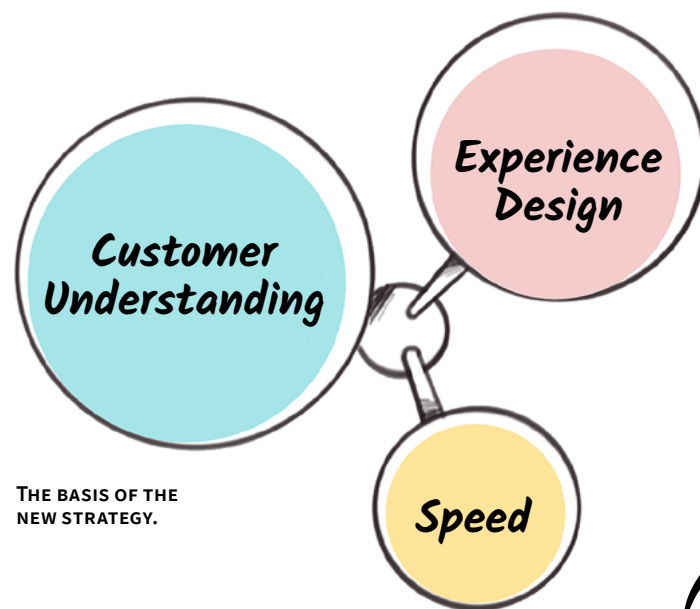
PUTTING THE **CONSUMERS** IN THE CENTER OF EVERYTHING



Along with the ability to create and develop an innovative digital-driven business, another differentiator for new companies is something that Amazon CEO Jeff Bezos calls as the "customer obsession." Obsessive customer focus puts the customer's needs in the center of everything, while constantly changing and innovating based on new technologies.

¹ <http://fortune.com/2014/06/23/telecom-companies-count-386-billion-in-lost-revenue-to-skype-whatsapp-others/>

Consumers of today have a seemingly inexhaustible trove of information about products and services at the tip of their fingertips - which has completely transformed the way they make purchase decisions. To paraphrase Steve Jobs, there's one more thing: This new generation of consumers not only expect brands to meet their needs quickly, but they also expect high-value experiences. This means that brands need to create deeper connections with their consumers, always anticipating and ready to surprise and delight.



THE BASIS OF THE
NEW STRATEGY.

WHO'S READY?

The reality is that organizations that embrace a **digital first** business model - such as the myriad startups penetrating your industry today - have a mindset that allows them to quickly and seamlessly meet the evolving needs of customers. Armed with a deep appreciation of the importance of speed and agility, these are the companies that can adapt and change directions quickly. Meanwhile, this approach may be untenable for companies with rigid operating structures and traditional business models. As it turns out, many traditional companies operate in a way that Google CEO Eric Schmidt describes as

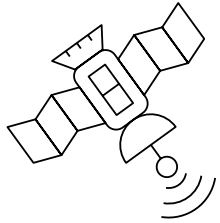
slow by design - meaning they operate as reliable machines that minimize risks and failures and are therefore not ready for experimentation.

But if your organization's goal is to stay competitive and relevant, then digital transformation must be at the top of your agenda. Just ask the top CEOs. According to The Agility Trap's 2016 *Global Executives Study into the State of Digital Transformation*, which captured the insights of CEOs from across the globe, 82% of respondents believe that it's necessary to accelerate company transformations in order to keep up with evolving industries. Research also shows



82%

of CEOs find it
necessary to
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transformation to
keep up with evolving
industries.

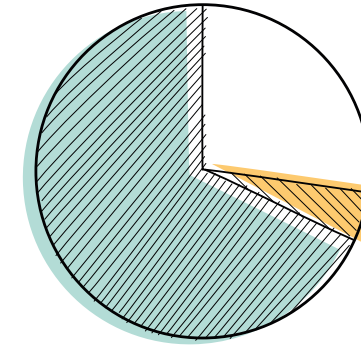


that more advanced markets can be found within the U.S. and Europe, where 52% of companies are already establishing new digital projects.

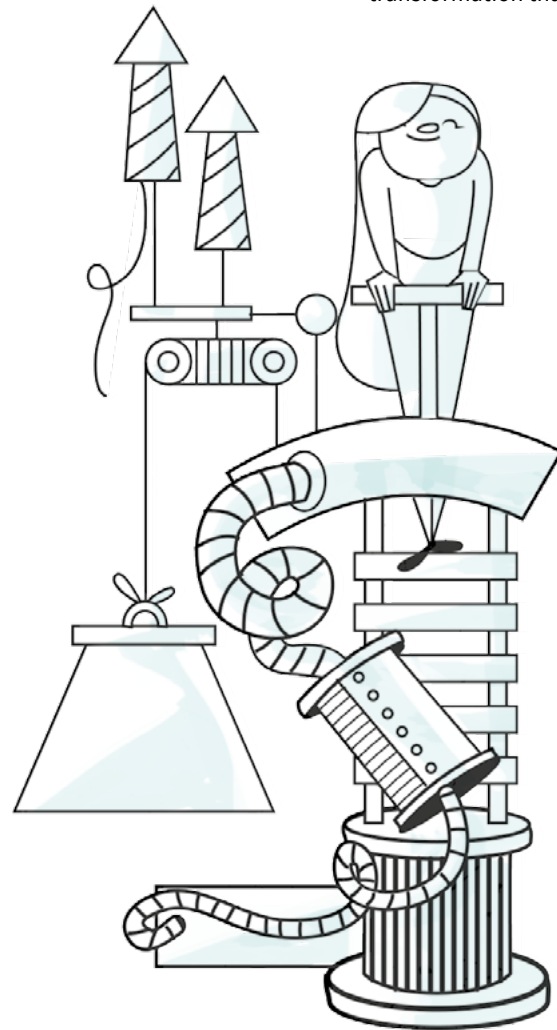
Another study, *The IT Transformation Maturity Curve study*, conducted by the Enterprise Strategy Group shows that out of 1,000 CIOs worldwide, 71% reported that digital transformation is necessary for their business to remain relevant and competitive in this new marketplace. Meanwhile, only 5% of CIOs believe that they are prepared for the transformation that is underway.

71%

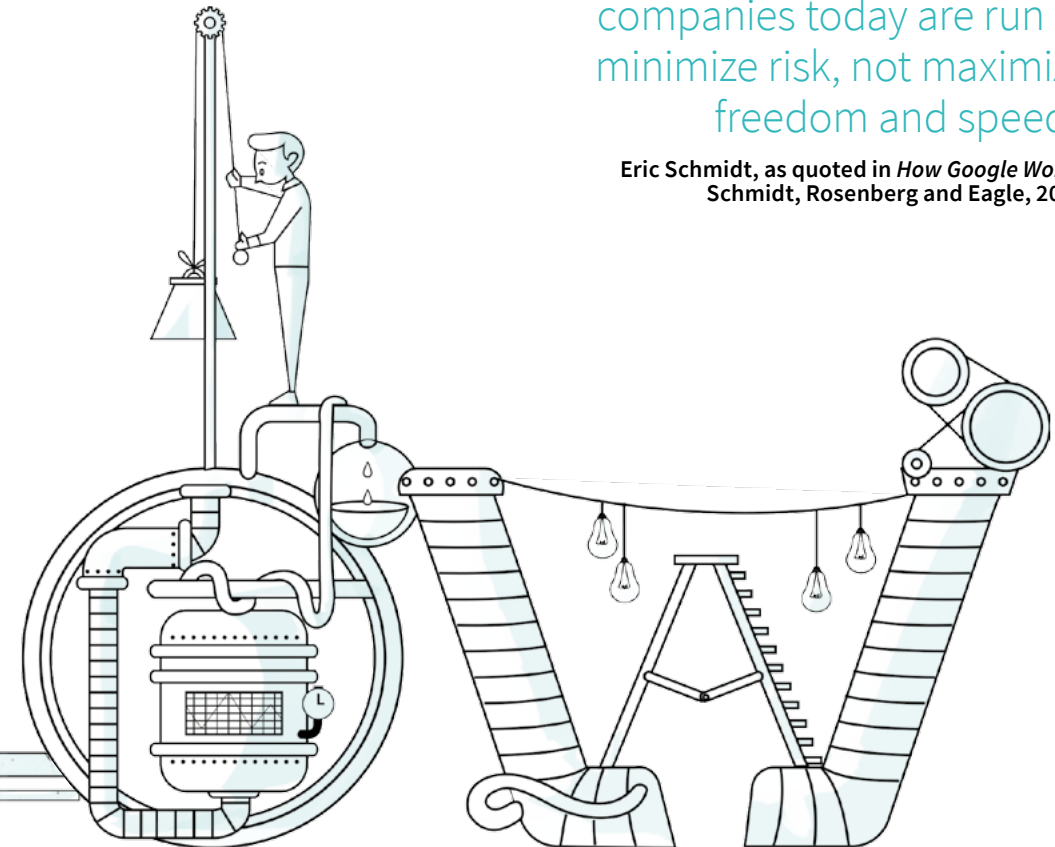
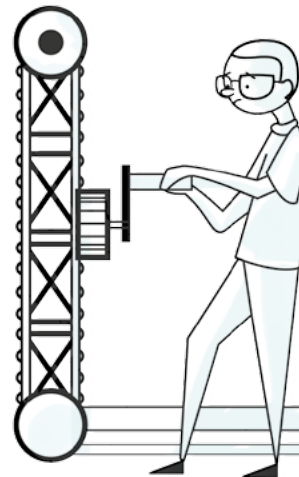
are aware that digital transformation is necessary to be competitive.



However, only 5% believe that they are prepared for this process.



COMPANIES WHICH ARE "SLOW BY DESIGN" AS DESCRIBED BY ERIC SCHMIDT, CEO OF GOOGLE, INTENTIONALLY WORK LIKE RELIABLE MACHINES TO MINIMIZE RISK AND FAILURES.



"The problem is, most companies today are run to minimize risk, not maximize freedom and speed."

Eric Schmidt, as quoted in *How Google Works*, Schmidt, Rosenberg and Eagle, 2014.

BY DESIGN

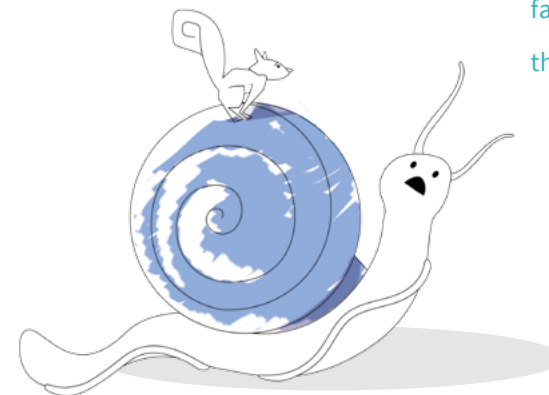


BETWEEN SQUIRRELS AND GIANT SNAILS

Traditional companies often look to tech companies for inspiration. They want to be as fast as Google, be able to generate experiences like Apple and understand customers like Amazon. But wanting is just a pre-requisite. Success will require a commitment to a new way of thinking.

What these juggernaut companies have in common is that they've mastered agile methods for their business. And in case you're not already familiar with the term, *agile* is a set of processes that aim to optimize the development of software by promoting quality, speed, cost reduction and efficient production timetables.

In other words, agile processes help development teams stay focused on quickly delivering value. And solutions evolve throughout this process in order to facilitate early delivery and continuous improvement that's informed by a stream of constant feedback.



Agile promotes exactly the changes that *slow by design* companies want to achieve, which makes it easy to envision it as an engine for transformation. Within large, traditional companies, innovation rooms can be created - whereby small teams have agility, speed and can deliver results better than the other technology teams. However, the small agile teams run into trouble when they ask the rest of the company to integrate this transformation, change processes and break down silos. In the end, the hope that the organization becomes innovative *by osmosis* falls apart.

These innovators are seen as outsiders, while the other internal teams have now gained the size and weight of dinosaurs but the speed of snails. Thus, companies see glimmers of hope that they can become more nimble; but it never quite becomes a reality. Instead, creating agile teams generates, at the most, disconnected digital initiatives - but fails to digitally transform the entire system. These small agile initiatives are successful, like experiments, but they fail to gain scale. They are like squirrels, quick and nimble, but they are effectively moving on top of giant snails.

WHY IT DOESN'T WORK?

The lack of connection between teams generates isolated initiatives, preventing them from gaining scale, which affects the delivery of value.



SILOS OFTEN CREATE A LARGE AMOUNT OF DISCONNECTED INITIATIVES.

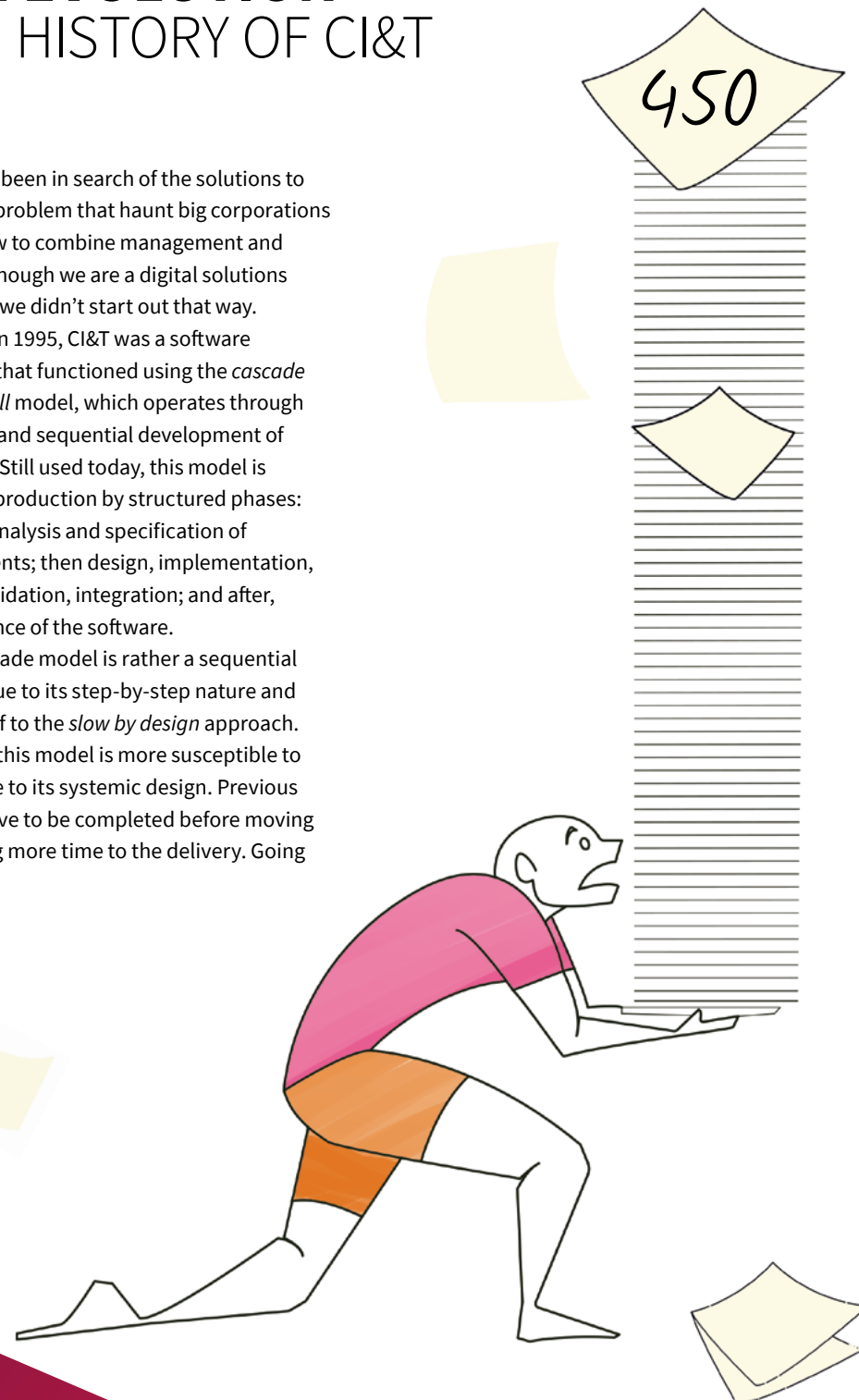
BUT THEN WHAT DOES WORK?

So how do companies navigate through these types of storms? They must find a way to steer the entire company in the same direction in order to implement effective change. Transformation happens by disrupting silos and communicating with different organizational areas so that they can work together to innovate quickly and with agility.

THE EVOLUTION THE HISTORY OF CI&T

CI&T has been in search of the solutions to the same problem that haunt big corporations today: how to combine management and agility. Although we are a digital solutions company, we didn't start out that way. Founded in 1995, CI&T was a software company that functioned using the *cascade* or *waterfall* model, which operates through the linear and sequential development of products. Still used today, this model is based on production by structured phases: first, the analysis and specification of requirements; then design, implementation, testing validation, integration; and after, maintenance of the software.

The cascade model is rather a sequential process due to its step-by-step nature and lends itself to the *slow by design* approach. However, this model is more susceptible to failure due to its systemic design. Previous phases have to be completed before moving on, adding more time to the delivery. Going



back to a previous phase could prove to be costly and even more time consuming. This model typically has an average lead time of 12 to 24 months, where initial requirements can change throughout the process - rendering your idea even less valuable for the user.

With this model - and a philosophy based on command and control - we had 450 complex practices in the CI&T Unified Process (CUP), with which we developed products that generated significant results for our customers. In addition to remarkable success in the marketplace, this discipline and excellence gave us the maximum evaluation in the Capability Maturity Model (CMM)², a level reached by very few companies in the world.

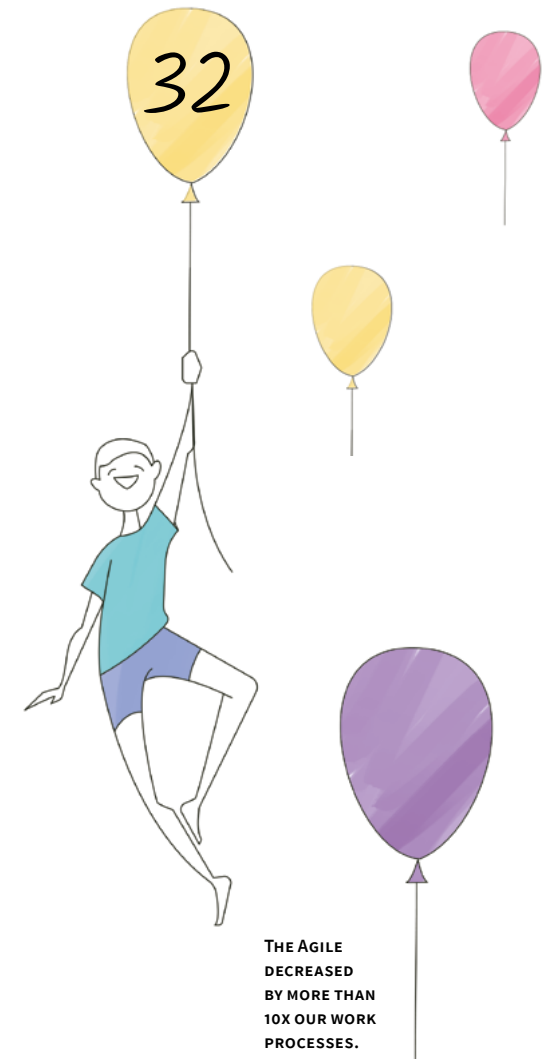
AVERAGE LEAD TIME PER SEGMENT*:

Advantage Programs	180 days
Card Benefits	270 days
Payment Solutions	490 days
Banks	718 days

*SURVEY DONE WITH SOME OF OUR CLIENTS
FROM THE A3 ASSESSMENT

Despite having successful and recognized processes in the market, we have always been open to experimenting and continual improvement. Consequently, in 2007, we accepted a challenge from one of our then most important customers - an iconic Silicon Valley company - to create products using agile methodologies that promised to address the waterfall model gap. Side-by-side with the client, a team of CI&T developers began to apply agile principles, which produced outstanding results.

² Developed by the US Department of Defense in the 1980s, CMM examines the best practices and maturity level of a software development organization.

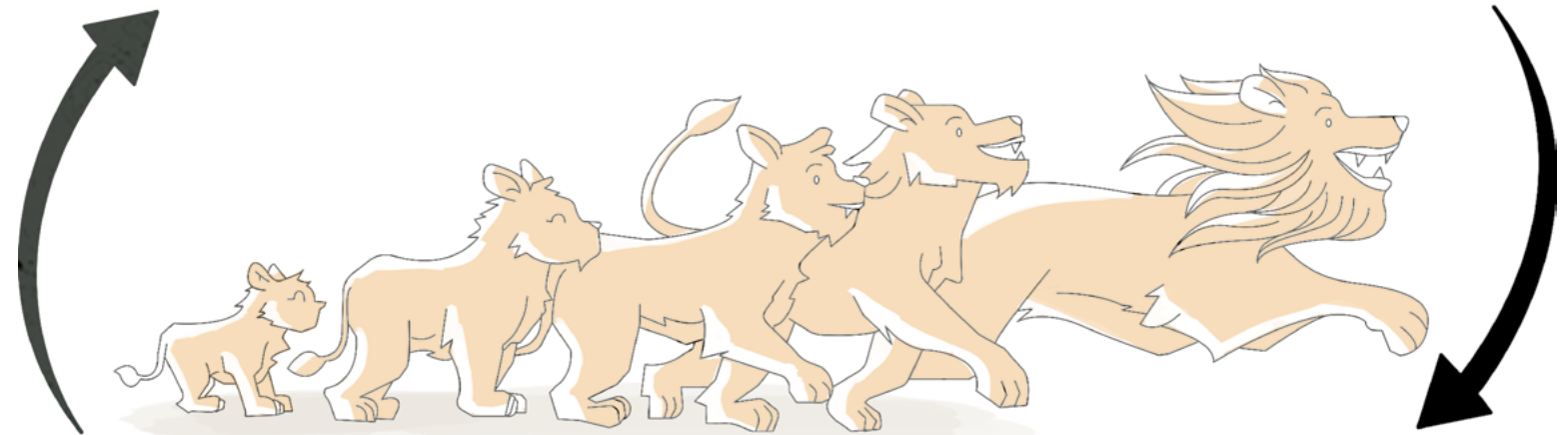


THE AGILE
DECREASED
BY MORE THAN
10X OUR WORK
PROCESSES.

“Those who learn to lead agile’s extension into a broader range of business activities will accelerate profitable growth”.

Darrel K. Rigby, Jeff Sutherland and Hirotaka Takeuchi, *Embracing Agile*, Harvard Business Review, 2016.

The new and agile CI&T Production System (CPS) reduced 450 working processes of our robust CUP to just 32. The new approach delivered better quality results in less time. It brought speed and agility. And best of all, it changed the culture of the teams that implemented it. However, as with most companies, over time we saw that we could not reproduce this transformation throughout the company.

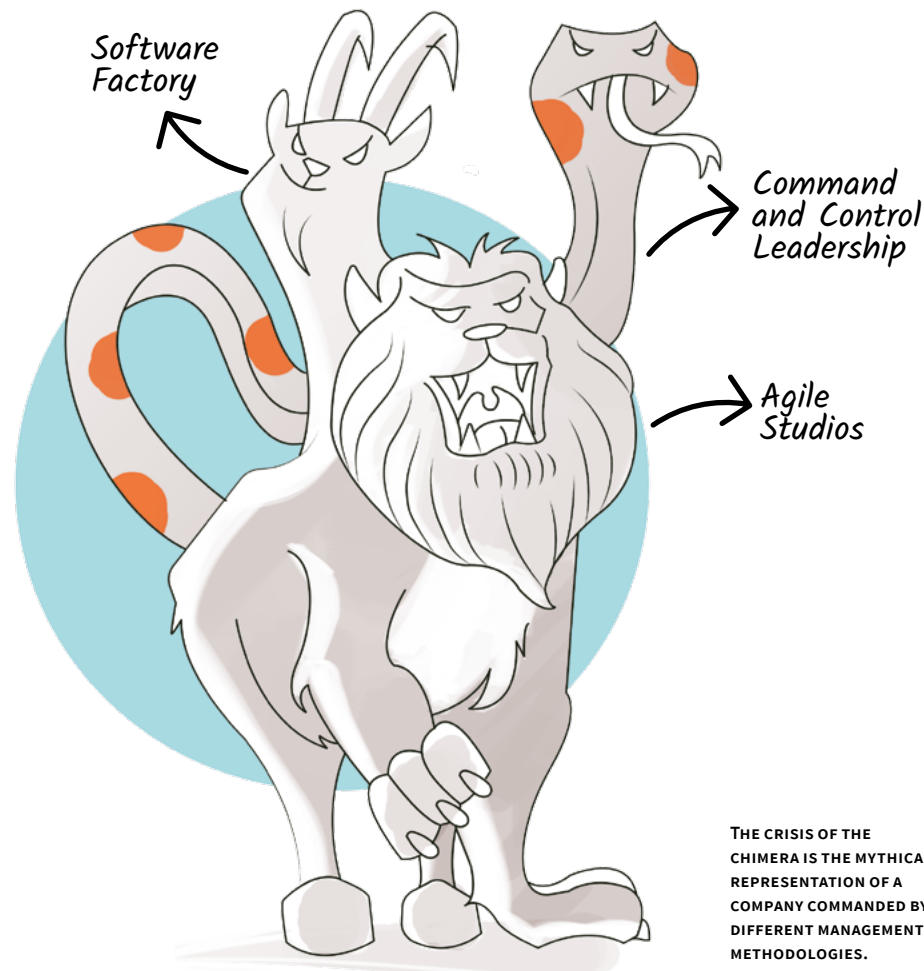


Customer
Experience

Insights
Driven
Enterprise

Speed

FROM LEAN'S ENCOUNTER
WITH DIGITAL, A NEW
SET OF DIGITAL SKILLS
EMERGES THAT EXPAND
THE FLOW OF VALUE.



THE CRISIS OF THE
CHIMERA IS THE MYTHICAL
REPRESENTATION OF A
COMPANY COMMANDED BY
DIFFERENT MANAGEMENT
METHODOLOGIES.

LEAN MEETS DIGITAL

Given agile's success in transforming businesses, we were baffled by the lack of adoption. In our efforts to better understand this dichotomy, we found the answer in Lean. For everyone here at CI&T, agile is a brilliant interpretation of some principles and tools based on the Toyota Production System (TPS) management philosophy. However, while the former is specific to software development, the latter is more relevant for establishing a culture of speed and innovation.

In 2009, we experienced what we call the crisis of the chimera. Like the three-headed mythical creature, we were functioning with three "heads". We had one head focused on the Agile Studios, the second one responsible for the software factory and the last head representing a command and control management practice.

So we decided to apply Lean principles and methods to reduce silos, bureaucracy and processes. We currently have 40% of our business using the new Lean Digital format. It has proven to be successful, with our teams being more satisfied and engaged, while our customers became increasingly excited about the results.

So what happens with the 60% of the company that still works on the traditional production system within the software factory? Completely moving away from the model that's served CI&T's success was a huge challenge. But, we believed that Lean Digital is the future so we pushed for change in order to develop our model of **Lean Digital Transformation**, which proposes a cultural and process change in a gradual and structured way with the goal of constant improvement.

There we were: in 2010, we decided to shut down the software factory and unify our business model around digital. By the end of that year, we got rid of one of the chimera's heads - namely, the goat, which prevented us from achieving the speed we wanted. However, we were faced with another major challenge: our leaders were not prepared for the new paradigm and were still very much attached to the old standard of command

and control. This created obstacles for agile teams as we attempted to scale the new operation. Finally, it was time to face the snake - the head that prevented us from being even better - and change the way managers think.

We learned through Lean that it's the experiences that change our thoughts and not the other way around. Applying the principles and tools of the lean management

philosophy, we committed to modifying our practices, and consequently the mindset of our leaders that then allowed them to influence the transformational change within the organization.

Today, we are a digital company. We count on multidisciplinary teams to collaborate and engage in order to achieve our goals and provide the best service for our clients.

"One of the secrets of an organization's success is the way it reflects on its problems and how it learns from them"

John Shook, *Managing for Learning*, 2008

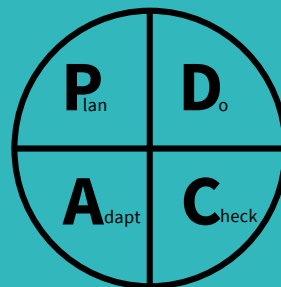
WHAT IS LEAN?



This management philosophy was inspired by the practices and results of the Toyota Production System (TPS), developed in Japan in the 1950s. The TPS consists of two pillars:

- **Jidoka** - Known as the quality pillar which seeks to identify abnormalities and stop production to avoid waste.
- **Just-in-Time** - A management system aimed at optimizing production and reducing costs.

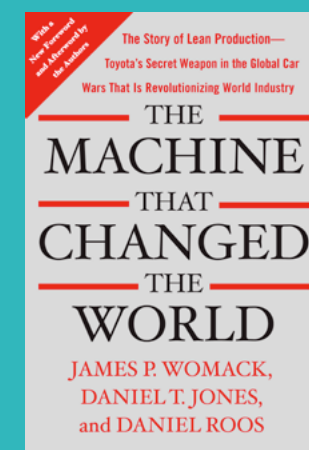
This methodology increases the efficiency of processes by allowing the visualization of problems and the rapid correction of defects. Unlike traditional models, the system takes in consideration the identification of errors as a great opportunity for learning and improvement.



When applied to all business dimensions, TPS seeks the highest quality in the shortest amount of time. Further, it attempts to lower costs by eliminating waste, resulting in productivity gains, innovation and customer satisfaction.

To describe this production model, James P. Womack, Daniel T. Jones and Daniel Roos - in their book *The Machine that Changed the World of 1990* - created the name Lean Manufacturing, which gave rise to the Lean philosophy.

Inspired by TPS but scientifically grounded, Lean embodies a decisive way of thinking: It standardizes how problems are solved.



LEAN DIGITAL: A CLIMB TOWARDS SUCCESS

Lean Digital Transformation can be imagined as "climbing Mount Everest," in that it's not something that can be achieved overnight. Rather, it takes careful planning and strategic execution.

To start the journey, you must first start with a clear goal about the desired business model and the digital maturity that will be necessary to support it - followed by a plan of action that prioritizes problem areas. And based on the objectives, each plan is then executed to solve the prioritized problems.

A RADICAL CHANGE

focuses on experimentation during product development. Experimenting in short cycles allows teams to discover the best solutions, develop them and then quickly validate with your target audience.

Lean also improves the performance of companies changing the way they face and solve problems. Regardless of the question, the way to get the best result is the same: analyzing the context, discovering strengths and weaknesses and then making the analysis. Having this clarity, the next step is usually simpler: To define the best way to proceed. Starting from a common base of information, the discussions are more objective and the company work becomes faster and more efficient.

The key principle of the Lean Digital methodology is to identify what is most important for the customer and to deliver it quickly and consistently. The consumer should always be the focus and their needs and desires are the starting point and purpose of all projects. The management system also aims to reduce waste in production through mapping the value stream and using the pull system, which results in a significant reduction of costs. The other principle

The most radical and new characteristic that **Lean Digital Transformation** brings to the day-to-day business is certainly a new culture. Instead of traditional wall charts or hidden pages on the intranet, it encourages employees to adopt the new principles and share them throughout the organization.

But how do you promote these behaviors? The answer is to deliver more value and make people's lives easier. This affords

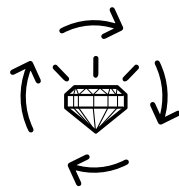
the team a greater sense of safety and comfort when modifying practices that were once commonplace in your organization. And for this to happen, it's necessary to create processes that are streamlined and efficient, creating a comfortable routine for the team. From this learning, we develop the cornerstones processes, fundamental parts of our transformation model.

THE 5 PRINCIPLES OF LEAN



VALUE

Identify value from the customer perspective, then pursue those goals consistently.



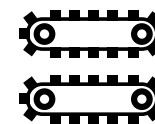
VALUE FLOW

Map the steps that add value to the product or service and apply the appropriate processes in their development, thereby eliminating waste in production.



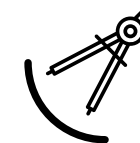
CONTINUOUS FLOW

Establish a continuous flow to carry out activities. The idea is to meet customer needs quickly, reducing steps, time and eliminating unnecessary costs.



PULLED PRODUCTION

Do only what the customer asks for. The goal is to minimize inventory and not have any excess.

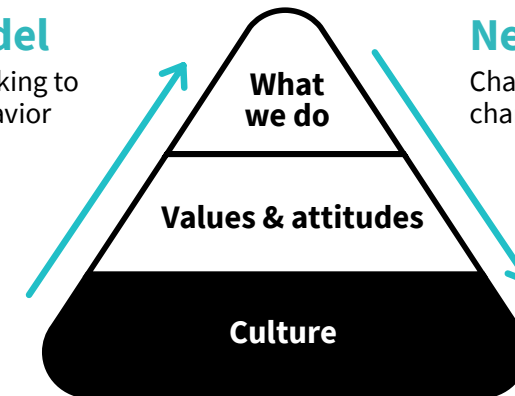


PERFECTION

"Today better than yesterday, tomorrow better than today" is the maxim that governs Kaizen philosophy, one of the tools used in the constant search for continuous improvement of processes, products and the development of people.

Old Model

Change thinking to change behavior



New Model

Change behavior to change thinking

*Shook's change model

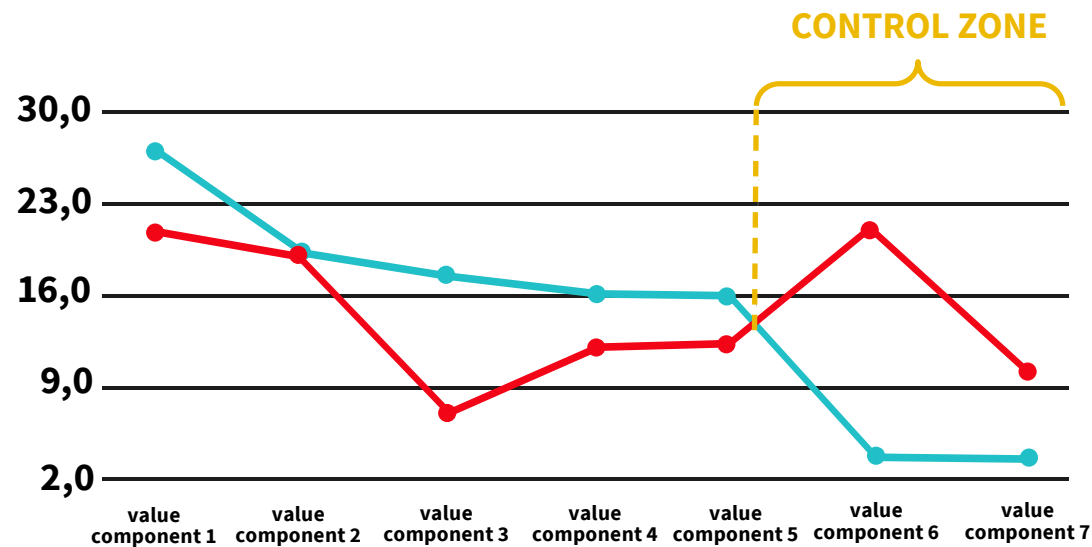
ACCORDING TO SHOOK, WHAT WE DO ON A DAILY BASIS CHANGES OUR VALUES AND ATTITUDES AND, CONSEQUENTLY, PRODUCES A CULTURAL CHANGE.

WHAT ARE **CORNERSTONES**?

Cornerstones are the pillars that support the macro process of **Lean Digital Transformation**, and subsequently stimulate both positive and consistent behaviors within a company. These simple tools allow you to solve problems in the best way, producing more results.

An example of a problem: difficulty in prioritizing the features that must be developed in a software. To solve it, we use the cornerstone of value engineering - a methodology that drives people to define what is most important to generate value for the business with optimized costs. After priorities are visualized, there's a clear plan and order of development. A simple solution to a complex problem.

Cornerstones represent a minimal set of processes that, once implemented, promote a consistent set of positive behaviors within an organization.



Business Value

Cost

WITH VALUE ENGINEERING
IT IS POSSIBLE TO DEFINE
WHAT GENERATES THE MOST
VALUE FOR THE BUSINESS
WITH OPTIMIZED COSTS.

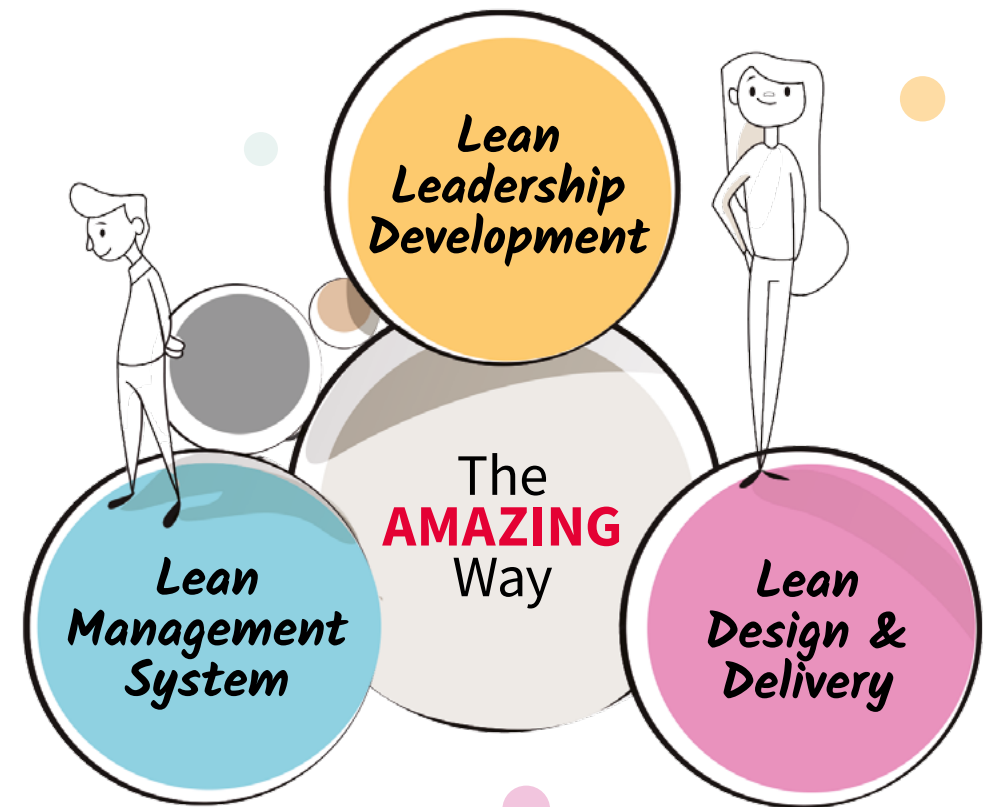
CHANGING **LEADERSHIP**

Another key component of **Lean Digital**

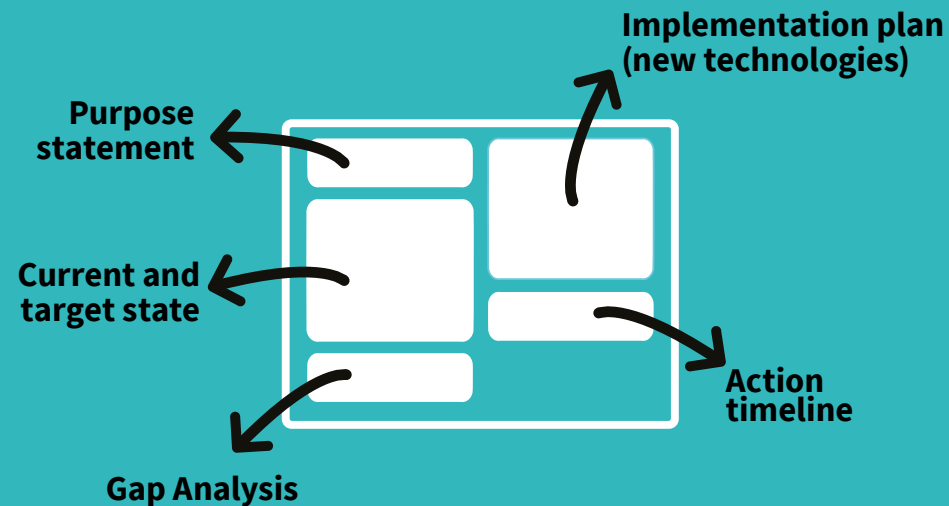
Transformation is engaging leaders.

Often trapped in traditional processes, managers tend to avoid change with their teams, thereby alienating themselves from a movement that's underway - when they really should be standard bearers for change.

In order to encourage a new mindset, we created new cornerstones of management, which helped to promote newly introduced routines and practices to those who we needed to be protagonists for the



A3 ASSESSMENT



Another cornerstone management tool is the A3 (named for the size of the sheet in which this assessment takes place). This method is a visual presentation of a problem and the strategic plan and action to address it. Based on the scientific model for resolution of issues, it presents a structure that first identifies the problem and causes, and then creates the strategies for the solution.

THE TIME OF THE **TEAMS**

transformation journey. We were also mindful that good processes - when they make sense and are useful - can help change ways of thinking. As a result, we used simple Lean tools, such as *Gemba* - which is a Japanese term meaning "real place." This emphasizes the importance of leadership being completely present in the work area alongside teams, learning and investigating problems on the ground and leading them to the solution. There's really no substitution for this type of close collaboration.

The Lean philosophy holds the leader as the one who understands the work better than anyone else. The leaders must be committed to the team, leading by doing, and also challenging them towards continuous growth. They must be able to see problems in context in order to identify solutions and opportunities.

Lean Digital Transformation is a journey without end. It should be a constant and structured process. Because it's complex, leaders must be ready to pivot quickly and change along with the team practices. They must have a personal goal to be truly involved. Thus, in addition to directing the teams, the leader is a part of the actual development - working side-by-side to teach, learn and be a source of inspiration. And this must be constant in order to truly foster new ways of functioning. It is only through the systematic use of these new processes that teams and culture will truly experience the necessary transformation.

With leaders prepared for the challenge, teams must also be ready for the changes that come along with using the Lean principles, such as being able to work in a multi-disciplinary way. This is why we've also created the cornerstones of development in order to teach teams the skills they need in a consistent and sustainable way.

The A3 is also used as a tool to identify opportunities for improvement and planning of strategies and actions, in a simple and structured way. Through specific training, we seek to enhance talents in addition to fixing problems. Besides preparing each team member, these processes motivate team members and promote behavioral change.

As a result, leaders and teams become advocates of the new processes and procedures. And in a natural and organic

way, the company gradually becomes better equipped to achieve its goals - all with the speed, agility and high quality expected by your customers.

"Give employees examples of how they can do their job successfully"

John Shook, *How to Change a Culture: Lessons from Nummi*, MIT Sloan Management Review 2010.

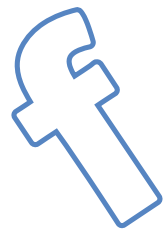
LEARNINGS FROM THE JOURNEY

As we have seen throughout this book, in order to achieve success consistently in this new digital world, companies need to be clear about the business model they want to achieve and its culture must be open to experimentation and risk taking. However, it is also essential to develop two critical capacities within your organization. The first is to take the pulse of the consumer, to observe changing behaviors and to see where they are going. Teams can then use these observations to design creative digital solutions that are integrated within an omnichannel. The second capacity is the ability to deliver memorable experiences in a fast and continuous way. But in order to make this a reality, it's important to first understand the limitations that you're facing - be they technological or market specific.





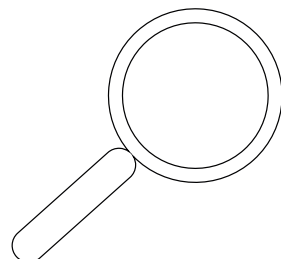
Lean



Continuous Flow



Culture



To quickly launch your products, it's important to reduce your development cycle and the number of necessary experiments. The key here is to test fast and learn fast.

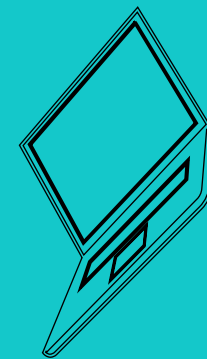
What is surprising today may be common in a few months.

To see major changes, companies need to be able to leverage data analysis tools in order to generate meaningful insights, develop good ideas and make high-quality products for customers in the shortest possible time. **Lean Digital Transformation** is the way to develop these capabilities.

THE AMAZING WAY

Speed at scale, agility and clarity

MENU

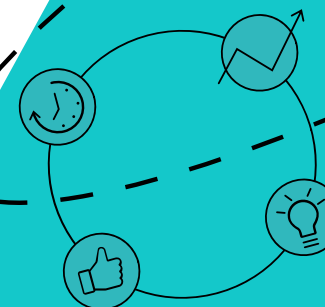
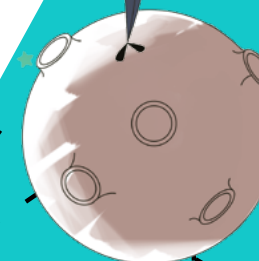
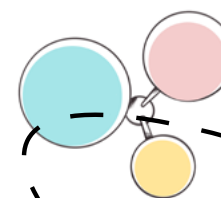


Journey



Customer

Value Engineering



To review the main pillars of **Lean Digital Transformation**, we present a visual representation of how each of them act in an interconnected and interdependent way so that the company achieves the agility and speed that is fundamental to the new market.

INSPIRATION COMES FROM LEADERS

Management practices and habits must accompany change, consolidating a new leadership role - one that stimulates, directs and supports teams so they can work autonomously. A true leader inspires people to promote continual improvement through teaching, learning and working alongside their teams.

THE CUSTOMER AT THE CENTER OF EVERYTHING

"Customer obsession" should be the focus of the business strategy. It is necessary to know your audience and understand their journey, identifying what is valuable to them and seeking to meet their needs. Only then will you be able to offer complete experiences consistently.

TEAM SPIRIT

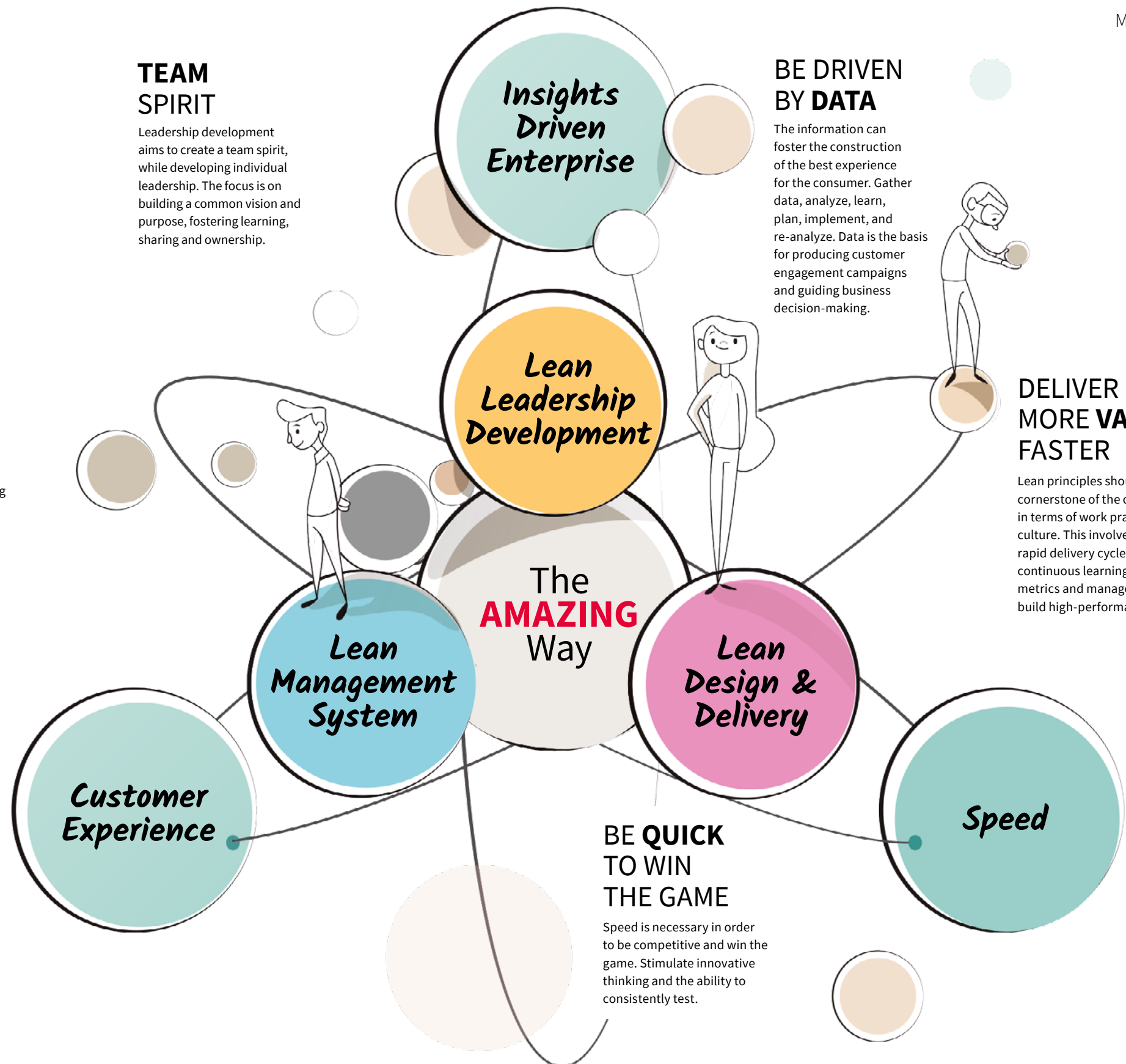
Leadership development aims to create a team spirit, while developing individual leadership. The focus is on building a common vision and purpose, fostering learning, sharing and ownership.

BE DRIVEN BY DATA

The information can foster the construction of the best experience for the consumer. Gather data, analyze, learn, plan, implement, and re-analyze. Data is the basis for producing customer engagement campaigns and guiding business decision-making.

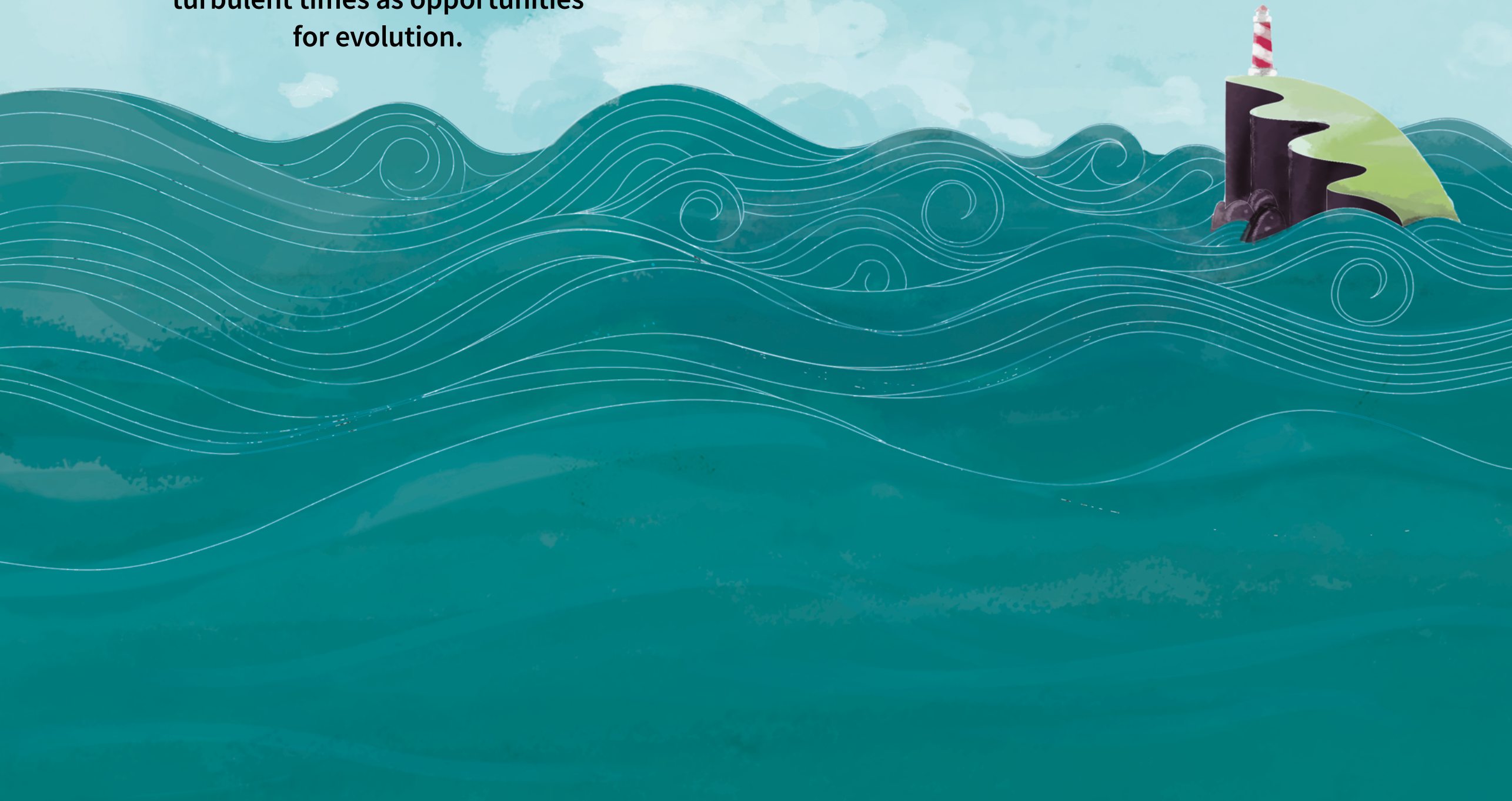
DELIVER MORE VALUE, FASTER

Lean principles should be the cornerstone of the organization in terms of work practice and culture. This involves scheduling rapid delivery cycles and continuous learning, using metrics and management to build high-performance teams.





**Lean Digital Transformation is
within the reach of those who are
not afraid to change and who see
turbulent times as opportunities
for evolution.**





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