

**FASTER,
FASTER,**

FASTER

The Dawn of Lean Digital

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The Dawn of **Lean Digital**
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FOREWORD⁰⁶ — I. BIRTH, EVOLUTION⁸ —

1. Getting up to Speed¹⁰ — 2. The Chimera

Crisis³² — 3. Digital Becomes Lean⁵⁶

— II. ITERATIONS: THE SPREAD OF LEAN

DIGITAL⁷⁸ — 4. Banking Evolves⁸⁰ —

5. Acceleration And Liftoff¹⁰⁹ — 6. A New

Business Tomorrow¹²³ — III. CONCEPTS &

TOOLS¹³⁸ — 7. A3 + Design¹⁴² — 8. Hack

Your Hoshin¹⁶¹ — 9. Cornerstones¹⁶⁸

— IV. NEXT STEPS: OURS & YOURS¹⁸⁴

— 10. Adhocracy¹⁸⁸ — APPENDIX²⁰²

— Glossary of Key Terms²⁰⁴

Foreword

Faster, Faster describes the happy marriage of lean thinking (from the Toyota world) with agile and scrum (from the information technology world) to create lean digital and then the collision of lean digital with old-fashioned modern management. Not to spoil the ending, but lean digital wins.

The authors are a hardy band of Brazilians who succeeded with traditional software development until they encountered customers from Silicon Valley (Yahoo and Google) who brought them into the world of agile and scrum. These methods were themselves inspired by principles of the Toyota Production System that call for converting software development from batch and queue, with testing at the end of development, to cellular flows of activities with testing immediately after each element of code is written in order to accelerate the work and reduce defects in the finished product.

As the team from CI&T mastered agile and scrum, they realized that it lacked an adequate management context. With help from Lean Enterprise Brasil and the Lean Global Network, they soon found that agile and scrum could be combined with visual management, A3 analysis, and hoshin planning to create something new: lean digital.

So far, so good. But the CI&T team next discovered that their Fortune 500 clients were still living in the age of modern management, with its focus on control rather than flexibility and on development plans measured in years or months rather than weeks or days. So they created a new product line to convert their clients to lean management while at the same time developing the applications software their clients had requested.

In this book they tell their story, citing many examples from household-name companies. They provide guidance for traditional lean practitioners who typically avoid software (“It just slows down kaizen”); for software firms that struggle with agile and scrum in the bigger management context; and for modern management companies that need to embrace a lean management system to gain the advantages of lean digital.

We have observed the experiments of the CI&T team from early in their journey and are grateful that they have asked Lean Institute Brasil to publish the first version of their book. However, book development is like software design. It requires a continuing conversation with the reader/customer. So think of this book as the first version — even a minimum viable prototype. The authors need feedback from readers as they continue their journey from their current location at the end of the last chapter, and we hope you will be in touch with your reactions and suggestions at fasterfaster@ciandt.com.

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1. BIRTH,

EVOLUTION

1. Getting up to Speed

The leader of the largest bank in Latin America raised an eyebrow as he scanned the table in front of him. It was covered in books, and he was not accustomed to getting homework from vendors.

“From the look of it, I will have to read six thousand pages to understand this lean thinking,” he said. He smiled, but he did not sound enthusiastic.

It was five days before Christmas 2017, and Candido Bracher, CEO of Itaú Unibanco Holding SA, had arrived at our offices in Campinas, Brazil, with his entire executive team in two helicopters. A security detail had arrived a day earlier to sweep the campus for possible security risks. Everyone understood the urgency of this business of transformation that we had gathered to discuss.

“How do we speed this up?” he asked.

It was the right question.

Traditional companies like banks and manufacturers need to move faster to meet the needs of a quickening global economy, especially when it comes to technology. So business leaders have been studying the methods of the digital natives¹, trying to decide whether their companies should be more like Google or Amazon or Facebook — all of which were born with speed and experimentation encoded in their operations. The digital natives and a lot of consultants talked up the virtues of agile², and some traditional businesses tried it too. Executives did tours of Silicon Valley and then went home and put together these small, cross-functional teams and told everyone that outcome (happy customers) was more important than output (an app or a website). It was not a bad message. It just wasn’t enough.

Itaú was one of the early adopters and saw wild successes with its first agile teams. With just a few small teams within its information technology department in the São Paulo head-quarters, Itaú created a great mobile banking experience for its customers. Of course, business leaders wanted more of that. Anybody would like it.

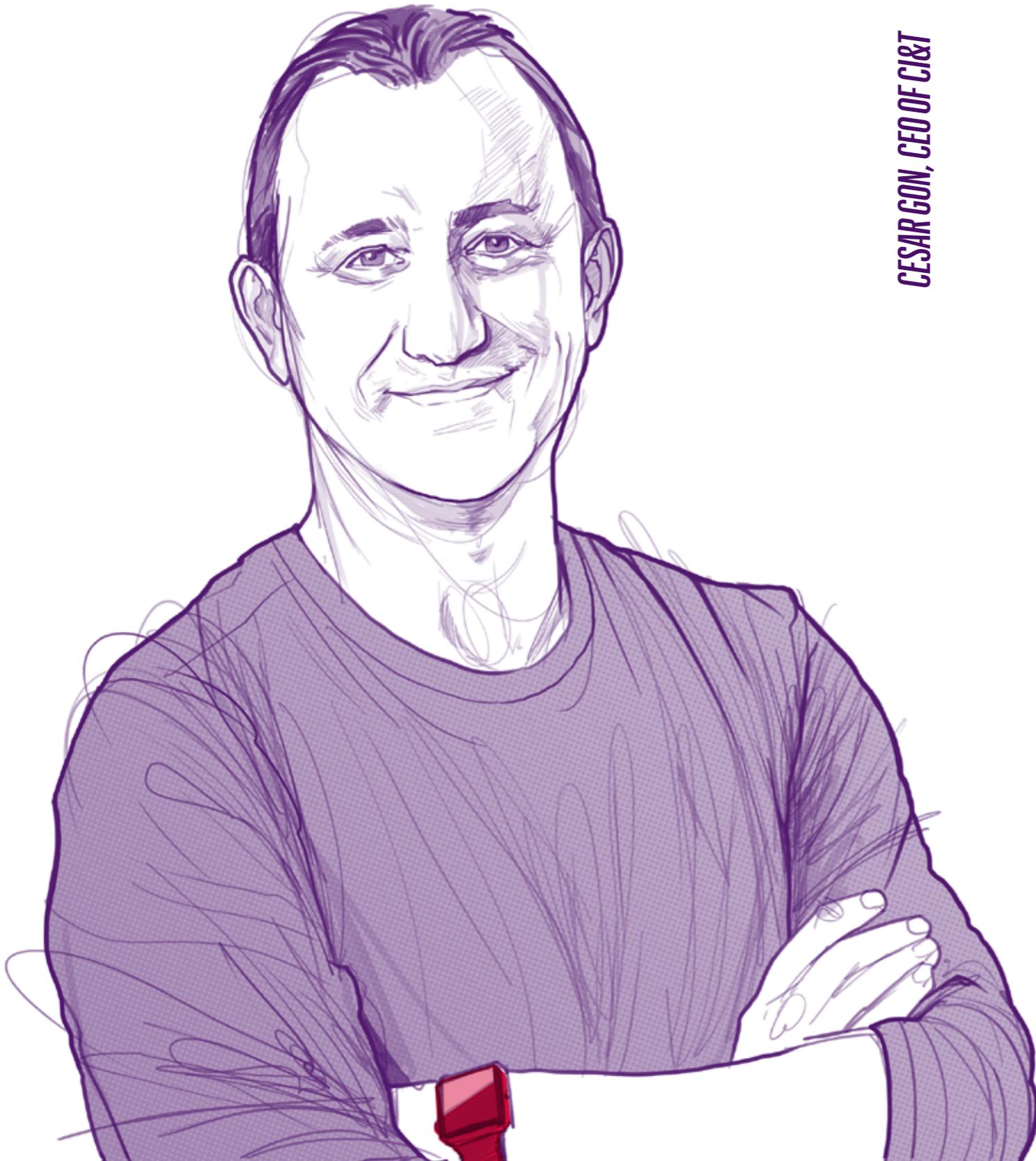
The bank’s leaders then hired consultants who advised a “scaled agile³” approach. If a few agile teams in IT could pull off that miracle, then 50 agile teams working across operations, marketing, and HR could transform the entire company. With great excitement, leaders set up new processes, job descriptions, and teams. They encouraged the teams to be entrepreneurial, to work with the customer, to be creative.

And then this bank, like so many other corporations, hit a wall. Projects slowed. People seemed to be dragging their feet.

1. The term digital natives refers to companies that started up in the digital technology age.

2. A popular method of software project management focused on quick work cycles and frequent customer collaboration. See glossary in appendix for full definition

3. This refers to attempts to take the organization and workflow of agile teams and apply them throughout a company. scaledagileframework.com



CESAR GON, CEO OF CI&T

We can also tell you, step by step, how we manage the flow of work all throughout the system to ensure we are producing the most valuable results for our customers while keeping our people engaged. It is a system that has made us 10x faster than our competitors.

There were disagreements. Instead of finishing projects faster, teams became bogged down. Still, they kept trying because everyone had seen that initial magic happen and so believed it was still possible.

After a couple of years of this, Itaú executives involved in their agile effort came to us. CI&T was not a consulting group. We were software developers. But we had also been struggling with scaling agile for a few years and had finally discovered a way to achieve organization-wide results. In 2016, we began a new kind of engagement with Itaú to create a mobile banking platform with the bank's IT department and, at the same time, to perform a deep dive into the cultural and operational workings of the company. The goal was organizational and cultural transformation as well as a new mobile banking platform. We would be working for them while leading them to our discoveries about making agile work at scale.

Eighteen months later, Itaú's executive team arrived in that week before Christmas to find out how we — this collaboration of Itaú and CI&T — had achieved throughput speeds that were seven times faster than before. But what they really wanted to know was how to arrive at a 10x improvement.

We can tell you, like we told Candido Bracher, that the key was lean thinking. The principles and tools that were translated from the Toyota Production System — generally referred to as lean thinking — and married into the digital realm is the way we scale agile throughout our organization. Lean is the way that we think about our entire business.

We can also tell you, step by step, how we manage the flow of work all throughout the system to ensure that we are producing the most valuable results for our customers while

keeping our people engaged. It is a system that has made us 10x faster than our competitors.

If you belong to a traditional company, however, **telling** you these things will not be very helpful. We operate within structures and assumptions that are almost certainly unfamiliar. Instead, we propose to show you the path we took, so that you can see some of the roadblocks that got in our way as well as new structures you will likely need to build.

* * *

For us, it began in 2007 with the senior vice president of Yahoo, who was a very likeable guy. Laughing easily as he talked with our people, walking through our offices of neatly ordered beige cubicles, the SVP was a symbol that we had arrived.

We were the Latin American software developers that major brands hired when they had projects that were too big to fail. CI&T was the company that could finish big projects on time and within budget. We were proud of our reliability.

Maybe we weren't considered sexy. That was OK. Because here was a top Yahoo executive walking through our offices in Campinas, Brazil — an hour outside of São Paulo and 6,400 miles from Sunnyvale, California. This was Silicon Valley coming to us.

We showed the SVP and his team the digital marketing system we had completed with Johnson & Johnson. We showed off the big logistics project we had completed for one of the largest mining companies in the world, Vale, allowing engineers to track iron ore and people all through their mining and delivery system. We talked about how we, working with

the largest over-the-air television network in Latin America, Globo, had moved advertising sales from an old mainframe to a new Java-based platform that would help them sell more ads, more efficiently. These were big, complicated projects all completed within two years.

Nobody needed to point out to the Yahoo team how unusual this was. The Standish Group's "Chaos Report" for 2007 showed that just 35% of software projects in the United States would be completed on time, within budget, with all required features and functions. And that was considered a huge improvement over prior years. Nearly half of all projects — 47% — ran over budget; 72% exceeded their deadlines. In the United States, \$150 billion in IT projects resulted in no value to the organization⁴. CI&T projects, meanwhile, were four times more predictable in delivery and cost than the industry average.

4. "Chaos Report 2007: The 10 Laws of Chaos," The Standish Group International, Inc. (Boston, MA).

5. ISO 9000 is a set of quality management standards that guide organizations to meet the needs of customers.

6. Rational Unified Process is an adaptable framework for iterative software development process created by IBM's Rational Software Corporation.

7. Created following a US Department of Defense study of its contractors, CMMI is a tool to objectively assess an organization's ability to manage and complete complex projects.

Founded in 1995 by Cesar Gon, Bruno Guicardi, and Fernando Matt — who met as computer engineering students at the University of Campinas — to be a process-driven software developer, CI&T's people had been restlessly searching for better processes for a dozen years. By 2007, our CI&T Unified Process included elements of ISO 9000,⁵ RUP,⁶ and the Capability Maturity Model Integration⁷, CMMI. We had clearly defined the 450 separate practices required to complete a single project at CI&T. Our maximum deviation from well-defined project scope to completion was about 4%. In software project management terms, we knew we were superstars.

At the end of two full days of meetings, the SVP sat down with us and smiled broadly. "We love your company, your culture," he said. "And we can see that you are very good, technically. We want to work with you."

He paused. We smiled.

"But your processes are shit."

What? Maybe he had misunderstood.

"Let's try something different," he said, "an experiment."

Of course, we wanted to work with Yahoo. And we were willing to try new ideas from Silicon Valley. But, surely, he had not understood us when we said that when it came to the CMMI, we were rated the very top: level 5. Nobody gets there with shitty processes.

The SVP proposed a four-month project in which Yahoo would work with about 25 of our people in four teams using agile workflows. Our people would learn new working methods and create interactive websites for the 2008 Olympics in Beijing, directed at the Latin American market. Working via video conferencing between Campinas and Sunnyvale, the teams would be creating multiple-player online games where people could compete with their friends to predict Olympic winners and put together their own teams in a kind of fantasy Olympics.

Everyone wanted to be on that project. It was exciting work. And we — leaders of CI&T — felt there could be little harm in letting a team explore new territory. We fully expected them to come back chagrined when the project started spinning out of control, missing deadlines, or running over budget. At that point, we would set them back on track and reveal the true power of our management system.

In our offices — and, really, in all of Brazil — everything important happens over coffee. There are espresso machines scat-

tered throughout our offices where designers and engineers stop several times a day. Little groups would gather around members of the Yahoo team, where words like “scrum” and “visual management” were flying around. In the Yahoo project area, they moved the furniture around. Instead of desks facing outward toward the low cubicle walls, they pushed desks into the center and faced each other. Big boards showing tasks and timelines appeared on the walls around them. They had cameras pointing at those walls for their daily meetings with the rest of the team in Sunnyvale.

Two weeks after they began work, the Yahoo teams launched their first product. Two weeks. It was astonishing. And the work was very good. Still, we smirked a little. We have smart people; of course they can produce a simple stand-alone product in two weeks, we said. The harder work is in the longer term, integrating everything into the big picture. We could wait and see.

We thought we knew, after all, the downside of these methods. Scrum had been around since the mid-1990s and was first described by Jeff Sutherland as an iterative approach to software development. The idea was to form a cross-functional team — developers, architects, testers, designers, and a kind of project manager known as the scrum master — and have them work in two- or three-week sprints on the most important aspects of a project first. The focus was on learning from mistakes and correcting them in the following sprint. After the sprint, the team would gather to see what they had, release products for testing, identify the next most important needs, and sprint again. In this way, they could release products fast, get feedback, and sprint ahead.

For us back then, this all seemed good and simple — if a bit naive. The development process required detailed testing

and feedback from the software’s customer every two weeks, which seemed like a lot to ask of a customer. Would everyone be willing to make the commitment?

Some companies used another system — often blended with scrum — called *agile*. The term was popularized after a group of software developers met in Utah in 2001 to discuss lightweight development, leading to the publication of “The Manifesto for Agile Software Development.”⁸ We understood that agile was a simple framework to help companies manage small cross-functional teams. Agile methods added a formal backlog of software requirements to the scrum. Think of the backlog as a more flexible list of specifications that could easily change over time without stopping a team’s progress. Agile also stressed accountability to business stakeholders and customers.

Agile and scrum were very popular with digital-native companies such as Yahoo, Google, and others we knew. But these were companies that had organized from the very beginning in small cross-functional teams designed to move fast. They were born that way. Our usual software development clients — banks, mining, big pharmaceuticals, manufacturers, etc. — began with all of their functions separated into silos. Control was more important than speed to our big corporate clients, and we respected that.

Still, we were determined to see how this experiment played out.

At the end of four months with Yahoo, we all gathered in California to look at the results. The initial project scope had been for 10 unique websites. The team produced seven. Instead of 15 games, they showed us 10. And, yet, the entire budget had been consumed.

8. agilemanifesto.org/

This was obviously a failure. Our own management system never would have allowed a team to arrive at the end of a project without completing the scope. At the very least, the scope should have been reconsidered and rewritten. We waited as the Yahoo team presented their results, certain that we were about to tell them how we could correct course on this project, if given the opportunity.

We held our breath as the SVP presented Yahoo's final word: they were thrilled. The first release was exactly what they wanted, and it had no defects. Zero bugs. Yahoo loved our team and was ready to sign on immediately for more work.

The team members were excited, too. They spoke about this new process like it was changing the world. At the end of every project, we ask team members to rate how successful they thought the project was (one of the hundreds of metrics we regularly collected). The average score over time was a 7. This team rated their project a 10.

Certainly, the team's excitement had a lot to do with delivering that bug-free product. The way we worked, zero defects was impossible. It was simple math: if there were 100 people writing code for 18 months, people would create and then reproduce each other's mistakes as they continually moved forward. Even if they were testing the product every three to six months, they mostly found old errors. It is easier to write Band-Aid code to cover the defect at that point — treating the symptoms instead of finding and fixing the original error.

But when the team is only writing code for two or three weeks and then stopping to test and review, they can find the few defects in their infancy. When team members find and fix mistakes, they stop reproducing them.

Of course, this only works when the team is committed to facing their defects honestly, working to find root causes, and then ensuring the mistakes were not repeated. So far, the Yahoo team was doing exactly that, but would others?

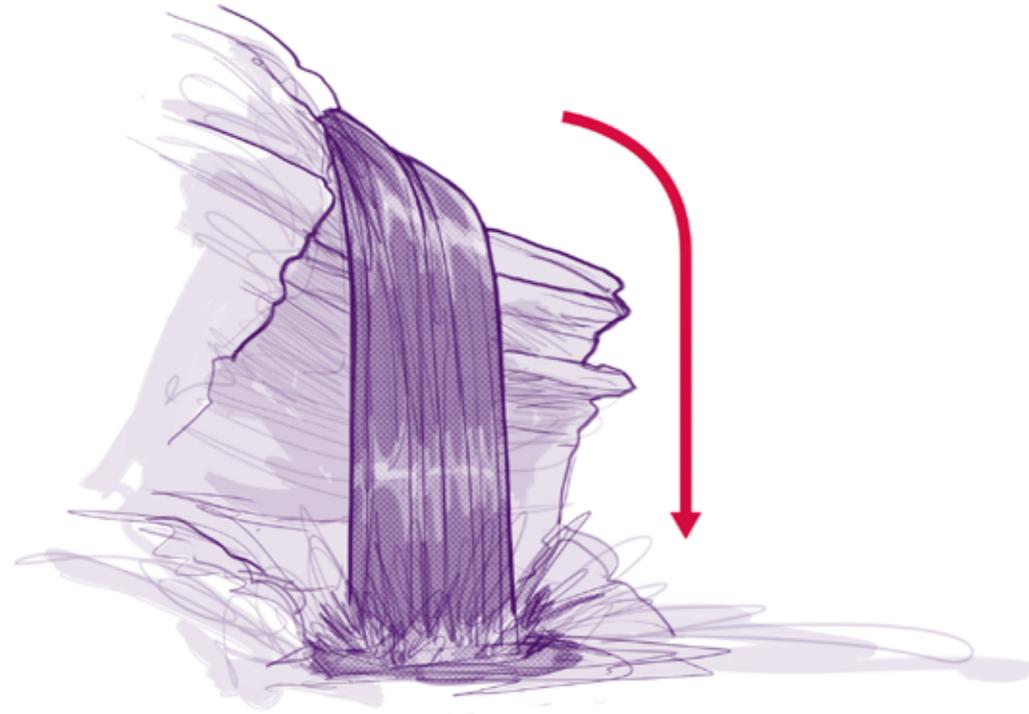
We had questions, but we let the experiment continue. It needed little oversight, so we could focus our efforts on the management-intensive work of our more traditional projects. Our big corporate clients still trusted us to work in the structured phases referred to as a waterfall: analysis first, then complete specification of requirements, design, implementation, testing, launch, and maintenance⁹. Each phase followed the next. One would not design a product before the exact specifications were written. And if those specifications changed, the work of building software stopped so that the process could begin again. This work was designed to be methodical and slow. After all, a lot of what we were selling was predictability.

Meanwhile, members of the Yahoo team continued to tell their colleagues over espresso about the speed and thrill of their work.

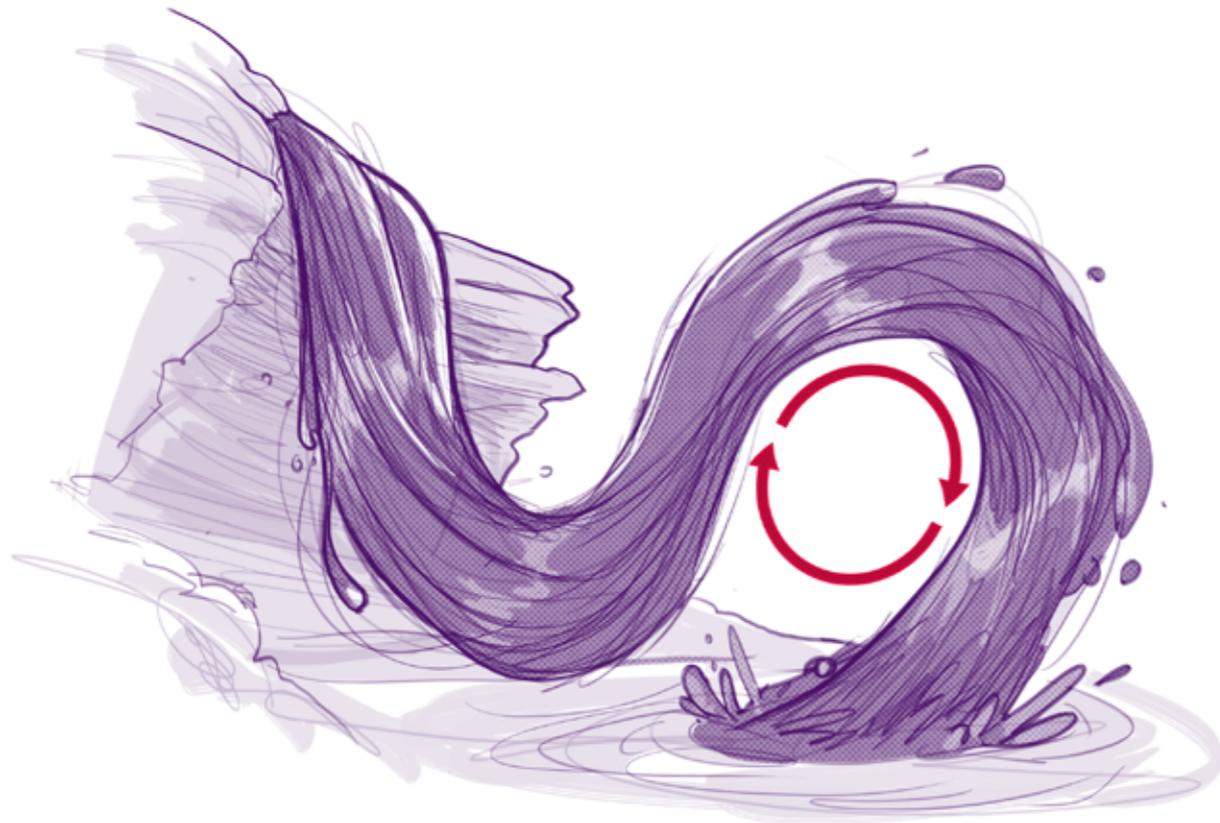
And then another US company — a start-up web-based financial advisory — came to us asking for a project done with these agile techniques we were using in the Yahoo project. Word gets around fast in our industry.

Within days, we were besieged with applications and informal requests from our people to join this new team. During these years, we were growing more than 30% annually and hiring about 100–150 new developers a year. Our young engineers were especially eager to work in scrum teams, just like their peers in Silicon Valley. Obviously, this agile thing was not going away.

9. See glossary for full definition.



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On the other hand, what client really wanted to use these methods outside of the digital natives? Yahoo was comfortable working without detailed specifications or a set budget. But our biggest clients were the likes of Coca-Cola, Johnson & Johnson, and Itaú. Their corporate cultures needed those controls of budgets and spec sheets.

When faced with questions, we dove into research. We read everything we could find on agile. From our own experience, we knew it was a dynamic way to organize people around a purpose, but in terms of engineering, there were a lot of missing elements. How, exactly, were people supposed to find the root cause of an error, for instance? And how was a fast-moving team supposed to remain aligned with customer needs?

Agile methods had more structure around customer alignment, but we could find no clear illustrations on how a company should collect metrics on the process. And if we were not measuring, how could we improve? We are engineers and need an objective way to understand whether today we are doing better or worse than yesterday. And as a business, we needed a mechanism to manage scope and budget.

If we could not find a way to make scrum and agile work at scale, were we doomed to be a bipolar company — slow and steady for major corporations and nimble for digital natives?

Around this time, CEO Cesar Gon attended a conference and fell into conversation with an executive from Embraer, the Brazilian aerospace company that is the third-largest airplane manufacturer in the world.¹⁰ This executive was from the engineering side, not software, but he was also eager to discuss these new working methods. We talked about speed versus

10. The civilian aircraft piece of Embraer — comprising about 80% of the company — has since merged with Boeing Commercial Airplane Company.

control and how to make sure a team is pausing long enough to find the root cause of their problems.

“You might want to look at *lean* thinking,” he said. “I think there are connections between the two.”

So we went back to research, reading books by James P. Womack and John Shook¹¹ to understand lean thinking. We could see the potential intersections between these theories and practices and debated where to begin. We wanted to test whether we could infuse agile with lean.

An experiment soon presented itself when another US company approached us looking for software that would help engineers in the field adjust their formula for a super-strong concrete based on site conditions and materials. It was a well-defined, discrete project; we suggested using our version of agile, and they agreed.

To lead the job, we chose one of our young developers who had studied scrum techniques at the University of São Paulo before joining CI&T, João Casarotti. Since our development methods required close coordination with the client, João was forced to work for weeks at a time in the client’s offices in Beverly Hills, California. Poor João.

Now, João already had some experience mixing scrum with other techniques. In early experiments at CI&T, he ran scrum teams within our traditional waterfall methods. While it did not work smoothly, there had been positive outcomes as long as we were clear on how the work was divided. So we used some of the same ideas again here.

11. See bibliography for recommended reading.

As scrum master, João led the 12-person team to create and complete the list of customer requirements (the backlog).

Meanwhile, a project manager — more typical of a waterfall-style project — was coordinating schedules with the customer, helping to knock down barriers João faced, and making sure the team was fully staffed. The project manager, Fabio Carmona, was customer facing while João was team facing, although both would participate in key client meetings.

To this mashup, we added three lean ideas to test: one-piece flow, visual management, and value engineering. To write software in one-piece flow, we decided we needed to create a backlog of stories — software features from the end-user's perspective — that were broken into tasks and prioritized by customer need after a value engineering exercise.¹² The stories needed to make sense as a timeline from end to end so that engineers could work through the stories, in order, with every sprint. Team members would not be cherry-picking the easiest tasks on a Friday.

In scrum teams, we had heard, people were accustomed to picking up a task — any piece of a story — and working through it until it was finished or they hit a roadblock. If forced to stop, they would pick up another task and work through that. Abandoned tasks were often left until the end of a sprint, when someone would be assigned to address the roadblocks. This method of work made sure that people kept working, but it created plenty of opportunity to produce and replicate errors. It also meant that stories might not be finished, so product releases were hung up as well. And coders could easily become disconnected from the purpose of the tasks and how they were connected to the story. Working in one-piece flow meant sticking with the tasks in order, even if there were problems. But we did not want work to completely halt.

12. See glossary for a complete definition of stories and tasks.

To facilitate one-piece flow, it became João's job to pick up any roadblocks his team members had, get questions answered and problems fixed, and get the person moving forward again quickly. The team member would usually begin another task while waiting for João to overcome a barrier, but only until João fixed the problem. This system worked very well. Within weeks, the number of roadblocks that João needed to address had dropped, there was less re-work, and delivery of products was more predictable.

For visual management, we created a board that showed the backlog as a list of stories broken up into tasks and then the status of those tasks, as well as a burn-down chart showing task and story completion within a sprint. Every meeting was conducted in front of the board so that we were all looking at the same reality.

We delivered the first product — one functioning piece of the larger project — in six weeks. The client was happy; the team was enthusiastic. But tension was rising between the scrum master, João, and the project manager, Fabio, who were normally very good friends. The trouble was about progress reporting, and we had not adequately foreseen this as an issue.

In the waterfall world, the monthly progress report was an important control mechanism that a project manager like Fabio was expected to deliver. This required João to create a PowerPoint deck with the team's progress, probable delivery schedule, current status, and metrics. It was time-consuming work, made worse by the fact that João's team was working in three-week sprints. Since their work did not line up with the calendar month of the progress reports, João would either need to stop and measure progress mid-sprint or report on



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full sprints well after the work was completed. Neither option seemed worth the trouble, and João told Fabio so.

“Still, I need the progress report,” Fabio said.

“No, you don’t,” João said.

The two of them struggled back and forth on this. Fabio agreed this new type of project might need different reporting and asked for suggestions on what João’s reporting should contain. João would offer a few highlights; Fabio would ask for more. In time, they reached a compromise on the monthly report’s content, but it only pointed out that we did not know how to bridge this gap.

About 14 months into the 18-month project — when the work was going great, much of the final project was functional, and the team was enthusiastic about this method of working — everything came to a screeching halt. It was 2008, and the economic crisis was hitting hard, especially in the US building industry. Our client laid off half the company and abruptly halted all supplier contracts.

It was a disappointment, and the final product was missing a couple of features that would have been nice. But our up-front value engineering work ensured that the missing pieces were the least important. Meanwhile, we had been delivering products throughout those 14 months that had already been launched and were still in use years later.

At the end of the project, we could see a tantalizing glimpse into a new way of working — one that incorporated scrum, agile, and lean tools with our own waterfall-esque practices. At this point, we thought that maybe all of these methodo-

logies were like Lego toys that we could pull apart and put together in new ways. This wasn’t quite true, but it was a good place to start.

Over the next 10 years, we experimented with many different combinations of these ideas on hundreds of projects. Working ever more closely with our clients, we began to see the roadblocks they encountered, too. Finally, we began to put together flexible, dynamic work systems that worked for traditional and new technology companies and for what most of us are: hybrids of the two.

After a decade of experiments, we know that we traveled a longer road than is strictly necessary. We took a few side alleys that you can avoid.

What you probably cannot avoid is the change that is coming. For those of us that grew accustomed to working in a command-and-control environment, the change is personal and can be wrenching. But it is necessary because everything is changing faster, faster. >>>

2. The Chimera Crisis

For us, 2008 was a very good year. CI&T was growing and strong, despite a global recession. We were becoming more confident in the ways of agile, and our reputation was spreading. The US market was the big time, the birthplace of the digital revolution, and on one project after another, we were crushing it.

But one night, we were at a nice pub that sells local microbrews on tap in downtown Campinas, celebrating another big win in the US market, when Cesar changed his mind about how well we were doing.

It was one of those nights that any CEO loves. Here was a bunch of smart people from a company he started — people who genuinely liked each other and worked really well together — celebrating the fact that everything was going great.

One of our younger agile coaches¹ was there, too. Daniel Vieira Magalhães — who everyone calls "Daniel VM" for obvious reasons — was one of those restless young developers who was always looking for the next big thing. He was an original champion of scrum and agile after reading about early experiments online and was, at this point, working as an agile coach for teams on the Johnson & Johnson account.

Cesar waved at Daniel, and the younger man joined him at the bar. "You're doing great work," Cesar said, clapping Daniel on the arm. "I wish all of our teams could go as fast. Tell me," — Cesar said, smiling broadly — "what can I do to help?"

Daniel looked at his CEO out of the corner of his eye. "Well," he said, "you could get rid of all the project managers."

Cesar leaned forward to make sure he heard Daniel right in the noisy bar. It was not the answer he expected. Project managers were CI&T's best and brightest. They were talented, experienced developers who had been promoted from leading development teams to working with clients and representing the company. They were, organizationally, a management level above "Daniel VM". Was he asking Cesar to fire his boss?

1. An agile coach is a team leader with a deep knowledge of agile practices who also works to develop other agile leaders.

“I’m serious. Send them to sales or something,” Daniel said. “We don’t need them.”

Up to this point, the obvious problems we had with our agile teams could be collected under one category: scale. We were not just doing agile; we were in love with it. Every project we looked at, we thought about how we could go so much faster with agile. So we tried to make everything agile(ish).

Maybe we were not always good at preparing our clients, though. Since the first job of an agile team was to value flexibility over adherence to a plan, the product that a team set out to create had a tendency to morph and grow as the project progressed. Clients from traditional companies did not like to see the original project estimates change midstream.

To counter this, we were becoming more disciplined about using the tools of value engineering in early meetings with our clients to make sure we were really working on programs that were of the highest value. The more we knew up front, the less likely it was that an agile team would change a project substantially during production. We weren’t perfect, but we were learning to deal with the issue.

As far as Cesar knew, scale was the problem.

Well, hang on. There was another deceptively small thing: a kind of Berlin Wall had sprung up right in the middle of our organization, and it seemed like everyone who was still working in the old waterfall methods was angling to jump the wall and get a job on an agile team or project instead. But that was an issue we assumed would be worked out over time, as our contracts all migrated toward agile.

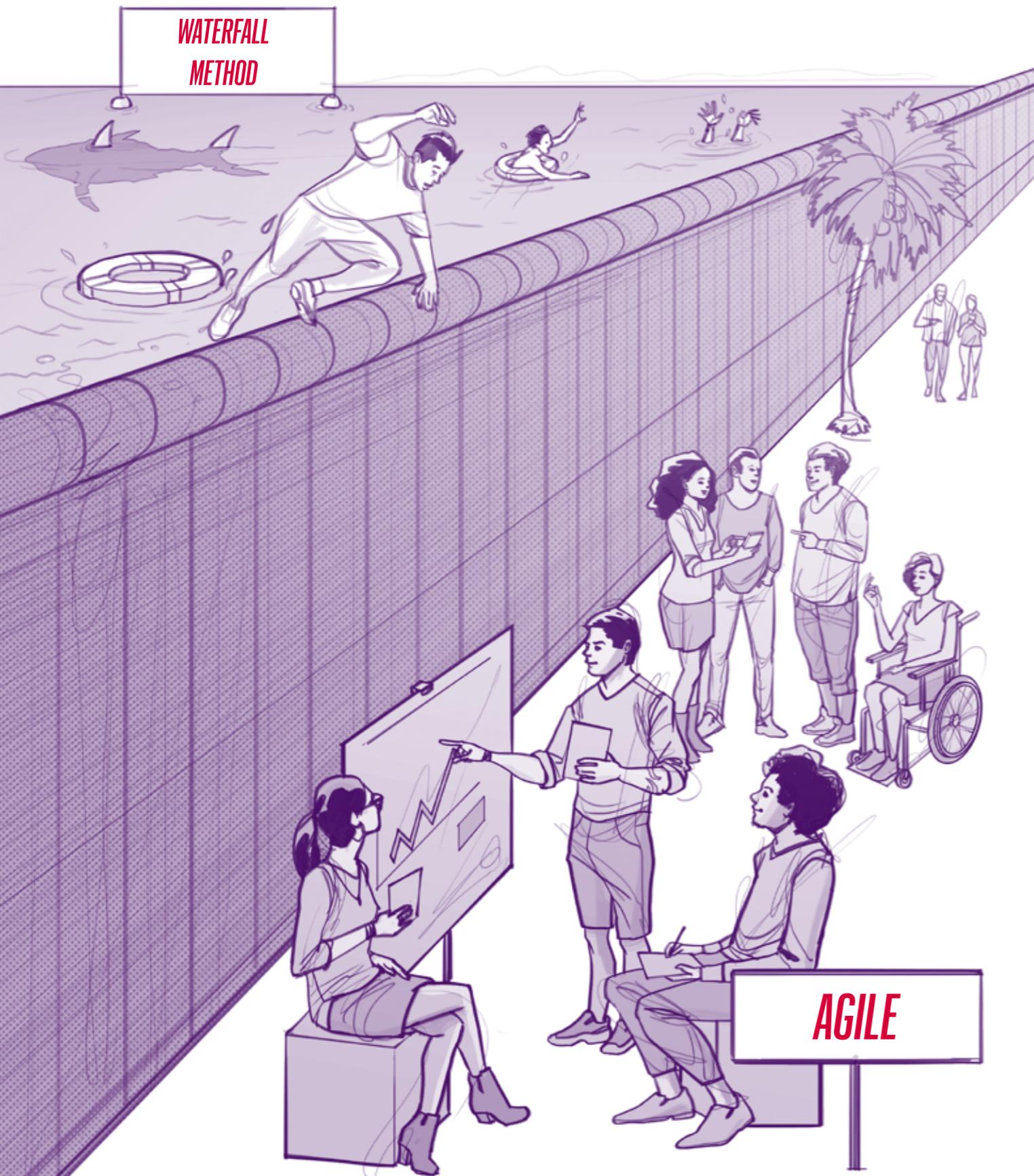
Now this guy seemed to be saying an entire level of management was a problem. And it was a job where he would soon be promoted. What was going on?

At the time, most people joined CI&T as software developers and designers. For every team of developers and designers there was a technical leader — usually promoted from the team level — who acted as a scrum master, keeping the work moving and team members motivated. Technical leaders were responsible for team output and sometimes had direct communication with the customer, which was considered good training for their future role as a project manager.

The next level up were project managers. These were people who worked with customers to define the project and create specifications; they were the liaison between customers and teams, and they would usually be responsible for two to five teams at a time. Project managers had one eye on the contract — making sure deliverables were within scope and on track — and another eye on the long-term relationship with the customer.

Project managers did performance reviews of technical leaders, so project managers were the bosses. But the two roles were meant to be collaborative. They needed each other, we thought. Now one group was trying to eliminate the other?

To understand how this pressure erupted in middle management, let’s talk about our customer, Johnson & Johnson (J&J). This corporate giant with nearly 100 separate brands was becoming a very large part of our business back then. CI&T was one of four approved software development companies in the pool for J&J brands to choose from when executives wanted software written or new digital platforms developed.



As far as Cesar knew, scale was the problem.

Well, hang on.

There was another deceptively small thing: a kind of Berlin Wall had sprung up right in the middle of our organization, and it seemed like everyone who was still working in the old waterfall methods was angling to jump the wall and get a job on an agile team or project instead. But that was an issue we assumed would be worked out over time, as our contracts all migrated toward agile.

Let's say one of those brands was launching a multimillion-dollar advertising campaign. Executives would want updates to their website such as video showing the commercial, new graphics that linked to the campaign, and an opportunity for consumers to sign up for special coupons. So the brand's marketing department would write up a list of what they wanted and invite companies in the software development pool to bid on the job.

The CI&T project manager would work with the brand representatives to create a list of needs, translate those needs into project specifications, and then estimate a price for the work. If we won the job, the project manager would turn the work over to a technical leader and his or her team, who used agile methods to break the project into stories and tasks and then sprint.

This is where tensions began. Some clients wanted every phase of the work spelled out in the old way, on a Gantt chart showing exactly when each step of the process would occur. Even the more adventurous brands that liked the idea of agile were still working within a traditional corporation. Whenever questions would come up about project scope, functionality, or expectations, people would often revert to thinking in terms of the old waterfall process.

So the client was usually consulting a Gantt chart and a detailed specifications list to guide their expectations. Meanwhile, the team was following the more freewheeling agile methods — even while keeping one eye on the Gantt chart.

Agile methods also required more frequent client meetings along the way, to demonstrate features of the product and get feedback before the next sprint. Some of the brand

representatives got into the *go-fast* spirit of agile. Others did not. This was not happening just on J&J contracts. All around our company, as more developers enthusiastically took up agile methods — and it was spreading like wildfire through development teams as engineers passed knowledge of agile from desk to desk, bypassing traditional channels — they found themselves sometimes clashing with project managers and clients.

“We heard complaints from some clients,” says Roander Scherrer, one of our technical leaders at the time. “They wanted controls on the process and to know everything up front: probable hours involved, cost estimates, delivery dates. They liked how fast the projects went, but sometimes they felt like they were hearing different stories from the project manager and me.”

And still, we kept getting more work from J&J brands. Our process was a little funky, and we certainly were not the low-price vendor, but everyone could see we were producing quality products fast. For every new project we sold, we also took on the long-term maintenance of those products, and so we were adding people to our teams at a steady clip.

Meanwhile, project managers working with agile teams felt like harried order-takers. They met with clients, took their orders, handed off the work to a technical leader, and then tried to keep track of progress enough to give regular client updates. J&J thought we should lower our cost by increasing the number of teams that each project manager oversaw, so we tried that too.

One of our project managers, Luiz Cieslak, remembers having eight teams at one point. Each of his projects included

FASTER, FASTER

The Dawn of Lean Digital



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scheduled telephone calls with the client two or three times per week, plus working on new proposals and monitoring maintenance issues. During one crazy year when he was newly arrived in the United States, planning his wedding, and then battling appendicitis, he often wore two pairs of headsets and was on two calls at once. Developers back home in Campinas started a rumor that Luiz had been replaced by a bot.

Technical leaders complained that their project managers — who were supposed to be supporting the team — only came around when they wanted something. If the project managers would only stand up to the clients, technical leaders said, they would not have to do all those useless time estimates and reporting.

Luiz tried to bridge the gap with a clever reporting tool he wrote specifically for J&J, showing all the important key performance indicators such as quality, budget, and schedule for every project. This would free the technical leaders from unnecessary reporting, we thought. But it was a monthly report. Since most of our projects were now being completed in about six weeks — with product ready for testing after two- to three-week sprints — reporting was often produced after a project was done.

“It was so late I might be reporting that I already blew my budget,” Luiz says. “It wasn’t really useful.”

Our ability to deliver had become too fast for our old management methods.

Cesar worried about the tension in the middle of the company. At this time, we had about 60 project managers and about 45 technical leaders, and we began an effort to teach

all the project managers agile by pairing them to work with technical leaders for about three months. After a project manager was trained, they would also help in training their fellow project managers. If everyone learned agile from the technical leaders who were so enthusiastic, we thought, they could all work together to really embrace the system or modify it to our liking.

The results were not encouraging. Project managers were customer orientated; they had a hard time understanding why we would not grant customer requests like usual. Why shouldn't we run a few simple retrospective reports? And most project managers liked that first phase of a project, when they spent three or four months getting really close to a client and laying out exactly how a project should go. Did that high-profile, creative job belong to the technical leaders now?

Technical leaders, on the other hand, were so enthusiastic about agile that they were sometimes impatient with the needs of our more traditional clients. Maybe project managers were not trying hard enough to explain the benefits of agile, they thought. What we needed was shared purpose between our leaders.

As our training efforts stumbled, we decided to support them with an idea from the lean universe: going to *gemba*. Aminadab Nunes — our director of operations at the time, whom everyone calls Amin — remembers those *gemba* walks as opportunities to explain to people how they should work.

“We would go out on the floor and talk to people about how we need to unlock the energy of teams, to support them. But we didn't recognize that we were still doing command-and-

control management,” Amin says. “And giving lectures to people about lean thinking isn't exactly what they mean by ‘going to *gemba*.’”

Going to *gemba* means learning about the work, not lecturing. But we would not really digest that until later. By this time it was 2010, and we had a fresh customer crisis on our hands.

One of J&J's largest consumer brands was kicking off a multi-million-dollar advertising campaign and needed upgrades to their website quickly. One of the new features would allow consumers to sign up for special coupons, and we could expect anywhere from 500,000 to one million people to register. One particular task — setting up a feature that would allow a user to create a new password to replace a forgotten one — fell to a fairly new software developer on one of our teams. They were working too many hours and, around 10 pm, they finished the task. But in one line of code, the wrong database was referenced. After the function went live, emails were sent to about 20,000 customers of the J&J brand with a link that would allow them to change their password. The problem was these customers had not asked for it. People contacted the company, thinking that the emails were spam or a phishing expedition. The customer contacted us.

People at CI&T remember this as the day that Amin went to the floor — to where most of the J&J teams were working — and said, “Stop the line!”

He asked everyone to gather round, explained what had happened, and announced that it would not happen again. We would find the root cause of the error and put controls in place so it would not happen again.

And then Cesar took a good, hard look at the company he built and saw a monster. More specifically, he saw a chimera — that fire-breathing monster from Greek mythology, part lion, part serpent, part goat. Agile had the strength and speed of a young lion. The software factory — with its 450 clearly defined processes to complete a project — was a sure-footed, stubborn-headed goat. And that snake? It looked a lot like us senior leaders using command-and-control leadership.

It was clear now that we had been hoping agile would take root at the front line where there were so many enthusiastic supporters and then kind of organically take over. It was such a good dream. We would not have to kill the goat and the snake; they would just slink away into the past while all of us somehow became perfect supporters of the agile methods.

Looking back, it is easier to see our mistakes. We had spent a dozen years creating a carefully controlled software factory. All of our employees had been trained to work this way; advancement in the company was predicated on their ability to work in the waterfall method. And then we encouraged them to change overnight.

Consider the experience of Renata Azzolini. One of our team leaders who was an expert in the old CI&T Unified System, she was aware of the excitement around the Yahoo project but was still working in traditional projects when she went out on maternity leave. Four days after Renata left, she had a beautiful seven-pound boy who nearly made her forget all about us. Five months later, in April 2009, she came back to a management job in a very different company.

“Suddenly, I was working with teams that were very autonomous. They were talking directly to the customer and were so enthusiastic. I could feel the difference,” Renata said.

“But then, just as I was getting used to agile methods, I was assigned to work with teams on a fixed-scope project for a major Brazilian bottling company. It was the old way of working. When I arrived, they were supposed to be finished, but they weren’t even close. It turned out the client really did not know what they needed, so we had created products that missed the mark. We restarted the project using agile methods.”

Within weeks, the team understood client needs better and created features of the system that were fully integrated with the bottler’s ERP system. This was one of the last waterfall projects. So really, between the time Renata went into labor and her son sat up for the first time, we had completely changed our operating methods.

Instead of project managers spending three or four months in initial product design and specifications, they spent a week or two understanding client needs. Then the work was turned over to the teams — usually our team joined with a client team, working side-by-side or over video calls. Sprinting ahead in short-cycle bursts, the team could get a testable product finished in half the time it used to take to agree to full project specifications.

We had rewritten our list of 450 identified processes, whittling it down to 32 steps rooted in lean thinking. Seminars in lean concepts and tools were being held every week or two for engineers and frontline managers.

But senior leaders were still trying to manage the business with the same old metrics, the same old mind-set. It was very



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clear to us by early summer 2010 that we had killed the chimeras's goat. Now it was time for the snake.

Senior leaders took the internal lean workshops, as well. We read the books. We sought out the conferences on lean and the experts to guide us. Realizing that we needed to change our own work processes to become lean, Cesar took a workshop in strategic planning — known as *hoshin kanri*² — from John Shook, the former Toyota executive and CEO of the Lean Enterprise Institute, who was the acknowledged expert.

Fearing that he did not understand the nuances of hoshin well enough to lead his own senior team in the process, Cesar took the course again.

On the third time that Cesar joined a small group of executives in the United States for a hoshin seminar, John pulled him aside and asked why he was there again.

“You can't really learn this in a seminar,” John said. “You've got to go do it.”

Cesar came back to Campinas, determined to give it a try. With other senior leaders, he mapped out a series of meetings that would use an A3³ to help them answer existential questions: What are our issues? How do we need to change?

Our journey had begun with software developers, excited about new working techniques, passing information about agile and scrum from desk to desk. They could not be held back.

Now, it was time for senior leaders to step up and join the revolution. Lean thinking needed to become our identity, the

core of our strategy, Cesar thought. And it needed to happen fast because a new wave of digital disruption was posing a threat to us and our clients.

Note from Cesar

To be completely honest, I was not sure whether I was the man for the top job anymore. As a founder of CI&T, I was partly responsible for creating the culture of command and control. Should I still be CEO of a company that was transitioning to lean and agile?

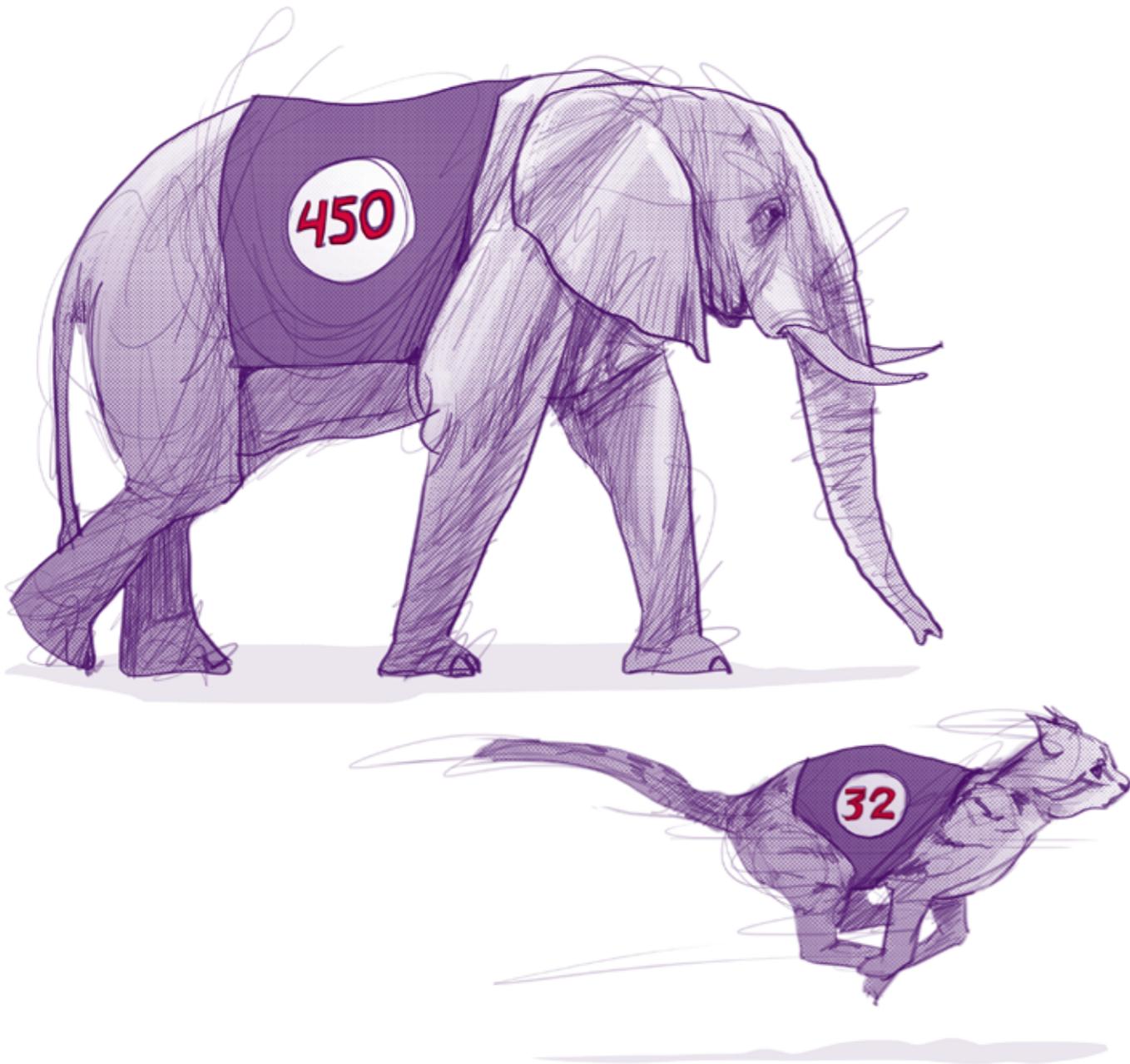
In that moment, CI&T was poised to take off in the United States. It was a market 10 times larger than Brazil's, and to take advantage of the moment, I needed to make some fast changes. The leader of such a company, I knew, could not bark out orders. Lean thinking does not suffer a dictatorship. Not that I was a dictator, but I would need to become a student of problem solving — a coach and a supporter instead of the guy with the answers. Could I rebuild myself?

I decided to give myself the opportunity and, along with the rest of my senior executives, started going to gemba on a regular basis. In the beginning, we visited gemba at least once a week, and we all practiced asking respectful questions, listening, and talking about problems.

This was a change for me. I was used to being out on the floor, hanging out with software engineers. After all, I had been one of them and loved it. But over the years I had spent more and more time giving advice instead of exchanging information. I asked questions that were loaded with the “right” answer. From my experience, learning to ask sincere questions is the hardest part of this transformation.

2. Hoshin kanri is a process to help leaders focus their strategy development and deployment efforts. Developed in a few major Japanese companies during the quality movement of the 1950s, hoshin planning is used to select the critical few measures on which to spend an organization's energy.

3. The A3 is a more detailed version of the plan-do-check-act process of scientific problem solving defined by W. Edwards Deming. This process uses a single sheet of A3-size paper, and PDCA is expanded to include the business context and possible root causes of the problem.



We had rewritten our list of 450 identified processes, whittling it down to 32 steps rooted in lean thinking. Seminars in lean concepts and tools were being held every week or two for engineers and frontline managers.

But it was not just how we communicated. To become truly lean, we, senior leaders, also needed to change our work processes. We could not expect managers and team members to follow root-cause analysis and careful problem solving if we did not. So we began *hoshin kanri* in 2010, using the structure of an A3 to look more deeply into our operations and management.

Senior leaders set aside eight consecutive Fridays in August and September that year to meet. The first four Fridays were devoted to the left side of the A3, defining our issues. The second four Fridays were devoted to the right side of the A3, defining our countermeasures and planning for the year ahead.

By mid-autumn, we collectively identified the size and shape of our problems and felt confident that we had solid countermeasures. Now it was time for me to face the board of directors and see what they said.

I have to say, going into the board meeting in January 2011, I was excited about the work we had done. I felt that I had more clarity about what we were doing and why than I had in many years. I was excited to show the board members our A3 and tell them what we had discovered.

Carefully, I presented our A3, revealing our problems in detail and talking about where we saw opportunities to change and grow. Finally, one of the board members — a senior executive from a major Latin American bank — stopped me.

“Cesar, what are you talking about?” he asked, clearly exasperated. “We’ve seen your numbers. You had amazing results last year. You grew by 54% with improved profitability. And yet, for more than an hour now, you have only been talking about problems.

“What are you hiding from us?” His voice rose at the end.

I can laugh about it now, but at the time, I was nearly struck dumb. I looked at the board members, then back at the A3. And then I realized I needed to take two steps back and teach them about lean ideas, lean philosophies. I needed to teach them about the power of problem solving.

Board members expect a certain kind of presentation from CEOs. With results like we had, they anticipated that I would strut a little. I had every right. But there is no room for gloating in an A3.

Warn your board in advance. >>>

3. Digital Becomes Lean

There was a popular meme going around social media a few years back: two images of crowds in St. Peter's Square in Rome greeting a new pope. Maybe you saw it. In 2005, only a couple of people greeting Pope Benedict XVI had handheld screens. When Pope Francis was elected in 2013, however, a powerful glow seemed to rise from the people, and just about every hand held a smartphone or tablet, recording the event for posterity.

All those photographs and videos, broken down into pixels and bytes, streamed across the internet and uploaded onto servers. The sheer mass of data people were now producing in the course of their days was staggering. For us, that meme became a symbol of the digital disruption that was both opportunity and threat.

This digital disruption was a critical moment for technology companies. But we quickly saw that it was an existential threat for traditional businesses, too.

Consider the cloud, for instance. When Amazon Web Services (AWS) launched the first commercial cloud services in 2006, businesses were still constrained by their access to physical computers. If you wanted a new web campaign that interacted with your customers, you needed to start months in advance buying and setting up servers and software and hope that it would handle your forecasted increase in web traffic. AWS told businesses to forget about all that. Companies could lease all the computing power they needed from Amazon's excess capacity, just for the time they needed it. The AWS cloud service, which also offered software and data storage, promised endless flexibility.

Google, Microsoft, Apple, and other big technology companies scrambled to present their own cloud offerings. And traditional companies? Those that were nimble could now conceive of and launch entire campaigns in a single day. They could capture the zeitgeist. Without the up-front time constraints of creating their own infrastructure, leaders could also perform rapid experiments with their messages and product offerings, learning more quickly about a rapidly changing market. This speed would become the standard by which great companies were measured.

An early example of this agility was a Coca-Cola project for the 2014 World Cup in Brazil. They wanted to solicit fan photographs from 175 countries using social media and then electronically stitch them together into the world's largest photo mosaic, to be unveiled on the field before the World Cup's opening match. It was to be called the Happiness Flag, and

we had four months to pull it off. It was a technological challenge, and we loved it.

We encouraged Coca-Cola to use Google's cloud services for its pay-as-you-go approach and to adopt agile methods to work with our teams. Together we confronted and worked through sticky issues like user consent, creating the first fully automated user interaction in social media.

The data volume of this project was enormous. At our request, Instagram changed its code to increase the hourly posting limit to an account from 60 to 5,000. Google awarded us the 2014 Global Partner of the Year following that project saying, "CI&T is a company that never gives up."

This could not have happened without a couple of strategic changes on our part. Four years earlier, during our first hoshin kanri session, we came to the realization that the marriage of speed and systematic problem solving could offer us an overwhelming competitive advantage. If we invested new capabilities in advanced analytics, artificial intelligence (AI), mobile platforms, and mastery of the cloud, we could marry those skills to our lean/agile abilities and go faster with every iteration of learning. If we were hyper fast, we could offer our clients 10x improvements in speed and market influence. This was our goal.

To achieve this rapid transformation, we needed everyone in our organization to be aligned. The way that our developers had seized upon agile and run with it was great, but we all needed to speak the same language and have the same goals and expectations. Looking back on this time, we can see that we took three important steps toward a more unified organization: using hoshin kanri to instill more lean thinking in our

leaders, creating easier collaboration across the organization with design thinking techniques, and consciously including more of our people in creative decision-making.

1. Leaders Learn by Doing

In years past, we had conducted an annual strategy session like many companies do: the top few executives went off-site for a week, usually with a facilitating consultant, to talk about market forces and forecasts and make decisions about where to go next.

From John Shook, we learned it was important to include more voices, select the few most important issues facing our organization, agree on how we should address those issues, and assign tasks to individuals.

With the help of Flavio Picchi of Lean Institute Brazil, we began by identifying our True North: the few business goals that would guide our work. Then we selected projects related to our True North and created teams whose work would be guided by an A3.

That first year, there were about 35 of us senior leaders gathered around A3s addressing our US business, our software development process, people's careers, and our maintenance business.

We split into teams and began working through the A3 steps:

- _ Define the issue
- _ Measure the current condition
- _ Analyze and identify the gaps to the desired future state
- _ Create and deploy countermeasures
- _ Build a follow-up plan.

Many excellent books have been written about how to work through an A3, and we will explore the steps more deeply in the third part of this book, but for now, let us just say that in the beginning, we did the best we could.

During those first three years of annual hoshin sessions, we learned that gathering data on the current condition can be a deep, dark rabbit hole. We are engineers. We are comfortable gathering data, arguing about data, finding more data to support an argument. We knew that we should not move on until we had a complete understanding of the current condition, and we exhausted ourselves making that happen.

And then there was gap analysis: locked in a room together, looking at a problem from a dozen angles and arguing. For us, gap analysis became a synonym for suffering.

After spending four Fridays in a row, doing extra homework during the week, and completing the work of the left side of the A3, we were worn out. We did not bring real enthusiasm to the work of defining the countermeasures that would bring us to a better future state. Sometimes those countermeasures were based on hypotheses that collapsed just three weeks into the hoshin's 12-month rollout. Or we would discover that an experiment that we thought would take six months took only six weeks, or the other way around.

There were unquestionably positive outcomes, of course, or we would not have continued. Doing a real immersion into lean thinking via the hoshin cycle meant expanding our lean vocabulary and experience. As senior leaders began to understand the nuances of one-piece flow, work-in-progress (WIP), and the benefits of a cross-functional team, we comprehended more deeply why lean worked so well with agile.

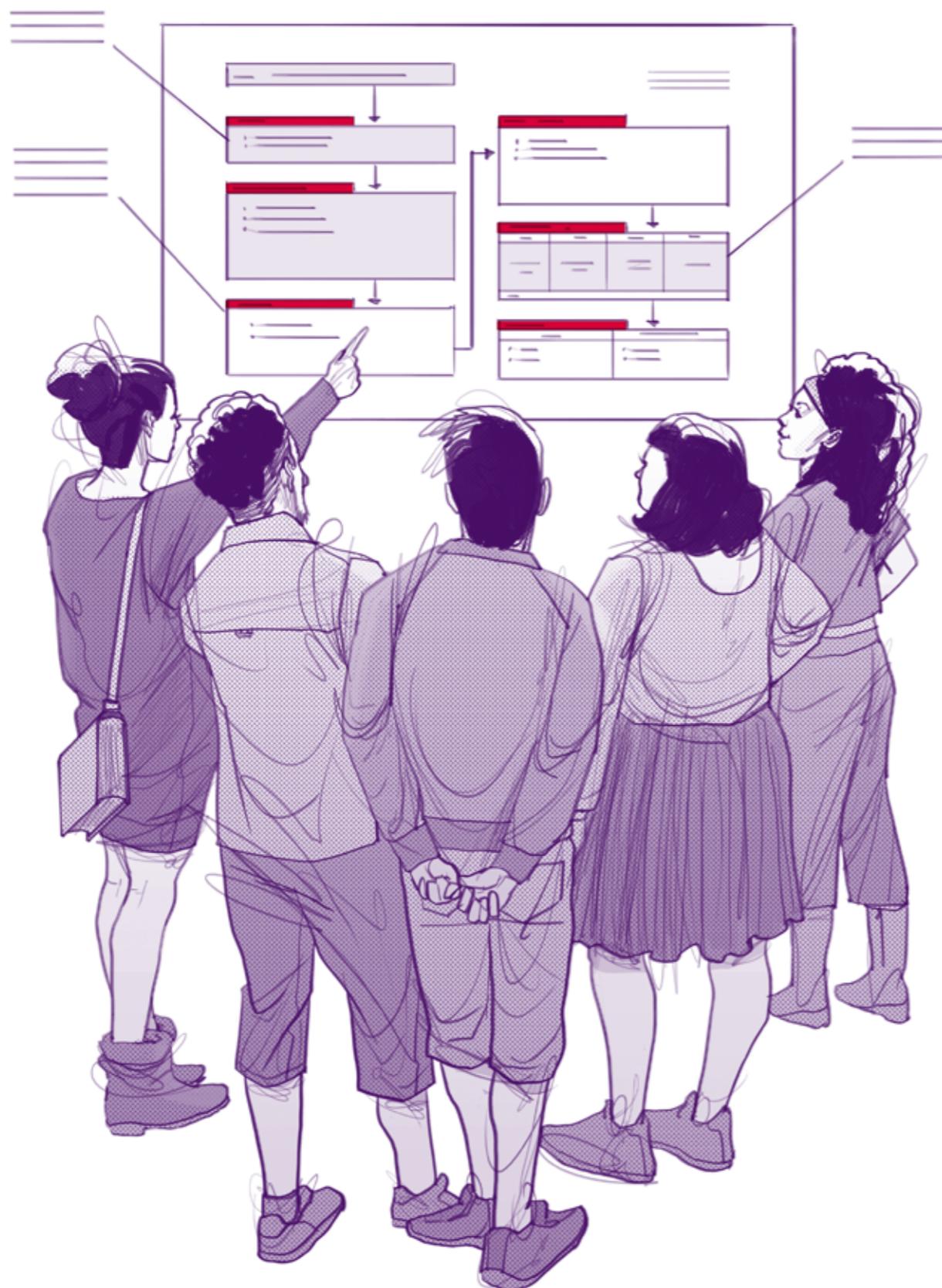
Agile, like scrum, was born of the ideas and methods of the Toyota Production System and the work of twentieth-century engineering guru W. Edwards Deming.¹ This is also the foundation of lean thinking, of course. As we learned more of lean, we saw opportunities to remake our processes within those ideas.

Out of the first hoshin, we created CPS 1.0 — the first CI&T Production System — and identified the streamlined 32 steps to complete a project. We thought this a remarkable feat after the 450 steps of our previous process. It was a marriage of agile and lean with an emphasis on our future direction. Excited to roll it out, we identified our top 10 projects and called in the project managers and technical leaders of those projects to receive training in CPS 1.0. Then we sent them back to coach their teams in CPS 1.0 and advocate for the new way.

The methods of CPS 1.0 did not exactly leap from desk to desk like agile did. We kept at it doggedly for a couple of years, but as we learned more lean philosophies, we discovered the error in our thinking. When leaders withdraw to a conference room and design work processes, it is disrespectful to the people actually doing the work. As leaders, we can never know the work in the kind of granular detail of a person who lives with it every day. We did not realize it at the time, but with CPS 1.0 we were still trying to control the people and the culture instead of injecting the sense of freedom we sought (control = delay; freedom = speed).

By 2012, we were working a lot with Google, developing AI technology in its cloud services. With every project, we were getting new insights into the kind of personal solutions customers wanted. People were no longer content with mass marketing campaigns; they wanted their interactions to be personalized. They wanted airlines to keep track of their loy-

1. The car maker Henry Ford and a Toyota study of the American supermarket system are also frequently credited as foundational to lean thinking.



We split into teams and began working through the A3 steps:

- _ Define the issue*
- _ Measure the current condition*
- _ Analyze and identify the gaps to the Desired future state*
- _ Create and deploy countermeasures*
- _ Build a follow-up plan.*

ality miles and favorite routes. They wanted music streaming services to help them discover new artists based on past preferences. Our AI work was helping to make that happen.

We began intentionally moving away from offering internal solutions such as building software linkages between production and distribution in clients' ERP software. That was our old business. The real opportunity was in helping our customers learn about their customers, to close the gap between yesterday and how they could connect with people tomorrow.

Working with a rebranding consultancy, we surveyed hundreds of our employees and customers about our strengths and opportunities. We talked about our future and our vision for the technology field. Few people knew, at that point, what the letters of our name actually stood for.² We had an opportunity to spell it out, so we chose new words that spoke to where we were going: Collaborate, Innovate, & Transform.

2. Collaboration through Design Thinking

There was tremendous energy among our people in 2013. We were learning at a faster rate. Our partnership with Google was opening new possibilities. But as the summer months wore on, we were not looking forward to our annual hoshin session. Strategy deployment was important, sure, but we could not shake the feeling that we were doing it wrong. Did every executive team bury themselves in data and analyze gaps to the point of burnout?

And then someone mentioned design thinking. For the uninitiated, design thinking is a team-based problem-solving process in which people work together to quickly explore, sketch, prototype, and test solutions that will serve the end users.

2. We were founded as a Consulting Information Technology.

The whole point is to create a product or solution together, often in just one week during design sprints.

Mars Cyrillo, our VP of Products and Cognitive Systems, had attended a design-thinking workshop in New York a couple of years earlier and was using design sprints in his projects.³ The collaborative approach of design thinking — dependent upon brainstorming, quick iterations, and experimentation — was appealing to people at CI&T. Mars made no effort to teach people about design thinking; he just started using it in his own work. Its energy was infectious, and it made the leap from desk to desk much like agile had.

Enthusiasm alone did not integrate design thinking with our work practices, of course. The IDEO online course in design thinking was very popular, especially with designers that specialized in user experience, like Jeancarlo Cerasoli. After demonstrating the benefit of design thinking in a Lean Digital project, Jeancarlo and Renata and a few others started giving workshops to our people.

To test its effectiveness outside our own development teams, Jeancarlo then asked our HR and facilities departments to present a significant problem. With a team, he attacked the problems with a one-week design sprint and produced effective solutions. At that point, we were ready to use these techniques with clients and integrated the tools into our lean digital practice.

Design thinking proved to be just the energy boost we needed in our hoshin sessions, too. Instead of drowning in analysis and sending people off in different directions to capture more information, we used design thinking to make fast, focused decisions on how to respond to opportunities. Instead of arguing for days about the meaning of data, we came up with a few

3. Design thinking and the workshops that teach the approach are the products of the global design company IDEO.



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hypotheses and then voted on our favorites with sticky notes on the wall. This eliminated the tyranny of the loudest voice on the team — or the highest-ranked person in the room — and allowed all voices to be heard. More ideas were welcomed, and we focused on faster cycle times for the countermeasures, giving each just three months before reconsideration.

That first year, for instance, one category we selected for hoshin was artificial intelligence (AI). We were making strides in the technology, but most of our customers did not understand it well enough to know whether they wanted AI. Mars's team put together a new package that offered our clients a focused one-month program to work out how they might use, for instance, image-recognition capabilities in their business.

The offering was launched within weeks, and we rolled it out to a few interested clients. Very quickly, we learned that companies were fascinated with this capability but did not have the necessary data to create a viable business impact. We needed to move the starting line back a step or two. So while we offered that particular program for only a few months, we considered it a success. The longevity of the product was less important than what we learned by offering our best ideas immediately to our customers.

Design sprints in the hoshin process gave us speed, but the process was far from perfect. Design thinking encouraged us to choose one path and run down it, but one path was not enough. We needed the rigor of the A3 process to guide us toward multiple, robust hypotheses. We still felt like we were imposing countermeasures on the organization. Even with 35 and then 90 senior people involved in our hoshin sessions, we were not getting the full collective intelligence of our company. And we wanted that.

3. A Bigger Tent

We read the US Department of Defense book *Power to the Edge*⁴ and were convinced that autonomous teams working toward uniform goals were more effective on the battleground than a command-and-control structure. This must also be true for private companies with lots of diverse projects or missions. We needed to provide strategy and guidelines while, at the same time, freeing our people to make independent decisions and do their most creative and well-informed work.

The mash-up of lean and design thinking that became our hoshin kanri was constructed to solve human problems. In fact, we are always reminded of this truth: we are not here to solve engineering problems but human ones.

Humans are never just one thing, one need or desire. So we needed diversity of perceptions and ideas. We invited the next level of management — all of the project managers and most technical leaders — to join our hoshin. Now we had about 140 people in the discussion.

We split people up into teams around themes that we had selected from discussions with our directors and executives, such as leadership development, financial performance, and business development. Then we had everyone use the collaborative tools of design thinking to work through the structure of an A3 to arrive at hypotheses. The hypotheses became experiments. The group would meet after three months to view results and recalibrate.

To see how this works, let's go back to our original A3 methods. In those days, the current-conditions statement was written by two or three team members over the course of two days. On the first day they would go to gemba to collect their

4. David Alberts and Richard Hayes, *Power to the Edge* (US Department of Defense, Command and Control Research Program, Center for Advanced Concepts and Technology: 2003).



As leaders, we can never know the work in the kind of granular detail of a person who lives with it every day. We did not realize it at the time, but with CPS 1.0 we were still trying to control the people and the culture instead of injecting the sense of freedom we sought (control = delay; freedom = speed).

impressions and questions. Then they would take a week to reflect and get questions answered. Then they would gather again to write their current-conditions statement. The full process took a little more than a week.

In the hoshin/design mash-up, we created teams full of people who had knowledge of the area from different perspectives. Usually, this was seven to 10 people, but some teams have had as many as 20 members. We asked people to write what they believed the current conditions were, stick it on the board, and then start looking for where their impressions overlapped or diverged.

Over the course of a day that included lively conversations and trips to the gemba to validate points, the team would create a crowd-sourced current-conditions statement. It was faster, sure. Sometimes it was completed in half a day. But it was also better because it was collaborative; the team ended the day with a shared definition of reality.

The team was then ready to move on to analysis and setting the future state. During these sessions, we still used lean tools such as gap analysis and the Five Whys⁵ to drill down into root causes. We just did it as a team. There were a lot of sticky notes involved.

We also switched up our focus. For the first four days of a hoshin, the teams considered the big themes they were assigned. On day five, everyone regrouped by contract or customer to discuss how the hypotheses might affect current or future work. This was an important regroup, ensuring that our exciting new hypotheses were grounded in reality.

Our experiments have become more frequent, too. We run a global hoshin kanri once a year, usually in autumn, with all

executives from all regions in one location. Those sessions are meant to envision the future. We talk about disruptive ideas more often than not.

CI&T regions — North America, Europe, Asia — run another hoshin in spring with a broader participation of leadership and invitees. Those sessions are focused on shorter-term goals and rollouts.

So all executives do two full hoshins a year, with teams meeting in between to review results and adjust hypotheses.

Now, we have a company-wide process that might look like a grab bag of design, agile, and scrum, but they are all knit together with lean philosophies and practices. Because these methodologies are all rooted in the TPS and Deming's ideas, they fit together nicely, like the interlocking pieces of a Rubik's Cube.

4. Lean Digital: A Definition

We believe that we have created something greater than the sum of its parts, and we are calling it lean digital. For us, the three defining elements of lean digital are:

_ **Lean Design and Delivery.** Agile working methods are spread throughout the organization with pulled production and continuous flow. This is the front line of value creation and is directly connected with the customer.

_ **Lean Management.** Transparency is the core idea here, with visual management guiding teams and in use at every management level. Problems and problem solving are also on display, as well as progress toward goals.

5. A series of "why" questions, each building upon the previous question, to drive our inquiries deeper.

_ **Leadership Development.** We emphasize collaboration instead of command and control and expect our leaders to devote time to coaching others in problem solving, spending time at gemba, and learning by doing (*shuhari*).

Is lean digital helping us go fast enough? What is fast enough? Somewhere out there, two guys are still running away from an angry bear. The first guy says, “Do you know how fast we need to go to outrun this bear?” The second guy says, “Out-run the bear? I only need to outrun you.”

It may be true that you only need to run a little faster than your closest competitor. The thing we cannot count on, however, is tomorrow’s competitor — the company that is not even in your rearview mirror yet. There’s a good chance that company will be a digital native.

We were talking to the CEO of a big Latin American fast-fashion business in 2018 who was having just this problem. Even three years earlier, he had young people queueing up around the block for the chance to spend their money inside his stores. Now? This CEO felt the weight of all those brick-and-mortar stores around his neck like an albatross.

He had thought that if he had the right product and some hip advertising, the flow of customers would never end. He did not count on the rise of young people with different needs and expectations — willing to shop online with free shipping — or personal shopper services that send coordinated outfits to a customer’s door with a subscription service.

This is exactly why we need to keep the customer front and center. Their desires — and their options — are changing with a velocity we have never seen. When there is no daylight

between you and your customer, when you move as they do, your odds against the competition have greatly improved.

We have also discovered, however, that our efforts are not a magic pill for our customers. We believed for a while that our teams were so capable that we could metaphorically hoist a customer on to our shoulders and outrun the bear. Once our high-performance teams were integrated into a customer’s old management process, however, the result was always the same.

We could make all of the shiny new apps and websites that their hearts desired, but if the customer could not launch those products because the business was still working in old-management silos — protecting their territories and waiting for permissions that never came — nobody won. Lines of codes that sit on a shelf, unlaunched, age about as well as milk.

In other words, for CI&T to be a good supplier of software, we needed to improve our customers’ own internal processes.

This could be a tricky proposition. All of our clients had software development divisions. If we made them as good as us, would we be working ourselves out of our jobs?

It is interesting to note that Toyota Motor Corp. has a similar practice at the opposite end of the value stream, with its suppliers. Toyota sends some of its best production experts to supplier companies periodically and, essentially, gives away its latest production secrets to improve the performance of firms that also supply its direct competitors. Over many years they have proved that strengthening key links in their supply base — by helping their suppliers improve quality, create quicker development cycles, and speed throughput — is better for their business despite the risk that some information will reach competitors.

Over the years, we have come to the same conclusion. We could improve our processes until we were as sharp as a scalpel. But we were only ever as good as our customer's systems. And if we work ourselves out of a job with one customer, our reputation for creating a win-win environment will win us more business with other customers.

Fortunately, one of our best clients came to the same realization in 2016. >>>

II. ITERATIONS

THE SPREAD OF LEAN DIGITAL

4. Banking Evolves

In retrospect, it should not have been a surprise that the first client to ask for help integrating lean and agile with their organization was Itaú. This was 2016, and we were already working with Itaú software developers creating a mobile banking app. In the agile fashion, our teams were working very closely with their teams, so we knew they were smart and quick yet struggling to get products launched. Software development teams were starting 3,000 new products in a year but delivering only 400.

Itaú leaders were getting a close look at how CI&T worked during that time — how our managers supported the teams, how we approached problem solving, and the transparency in

our visual management boards. So they knew we were making agile work.

Still, their request for help was unexpected. Itaú was the biggest bank in Latin America and one of the largest public companies in the world,¹ with about 90,000 employees. Their chief technology officer, Ricardo Guerra, was known for his focus on cutting-edge techniques and customer centricity. His IT department — more than three times the size of all of CI&T — was an organization of very bright people with vast resources.

And, yet, the bank overall was seen as a bit stodgy. The apps the bank did produce scored low on user ratings in app stores; digital offerings came out slowly; the bank did not seem to be trying to attract the new digital generation.

Back in 2012, Guerra had began experimenting with agile methods, trying to launch new products and features at a faster rate. A small subset of teams in software development showed great promise using agile — launching new features and products faster, more reliably. Faster launch times meant the bank was able to discover what the customer did and did not want right now. It was exciting to think that, on a few projects anyway, they were getting closer to their customers.

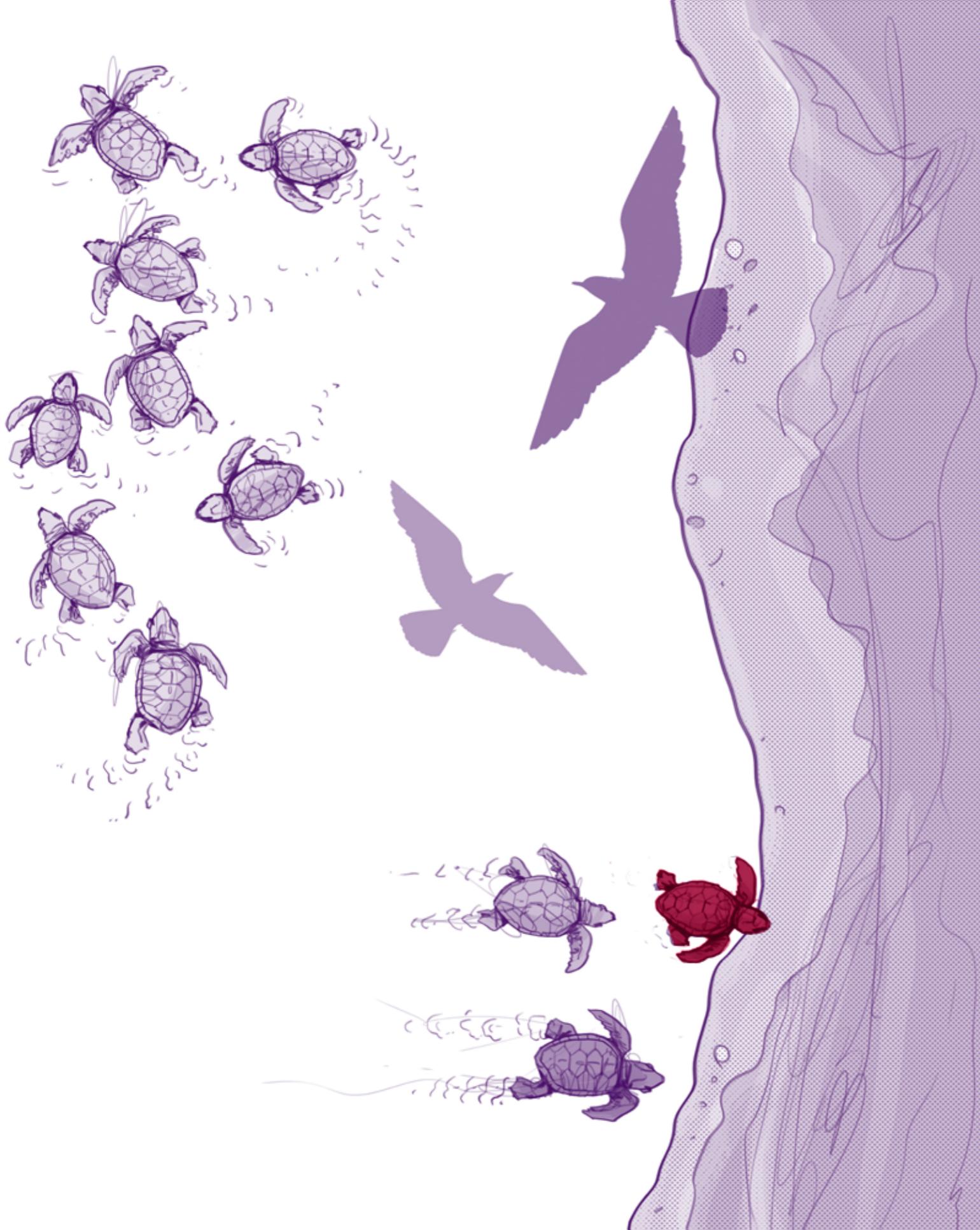
1. In 2018, Itaú was ranked no. 45 on the Forbes Global 2000 list of the world's biggest public companies.

2. See glossary for scaled agile.

3. A process for sharing knowledge horizontally across an organization.

Of course, Guerra wanted to spread these methods throughout his organization. Lots of people in technology were talking excitedly about how to *scale* agile,² to make agile methods the organizing principle for management as well as frontline teams.

But spread — or *yokoten*,³ as lean thinkers call it — is a much trickier task than is immediately apparent.



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In 2015, Guerra hired a consultancy firm to help him spread agile methods throughout his organization. His team and the consultants had made a beautiful chart showing how work would flow and how people would behave in the all-agile system. If everyone acted in this new way — if they adopted new roles like actors on a stage — people would change, the thinking went. They would *become* agile.

Instead, the process slowed to a crawl. IT was not even launching 400 products that year.

Guerra went looking for answers. He took a team and visited great technology companies in Seattle to see how an agile system looked in its native habitat. He spoke to various analysts and tech experts to get new perspectives. One of the analysts told Guerra to talk to us. “Those guys have figured something out,” the analyst said.

Keep in mind that Guerra led an IT division of more than 7,000 people. He did not need more coders or engineers. He did not need a consultant either; he did not want any more advice.

What Itaú needed was a cultural transformation, Guerra told us after he and his team toured our offices in 2016. They had seen how far new work processes could take them. Now they needed new thinking — the kind of thinking that they saw written all over the visual management boards in our offices.

The question for Guerra was: how do you get 7,000 people to be comfortable with the kind of openness he saw in our offices? Visual management meant people were completely transparent about what they had accomplished that day and whether they were ahead of schedule or behind. And it wasn't only coders and developers who were transparent.

Team leaders and executives were also putting their successes and problems on boards for all to see. We were operating on entirely different cultural expectations.

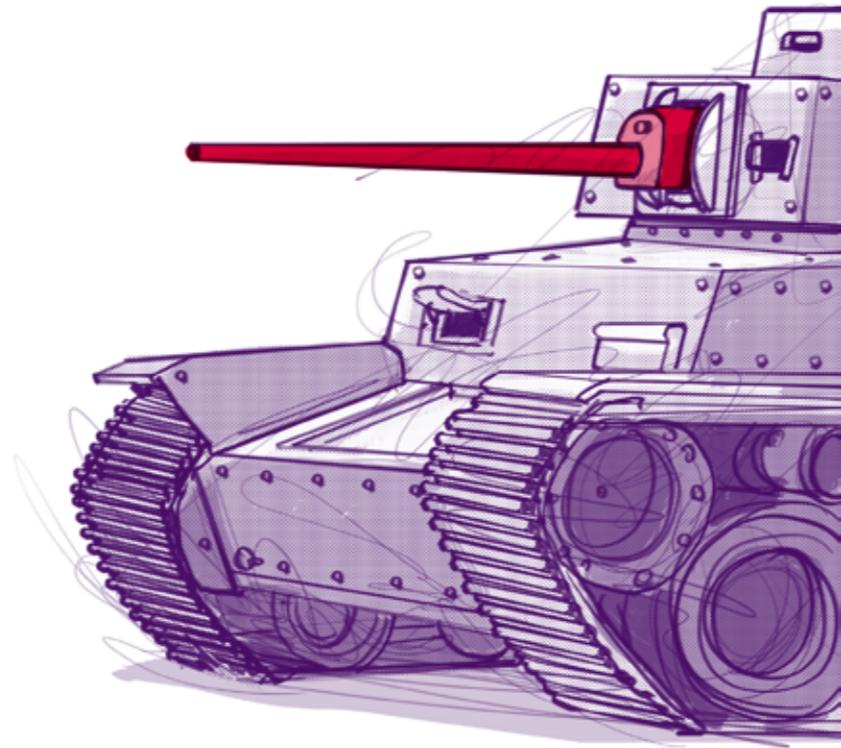
At one point Guerra asked a question that sounded like a riddle. How many people in an organization needed to change their minds in order to change the culture? It was a question that seemed to defy a simple answer. We could make a guess, but we did not know.

So Guerra proposed a new partnership. We should collaborate on a portfolio of projects over 14 months. While our teams were working with his software development teams creating products, our leaders would be evaluating the culture we saw and planning with Itaú leaders how to get the culture — the personal expectations and behaviors — they wanted.

We accepted his proposal and began a partnership that can best be seen as taking place over three acts. In act one, we delivered greater production speed and began changing the cultural expectations in IT. In act two, we expanded lean digital methods into the bank's business-to-business services division and began changing the presumptions about what could be done and how. In act three, the people of Itaú began actively cross-pollinating these ideas and methods across the old divide between IT and the rest of the business to move faster in the same direction.

Act I: Change Expectations

For our first group of projects, expected to take a little more than a year, we agreed that we would judge success by whether more products were launched with the same people *and* whether people changed their understanding



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of how to work and how to manage. This was not like any work we had done before, but the more we thought of it, the more sense it made. If we could help them find and demolish the IT roadblocks, our projects would launch faster too. Our work would be more efficient, and Itaú would become a better working partner.

We had a long way to go to get there. A culture cannot be defined in a single paragraph. But it is instructive to know that at Itaú, almost everyone still wore conservative suits and skirts to work every day. Meetings were held in beautifully furnished conference rooms, far from where the actual work was done. Decisions belonged to the ranking officer. And there was a tradition of rating the performance of all employees annually and then firing the bottom-performing 10%.

When we gathered for our first A3 sessions with a cross-functional team that included both vice presidents and frontline managers, we found that people were uncomfortable talking about problems. They assumed people would be blamed, and nobody wanted to point fingers for fear of being blamed in return. People lost their jobs that way. So they were not used to being open with their superiors or subordinates in the room.

One of Guerra's first announcements was that the IT division would no longer fire the lowest-scoring 10%. It was a radical departure from the policies of other divisions and a clear sign that Guerra was expecting actual change. But he was cautious as well. During our first three months of the project, Itaú people mostly watched as we built products for them using very transparent working methods. We had about 300 of our people on the contract, with our lead product managers actually working in the Itaú offices, as we showed them, step-by-step, how lean methods managed agile teams.

But we were not just showing working methods. We were also building the foundation of a new culture. Where do you start with *that*?

We had come up against this same quandary at CI&T and spent time thinking about how to lead change that was fast and still be sure that the lessons ran deep. We knew we needed to teach people a few important concepts every time we created change, so we developed an idea we called cornerstones.⁴ These are important lean concepts and practices that we have grouped into three pillars: Lean Design and Delivery, Management Systems, and Leadership Development. Instead of trying to teach a team every aspect of lean thinking and agile, we select the concepts and tools that seem most relevant for the problem at hand and focus on those.

Let's say we were bringing lean digital to accounts receivable for the first time and asking the team to reconsider how customers were billed. Working with the team to select cornerstones, we would probably encourage them to select Gemba/Go See (to investigate), Short Cycles (to teach experimentation), and PDCA⁵ to make everyone comfortable with scientific problem-solving methods. Finally, we might choose Value Engineering (to rank tasks by importance) to ensure that the team kept the customers' interests front and center. At present, there are 15 cornerstones to choose from, but we believe that list will expand and contract over time as our needs and understanding changes.

At Itaú, we talked with the team about what members needed to learn most for the project at hand, then selected our first cornerstones for the transformation of software development:

4. A more complete description of cornerstones and how we use them is in chapter 9.

5. Plan-do-check-act is the common cycle of scientific problem solving.

Scaled Agile — to spread agile methods such as autonomous teams doing fast experiments throughout an organization.

Visual Management — to display all relevant information about a work process for all to see.

Stable Teams — to keep team members working together until they reach productivity.

Production Metrics — to collect and display metrics that help us predict user interaction outcomes and business outcomes, such as number of items waiting for user acceptance (this should be kept low to avoid stocking), number of defects, productivity, etc.

Short Cycles — to embrace experimentation by having teams break their work into segments and then sprinting toward interim goals.⁶

That last cornerstone, Short Cycles, is particularly important for teams that are new to the concepts of lean and agile. Within traditional companies such as Itaú, the notion of experiments, quick deadlines, and possible failure is alien. People were used to working out every imaginable detail of a plan before handing it to their boss because their reputations were on the line. Now, we were telling them to launch ideas fast and collectively.

At Itaú, there was another wrinkle to this practice. This bank is a very wealthy organization. When people needed to make things work, they used to throw money at it. For instance, the people in software development were accustomed to working all year on a product or suite of products, testing all of their software in November, and then launching it over the

holidays.⁷ (It may be relevant to note that annual bonuses were typically awarded in December.)

By November, IT leaders would have prepared for the mountain of products waiting for test by purchasing new machines as necessary and telling everyone to expect to work overtime. Nobody complained about the expense; it was just the way they did things.

To change mindsets, we added a new concept to short cycles: scarcity. Imagine that you do not have a rich uncle to buy more equipment and pay overtime, we told the teams. We will need to test software more than once a year in the new lean environment, we said, so let's think about how to make year-round testing work with what we have. The team developed a catchphrase, "Every month is November," and started a detailed study of their testing processes.

One stumbling block to frequent short-cycle testing, we found, involved rebooting. Whenever a new piece of software was ready for testing, the machine on which it was to be tested needed to be rebooted. This took time and caused a delay for any other pieces of software that were running on the machine. If this was the only machine they had to run software tests, the team decided, they would need to cut back on rebooting. What if they were to stop the machine just three times a day to allow new tests to begin? If reboots were limited to three daily, would that speed up testing while giving people adequate access?

7. In a lean or agile environment, this is considered batch processing and should be reconfigured into one-piece flow.

There was a little grumbling at first from people who were accustomed to rebooting the machine to begin a test whenever they pleased, but the plan worked beautifully. Testing speed increased, and people embraced the "always Novem-

6. For more complete definitions and illustrations, see chapter 9.



RICARDO GUERRA, CIO OF ITAÚ UNIBANCO

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ber” availability of testing new ideas anytime during the year — even if they could only begin a test during one of three scheduled start times during a day.

Many people will read this example of tangible change at Itaú and think, “Eh, that’s not so much. What’s the big deal?”

This is a common difficulty. Teams can be doing the heavy lifting of digesting new concepts and putting them to use, and, in the end, the changes they make may seem modest. The true impact, of course, is that a dozen people learned the power of short-cycle testing and scarcity and embraced it as their new method of working, which will yield bigger results over time. But if people do not recognize this achievement, it can easily be seen as small and unimportant and then lost.

So how do we stay focused on the big picture and ensure we do not stray from the path of transformation? During this time, we came up with a way to visualize a team’s goals and track progress that we called “camp by camp.”

The idea behind camp by camp is that it takes both energy and planning to climb a mountain. A very big peak — like a complete overhaul of your organization — requires a lengthy and strategic approach. We needed to begin, therefore, with a base camp.

The base camp is not at the bottom of the mountain; it takes some effort to get there. But this is a starting point. During our first project with Itaú, we defined base camp as where we would arrive after we had 300 people working on teams, had shown them how to manage agile teams with lean thinking, had developed key performance indicators (KPIs) to measure progress, and had begun drawing in Itaú leaders from outside IT. We gave ourselves three months to get there.

The following camps would be planned after we arrived at base camp and had a better feeling for the conditions. And that was a good plan, because we did not achieve all of our goals.

At the end of three months, we were not yet working with anyone outside of IT, and we had only about 70 Itaú employees on the teams. But we had created our KPIs and could point out the cornerstones that team members had learned by solving problems.

Next, we set up camp one. On a whiteboard, we listed the items we had not achieved in base camp — attracting people from outside IT, getting 300 people on the teams — and added new goals: teaching and implementing objectives and key results (OKRs)⁸ for team members to master.

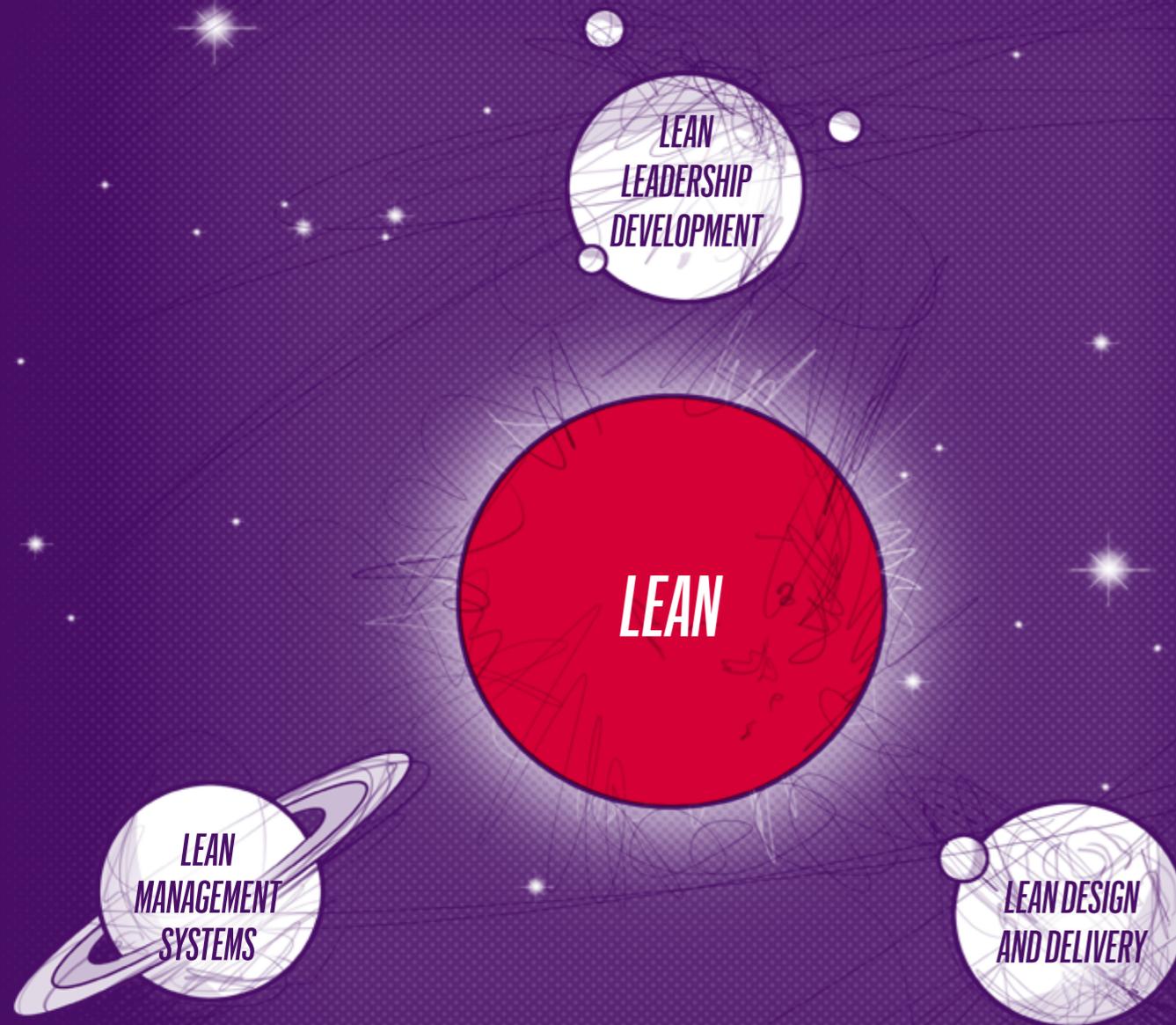
Taking stock, we were able to see that we were on the right path. Lead time for new IT products had dropped from two years to three months, and people were growing accustomed to moving fast. Without knowing it at the time, we were moving into act two.

Act II: Spreading beyond IT

Meanwhile, other Itaú divisions were noticing that something was up in IT. In the past, when another division wanted a new website, mobile app, or other IT function, division leaders would supply IT with a list of requirements. These requirements could include everything from how a customer interacted with the software to where functional buttons would be placed on the screen and what those buttons would look like.

An executive would then bring that list of as many as 300 requirements to the leaders of software development and

8. OKRs are used by teams to spell out the objective, or goal, of a project and then agree upon the data people will collect to gauge the effectiveness of their actions toward the goal.



We knew we needed to teach people a few important concepts every time we created change, so we developed an idea we called cornerstones. These are important lean concepts and practices that we have grouped into three pillars: Lean Design and Delivery, Management Systems, and Leadership Development. Instead of trying to teach a team every aspect of lean thinking and agile, we select the concepts and tools that seem most relevant for the problem at hand and focus on those.

say, “As you can see, I will need five or six teams to complete this project, and I estimate it will take about three years.”

As the leaders of software development learned more about pull production and value engineering, they could see that these old ways of interacting with their customers were problematic. They were batch processing. The leaders would invest three years into mammoth software projects without knowing whether customers really wanted these products. But what could they do? In the culture of Itaú, one vice president did not tell another vice president how to run his business.

So Guerra embarked on an awareness campaign. He told his executive peers about the exciting work they were doing in IT with short-cycle experiments, pull production, and PDCA. He asked the other vice presidents to imagine embarking upon a whole new software platform in three months instead of three years and being able to discover customer wants and needs in the process.

Business-to-business services was the first division to become curious enough about this new way to ask us to begin learning. This was the division that helped companies with credit lines, investment portfolios, and other financial services. For months, they had been losing market share to smaller brokers and new players in financial services — firms that were rumored to be easier to work with.

The leaders of business services had a plan to recapture the market, and they wanted our help with customer segmentation. The idea was to develop a good computer model to divide the whole business market into subgroups of companies with similar characteristics in order to create more personalized marketing.

It was a perfectly reasonable suggestion. But it was also a project that would take months and would direct their attention outward — away from their existing customers and out into the larger market. If the problem was that other financial companies were easier to work with, we said, maybe we should look more closely at the experience of existing customers.

“We suggested that, instead of starting with a big computing project, maybe we should get to know their customers by mapping their journey through the bank,” says Renata Mello Feltrin, our head of experience management who led much of this work. “Even if the exercise did not yield anything useful — which I doubted — we would have wasted a day or two instead of months.”

Meanwhile, we began training 30 executives and managers from Itaú in lean thinking. In order to become a problem-solving organization, they needed to get comfortable finding problems and bringing them to light. If an initiative was going to fail, we told them, we needed it to fail fast and loud so we could learn from it and adjust quickly. This was not an easy sell. In fact, it was easier for the team to talk about sweeping changes — a complete overhaul of their delivery and management systems or reconfiguring how leaders would be developed and rewarded — than it was to get people to admit that they could see problems that needed correcting.

“This was not a natural process for them,” Renata says. “And it wasn’t just talking about problems. Putting a manager and an executive in the same room and encouraging them to talk openly made them shy.”

Renata led everyone through design-thinking exercises to promote active listening.⁹ In the beginning, a lot of communi-

9. These were usually quick icebreaker-type exercises that asked people to carefully listen to what another person was saying and repeat back what was said or use the information in some way.

cation happened through sticky notes on the wall. People would answer questions anonymously, then the group would talk through the answers to find commonalities. After a while, a vice president and a manager might find they often gave the same kind of answer, and conversations would start. The traditional walls began to fall.

Better relationships are nice, of course, but what we really wanted was for this team to learn new thinking. And it was a lot to learn. If you break down lean thinking and agile into their component parts, there are dozens of complex ideas and new behaviors to learn.

Fear of complexity or lack of time and patience is why so many consulting firms try to take a shortcut and simply provide “answers” such as that scaled-agile map that Guerra was given. For people to adopt new behaviors and ideas, however, they must understand the reasoning, practice the methods, and see results. So they needed to understand one-piece flow and pull production and PDCA and everything else, but they also needed to start practicing some of it right away.

This was the beginning of value-stream mapping in business services. For the uninitiated, value-stream mapping is the component of lean thinking and the Toyota Production System that guides us to look at our organizations as a series of activities in an end-to-end process that delivers what the customer demands.

For instance, imagine that a customer is standing on your shipping dock, asking for a car. Not a truck, not a motorcycle, but a four-door sedan with a precise list of features. Every activity that is involved in providing this car is part of the *sedan* value stream, from bending metal to the final polish.

Every support function such as human resources, legal, and IT is partly assigned to the *sedan* value stream. The customer’s order is the pull signal that sparks activity beginning at the top of the value stream, from welding to the purchase of air bags and stereos from suppliers. In a nutshell, this is the lean vision: a customer-centric value-creation system that is constantly striving to deliver value, eliminate waste, and achieve one-piece flow.

A traditional company is a collection of functional departments — operations, finance, design, sales, personnel, etc. — that operate in virtual silos. Imagine a bunch of grain-storage silos grouped in a field and you get the picture. People in this system respond vertically up the hierarchy within their functional department, and function heads respond vertically up the hierarchy to the CEO instead of responding to the customer. Much of the wasted time and resources of a company can be found in miscommunication and territorialism between the vertical silos all trying to make this month’s numbers.

At CI&T, our value streams have changed as customer demands have changed. Customers used to ask us to design and create customized computer programs and then to provide ongoing maintenance for the software. So we had two value streams: software development and maintenance. Lately, we have added a third type of value stream — hoshin work — to define the kind of practice we are describing here.

To jointly build a value-stream map with Itaú business services, we gathered a cross-functional team of about 30 people and plotted how business customers interacted with the bank — from opening a first account to expanding an investment portfolio. And it soon became clear that we needed to recalibrate how everyone thought about their work.

The people of business services — like most traditional businesspeople — were internally focused. They talked about whether they were making their revenue goals and how their products were selling. They said they were customer focused, but they rarely talked about who the customers were and what they needed. They regularly conducted opinion surveys but did not use those surveys in their decision-making.

If you want to know the true focus of a company or a division, look at their KPIs. Here were the performance indicators that business services was tracking:

- _ Net revenue of new competitors (financial technology companies);
- _ Net revenue of traditional competitors (banks);
- _ Recommendation adherence rate (the percentage of time that customers followed the bank's investment advice);

From this list, it is clear that business services leaders were very concerned about their competitors. But did their customers care about the net revenue of Itaú's competitors? Probably not.

It was a big change of topic to talk about bank business from the customer's point of view. Working with the team, Renata and Solange Sobral, CI&T's VP of operations, identified the customers' core experiences, the moments that mattered in the customers' banking lives. Then they identified the touchpoints — the moments when the customer was actually engaging with the bank. A core experience might be when a business decides to expand into a new market, and the touchpoint might be when the customer requests a credit line to finance the expansion.

As team members drew the common experiences and touchpoints on a board, it became clear that we needed to rethink

our assumptions about value. Imagine the consumer at the car factory again. Only this time, it is a business coming to the bank. The business does not want one easily identified product; it needs a range of services and, depending upon the sophistication of that business, leaders might need elementary guidance or a complex partnership over decades.

The value stream should not be defined by a product, we realized. The value streams were the relationships.

All businesses wanted an easy interface with the bank. And most wanted guidance. Other than that, their needs were varied and changing, and that evolving relationship could not be constrained by a single product line. The customer, the team realized, was a far more complex and changeable creature than the bank was currently configured to serve.

For Solange, this point was clearly illustrated when a bank manager called her one day and pointed out that Solange, a customer of Itaú, had a large sum of money that had been sitting in her account for months. How about investing it?

"Investment? I haven't thought about it," Solange said as she clutched the telephone to her ear and prepared to dash from one meeting to another. "But maybe that is a good idea."

"Great. So tell me, what is your appetite for risk?" the manager asked.

Appetite for risk? To Solange, the question sounded like Greek. How does one know her appetite for risk? What would that mean to her bank account? Solange told the manager she did not have time to discuss it now but to send her some information.

Over email and telephone messages, the manager tried to interest Solange in different products that they had to offer, but it was like she was speaking a different language. For three months, that money sat uninvested while the bank spoke the bank's language and offered very little help with translation. If only she had asked Solange a few clear questions — gotten to know her a little — the banker would have been able to recommend an investment strategy instead of pushing products at Solange.

Now, thinking from the customer's point of view, the team organized the relationship along an event line into three main categories or value streams: first look/awareness, assessment/decision-making, purchase/execution. This way, we could look carefully at all the communication a customer was receiving during a particular time and see whether we were providing a coherent message and talking *with* them instead of *at* them. Did information conflict or repeat? Was it useful to a person at this stage in the banking relationship?

Then we looked at the 23 very large digital initiatives that were in various stages of planning for business services, assigned each initiative to a value stream for reassessment, and then broke them into smaller component parts. It was time to start running experiments.

Act III: Experiments and Cross-Pollination

The team from business services was now speaking the same language as the one spoken in IT. Projects began immediately instead of six months later, and software features were put in front of customers quickly to see whether they wanted more.

We knew that change was real when the KPIs of business services changed to:

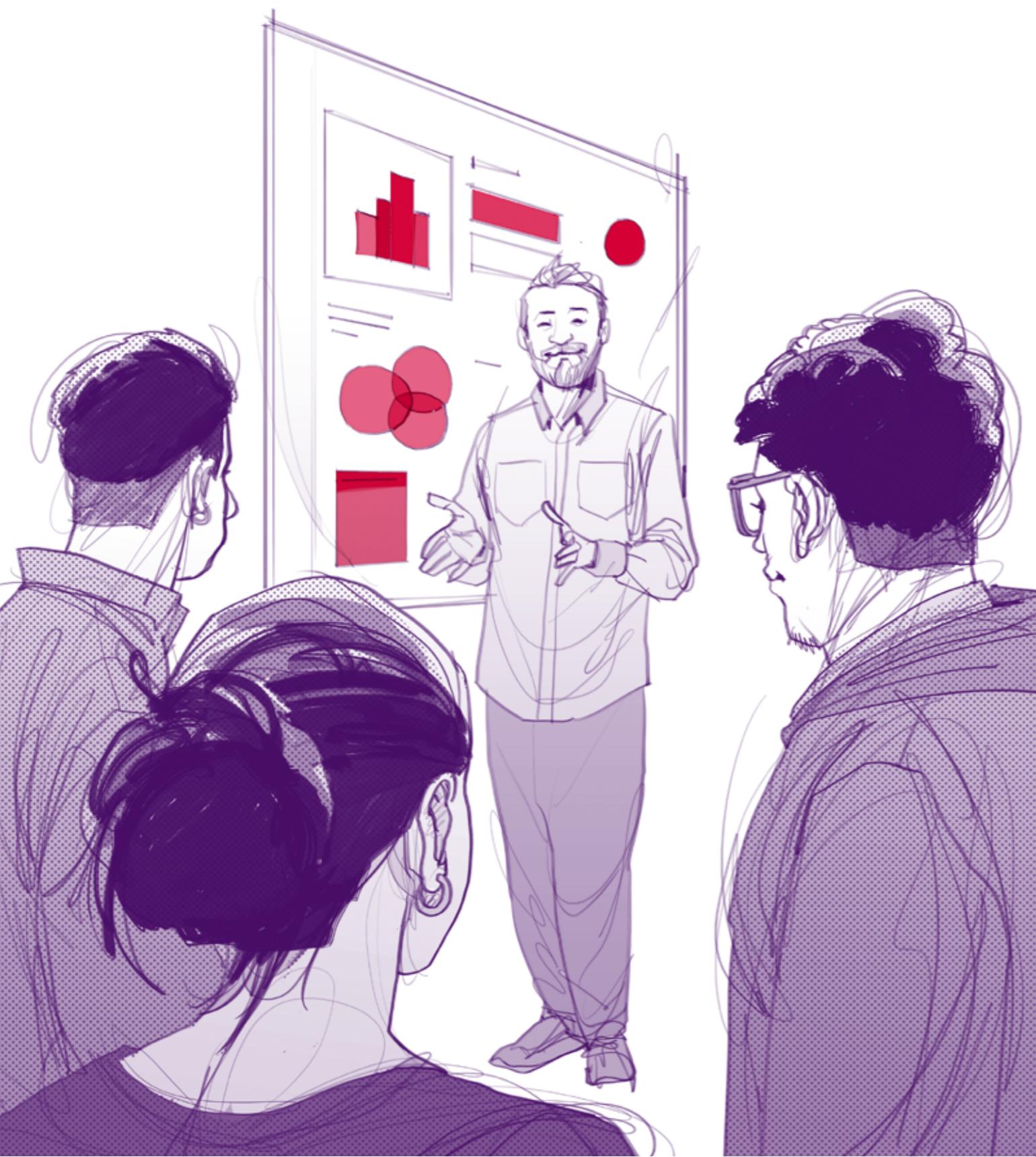
Experience Perspective

- _ Customer satisfaction
- _ Number of experiments per quarter that include customer interactions
- _ Business Perspective
- _ Percentage of market share
- _ Rate of customer profitability
- _ Technology Perspective
- _ Lead time to launch new products
- _ Itaú Team Perspective
- _ Team satisfaction

Around this time, we started to notice other little changes too. Leandro Angelo, a CI&T executive who worked alongside Solange and Renata, noticed that not everyone was wearing a tie all the time, and he gladly left his at home. Over the course of a few months, he even stopped wearing a blazer and pressed slacks. In 2018, Itaú allowed its employees to come to work in Brazil's tropical heat in shorts.

People were more relaxed. They stopped meeting in conference rooms and started gathering at *gemba*, where the teams were working. People did not wait to hear the judgment of the most senior executive on hand before offering opinions and suggestions.

Eighteen months after the Itaú project began, we could measure change in a number of ways. Everyone working in IT now had bonuses that were based on the results of collaborative teamwork instead of individual assessments. Lead time for projects in IT had dropped from 400–700 days to an average



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of 70. And in the app stores for mobile devices, the ratings for Itaú apps rose from three stars to four.

So CEO Candido Bracher led his executive team into the waiting helicopters and came to CI&T, which is where this book began. Bracher's decision to begin transitioning all of Itaú to lean digital methods was a great validation for us. We were seeing our own operations translated onto a very big stage, and it worked just as well as it had at CI&T.

At Itaú, competency with A3 problem solving and knowing lean thinking became required for advancement in areas such as IT, business services, and investment. And everywhere, people were reorganizing into value streams instead of internally focused functional areas.

"During this time that we call act III, what was really exciting was to see the cross-pollination of ideas across the old divisions," Leandro says. "Instead of needing teachers, people in IT and business services were sharing ideas and information about how to incorporate customers, think in short cycles, and encourage a culture of experimentation."

We were also pushing Itaú's technology forward, incorporating DevOps, microservices (writing software that is narrowly focused on particular functions that can then be shared by other programs), and cloud-native architecture. More on all of that in the next chapter.

We were ready to take on new companies and new lean-digital transformations, but we still had a lot to learn. >>>

5. Acceleration and Liftoff

There are some companies that come to us already prepared to go 10 times faster. Netshoes was one of these. The largest e-commerce retailer for sporting goods in Latin America, Netshoes is a digital platform for sport brands to sell their wares. It was like an early iteration of Amazon, and, in 2016, it was running on a legacy e-commerce system that was like an anchor tied to Netshoes' ankle.

What Netshoes needed in order to grow was speed. But it took its developers about three months to build a digital store for a new client using Oracle's ATG website builder.

CEO and founder Marcio Kumruian wanted immediate response to customer demand and to work at a speed that would allow brands to launch new product lines as soon as they were ready to ship. Like us, Kumruian saw the relation-

ship between speed and customer centricity, and he led the effort with us, broadcasting to his people that the initiative with CI&T was of utmost importance.

Keeping in mind that Netshoes could have 100,000 people on their website at any one time, we began by creating a robust technology stack¹ to handle the traffic. Then, we moved software development to the cloud where we could have nearly infinite flexibility.

Like many companies, Netshoes had some internal tension between people who wanted to launch new software features immediately and those who argued for holding back until a product was complete. There are many software designers who just do not want to release their products until every button is right.

Going fast, however, requires that we think of software design as a conversation with users. There should be some back-and-forth. Designers are not creating a painting, in solitude, for others to passively appreciate. They are creating a tool, and to do that well, we must know how the user wants to interact with it.

We brought up two important ideas from DevOps² to help shrink the distance between developers and users: a new software architecture to allow for daily deployment and automated testing.

Daily deployment simply means that a team will not have code sitting in the system for more than one day. At the end of a day, all new functions are uploaded to the working website or app to gauge usability. The way that software is constructed needs to support this.

1. A technology stack refers to the combination of programming languages, software bundles, and tools used by developers to build a website or mobile app.

2. A term combining software development (Dev) with IT operations (Op), “DevOps” is a set of practices intended to speed the time between deciding on a new function or software change and launching it, such as automating all software testing.

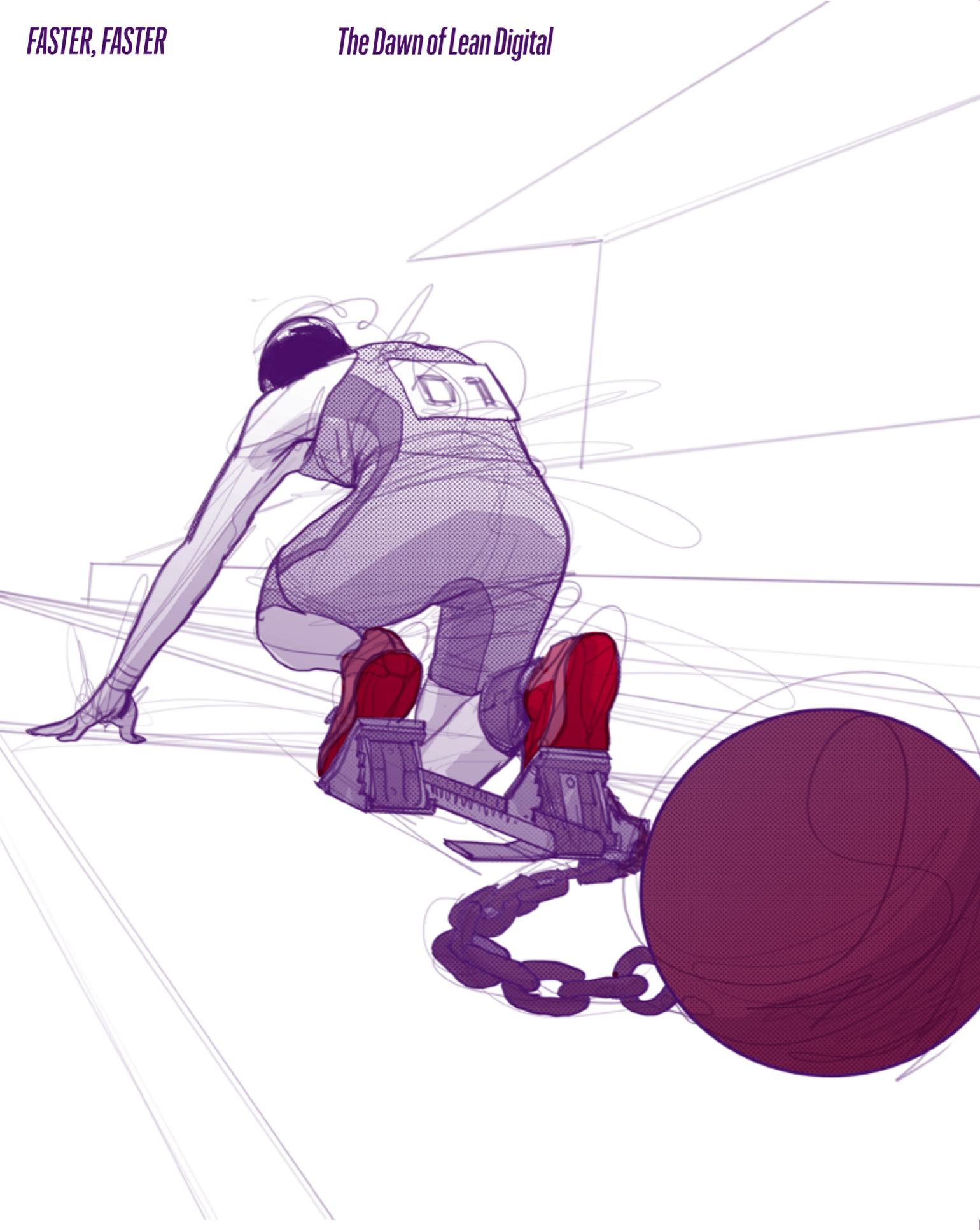
We created automated testing programs in order to free the teams from that which is non-value adding. From lean thinking we had learned that all testing and inspection is, essentially, waste. The ultimate goal of any lean practitioner is to improve the design and manufacturing process until it creates perfect products every time and the need for testing is eliminated. Until we achieve perfection, however, some testing and inspection are necessary. So these are necessary but non-value adding. Therefore, we should take these features offline or automate them whenever possible, and that’s what we did with software testing.

When Kumruian teams were building new software that was faster by design, testing it automatically, and deploying new features on a daily basis, they were going a lot faster. Instead of three months to build a new store, by the summer of 2018 teams could do it in one week or two at most. With Netshoes’ new capability, sporting goods brands could react much more quickly to customer moods — quickly offering jerseys of the winning team, for instance.

As a digital native, Netshoes had no trouble adapting to the new speed we achieved together. Kumruian was like a professional racer who brought his Jaguar in for a tune-up and left with a Lamborghini. After 26 months working with our teams, Netshoes software developers were ready to fly on their own.

Our next client was an excellent example of the issues — and the incredible opportunities — for more traditional companies in this new era.

Azul Brazilian Airlines provides low-cost service to smaller cities in Latin America using the same point-to-point model as JetBlue in the United States (Brazilian-born David Neeleman



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founded both companies). In 2016, the air carrier was growing fast, as was its frequent-flier rewards program.

We were hired to help Azul's IT department upgrade their online rewards-redemption programs. In many ways, this was our old style of working. We were creating good programs but were only dealing with the IT department and decision-making was slow. After 11 months of this, we began talking with executives from the business side of the airline, and they were clearly restless.

The trouble, we were told, was Azul's IT department. Business executives complained that requests for new software or features took nearly a year. IT was like a black box. If CI&T could just speed up the IT department so that it would produce more quickly, business leaders said, everything would be great.

From our own experience as a business, we knew it was unlikely to be this simple. So we created a value-stream map of the software development process from concept to user interaction and found many broken links. Business leaders put fully designed specifications in the IT backlog and then waited. They usually wouldn't hear anything — not even a question — for months.

IT teams, meanwhile, worked their backlogs without clear priorities. People there felt separate from the rest of the company and often overwhelmed with work. Meanwhile, business complained that IT did not communicate. In all, it was taking an average of 11 months to push a piece of software through the process. Yet technology and customer expectations kept rushing ahead.

So we gathered leaders from both business and IT in a room and started working through an A3, raising questions about

the nature of the problem. The two sides barely spoke the same language. For too long, they had been pushing requests and then IT products back and forth at each other without discussing the most elemental questions. For instance, *who*, *what*, and *why*?

Who are the users of this software? What do they value most? Why should we develop products faster?

We focused first on the frequent-flier program. Like most airlines, Azul gave people points for miles flown and then offered free or reduced-fare flights in return for points. Points that have been awarded but not used are viewed as a debt against the airline. Too much debt makes the balance sheet look bad and can limit a company's ability to borrow.

It turns out that frequent-flier programs have a vested interest in getting people to use points. This is kind of surprising considering how difficult it is to redeem those points with many airlines. Meant to instill brand loyalty, frequent-flier programs too often left people frustrated and looking for alternatives. Azul was no different, we suspected, but we needed to know exactly what was happening and why. And we needed both sides speaking the same language.

We began a joint project with a dual purpose. Building a user journey map through frequent-flier points redemption would help us identify the customer's pain points with the current system. And while we were building a better understanding of our customers, the Azul teams would be building a common knowledge of the current-state process and the elements of lean digital.

Like many airlines, Azul used a third-party vendor to issue frequent-flier tickets. This added extra layers of noise and ex-

pense to the process, which our team quickly encountered as it built the user journey map.

Step by step, the leaders from IT and business walked through how customers viewed their points, identified the flights they wanted, and booked tickets. We saw the limited availability, the broken connections. Redeeming points for airline tickets was for sure the biggest pain.

“We saw a big opportunity,” says Leonardo Luiz Novaes Chaves, the CI&T director who led the team and whom everyone calls Leo. “If Azul was issuing tickets directly to the customer, they would have better insight into what their customers wanted. They could redeem points more quickly, and Azul would get rid of the extra cost of the vendor.”

Leo had just come from working on the Netshoes project, so he knew how much capacity and speed Azul would need to handle the tens of thousands of users who might be on a website or mobile app at once. They would need a robust technology stack and lightning-fast responses, which would mean completely remodeling the IT processes. IT and business would have to work together as one. The return, however, would likely be 30% increased revenue per year.

Azul leaders saw the bottom line and quickly decided they would make the investment. In late spring 2017, we began two main projects: getting to know the customers and using DevOps to remodel IT processes and infrastructure to allow the company to react quickly to customer demands.

These are big projects. To break them up into manageable chunks and track our progress, we started by identifying the goals of a base camp that was three months out.

1. Base Camp Objectives

_ Create control mechanisms and baselines; put infrastructure, tooling, and metrics in place, as well as a new end-to-end value-stream map.

_ Begin digitization strategy; assessment of current digital maturity, definition, and execution of the decoupling strategy of the current products.

_ Establish lean culture elements: first minimum viable product (MVP) definition,³ reset end-to-end development time to two months, value engineering, and PDCA focused on learning rather than status reporting.

_ Create a product-development culture focused on user journeys and feedback loops using analytics and PDCA problem solving.

2. Getting to Know the Customers

How does a team begin to know the needs and desires of 9.3 million customers? First, we realized we needed to drop the idea that we *did* know. Business leaders have a bad habit of assuming they have the answer while relying on old information or gut feelings. Most companies diligently collect customer feedback, for instance, but rarely look at it.

So our team of business and IT folks read through Azul’s existing customer feedback. Then, believing they had a good starting point, the team decided to conduct some fresh user testing. We created web pages that would guide users through the points redemption process and invited select customers to try it.

3. The minimum viable product has just enough features to satisfy early users and is intended to collect feedback for future development.

It was not a great success. The business leaders who had mocked up the pages used the kind of jargon they used with each other and that customers had a hard time understanding. There was an even deeper disconnect, though. Customers just did not think like business leaders; they did not make the same logical leaps. Results of the user tests showed that they abandoned their efforts to book travel early in the process, bailing out at places that surprised the team.

Everyone agreed it was time to go out and meet some actual customers. Armed with interview questions we had created, executives headed to the airport to meet Azul frequent fliers. For many executives, this was the first time that they had a conversation with a customer, and they came back energized. Seeing those 9.3 million customers not as a monolith but as a guy waiting in Campinas for a plane to see his brother in Porto Alegre was a revelation.

We did more interviews and then armed our team members with laptops so they could sit with customers as they moved through sample screens. Then we compiled our findings and wrote a little bio for our everyman — a guy named Stefanos who traveled for business twice a month and was working hard to get ahead. We put Stefanos up on the wall of the team's meeting room so we could keep his needs in mind. When he was booking his business travel at night, after he put the kids to bed, what did he want most? If he and his wife were redeeming miles for a family vacation, what were the biggest needs?

Then we created a new beta site for rewards travel and asked some customers to use it. Immediately, we could see it was more successful. It was not perfect, but people were getting through the entire process with less backtracking and were booking their tickets quicker than before.

To make sure we kept an eye on how customers were interacting with the website, we built a tool that captured how a customer's finger or mouse moved across the screen. We wanted to know where a user lingered, whether he or she had to search for a feature, or whether it seemed intuitive. We created a direct-response survey as well, but we knew that watching a user actually use the software would help us answer a lot of questions.

Beginning in that first quarter, Azul set up a weekly working session between IT and business to ensure that the two sides continued to work together. Using the goals of base camp, and then camp one or two to guide them, the team created weekly agendas to discuss tasks and present the results of experiments.

Instead of requesting new software by email, business leaders now brought their ideas to the weekly meeting where the team began by asking, "What do we really need here? Will this make Stefano's life a little easier? What is our goal?"

3. Going Faster to Get Closer

Meanwhile, we still needed an improved IT development process. With just 30 people in that department, the software developers often felt as though they were drowning in work and had no time to create new, better processes.

With a team of 12 of us from CI&T and eight from Azul, we set up visual management boards so that everyone could see the status of the work and taught them PDCA so they could methodically work through problems they encountered. We taught them about waste, value-adding, and non-value adding activities so that they could identify for themselves what was important and what was not.

Very quickly, we started breaking down projects into stories and then showed them how to create tasks so that they could manage the work. We automated their software testing and launch.

“We also needed a way to launch that did not impact the user, just like we did at Netshoes,” recalls Rodrigo Stefani Domingues, who was a leader on both projects, along with Leo.

“In the beginning, we needed to reboot the whole system in order to upload new functions. We couldn’t make changes as quickly as we needed. So we worked for two months with a big cloud platform company to move Azul’s system to cloud-native architecture. Once we had automated testing and launches that did not affect the user, we could go much faster. This really helped to move the culture, too.”

Our goal was to reduce the time for IT product development from 11 months to two. By the time we hit base camp after three months, the processes were in place, and end-to-end product development time was running fairly steady at two months. But it was still not stable enough.

In every organization there are hiccups along the way to lean digital, often in unexpected areas. We found one when we introduced Azul to the idea of finding the minimum viable product to speed product launches. This particular hiccup could be labeled *trust*.

The product we needed in this instance was a way to allow call center operators to redeem points and issue a ticket to a customer over the phone. It was just one of the ways we could make life a little easier for our customers who wanted human assistance.

The way we heard about this need, however, was when business leaders presented us with a fully specified software package for the call centers. It was needed right away, of course. Wasn’t the new development time two months?

We asked a few probing questions about what this was for and why and discovered that the business executive leading the project was reluctant to offer details. His attitude was that we should just do it. In his experience, every software project needed to be spelled out in fine detail. Maybe he thought that IT did not understand business concerns or that he had better insight on how call-center operators might interact with software. He was not the only one with this attitude.

We explained that, in order to get his ideas up and running quickly, we needed to find the minimum viable product. To do that, we needed to meet as a team to discuss what exactly the business needs were.

In this case, the business issue was that some people were only comfortable redeeming points for air travel over the phone. There were two steps to this process: the initial reservation and then a back-end process that put together travelers and flights in the computer. Really, all a call-center operator needed to do was make the reservation, we realized. They could check on available flights with existing software — which they already knew — and then create a simple note to have the back-end process completed by people in the business unit.

Instead of a new suite of software, we created a standardized online form that operators could easily access. They made a note of the reservation and sent it off for validation. Instead of waiting two months for new software, call-center operators were making frequent-flier reservations 10 days later.

Within that first year, the joint Azul and CI&T teams were reliably producing new MVP functions within a 10-day sprint, and with most features deployed before the end of the sprint. IT was going faster, but it was in a bubble. One early software project was completed in a month, for instance, but sat unlaunched for another two months because the part of the organization that requested the software was not accustomed to responding quickly.

And it was not always software we were waiting for. Early on, we built a tool that allowed frequent fliers to look at all the flights they could take for points. It was not a long list; the options were very limited. When we shared this new feature with our joint business and IT team, everyone could see we had a problem. Business folks needed to make more deals with more airlines to become partners and allow frequent fliers on their flights.

We could also see that the frequent fliers on our beta site were searching for one destination more often than all others. This information gave business leaders a way to focus their energy on what was most important to their customers.

By early 2019, less than two years after we began the cultural and technical transformation at Azul, there were big improvements. In the points redemption category, there were 40% more transactions occurring every month. There was a 30% increase in people joining the frequent-flier program. And the airline had created new partnerships allowing customers to redeem points for goods and services beyond air travel. Maybe points could someday be used as easily as cash.

By going faster, we were decreasing the space between Azul and its customers. “We can’t be more than one day behind giving customers what they just realized they want,” Rodrigo says. “That’s real customer centricity. And that is what the combination of DevOps and cultural change gets for us.” >>>

6. A New Business Tomorrow

Given the right circumstances, *faster* can ignite an organization like a brushfire. In the case of Coca-Cola in Brazil, the spark that started it in 2017 was an incoming executive named Adriana Knackfuss.

CI&T had been working with Coca-Cola for about 10 years at this time. Working with teams in Atlanta and Rio de Janeiro, we had launched massive marketing initiatives such as the Happiness Flag for the 2014 FIFA World Cup.

As a marketing executive, Adriana had seen CI&T’s working methods up close. On being named VP of digital transformation in Brazil, she was ready to work with the kind of speed to which we had all grown accustomed. The organization was still strolling, however. It was taking a leisurely 18 months to deliver a new product to market, and that had become a problem because change was coming fast.

Brazilian consumers, like others around the world, were becoming more mindful of natural alternatives in 2017. Demand for soft drinks such as Sprite and Coca-Cola was still rising, but not by much. Meanwhile, drinks like juices, smoothies, coffee, and tea, were taking off. There were new competitors on the market every week, and growth in that market was energetic.

Brazilians love new ideas, new products. Coca-Cola, meanwhile, had introduced just one new product in the juice/still beverages category in 2016. The problem was a common one. This hugely successful company was slowed down by its size; its structure was heavy and not designed for speed and innovation. It was good at avoiding risk.

Seeking a big, splashy change, Adriana partnered with the VP of the juice/still category, Claudia Lorenzo, and asked us to come in and do the kind of lean digital work we were doing with Itaú and Azul. Then Adriana and Claudia invited us to a gathering of the organization's president and VPs and asked this question: How can we become the market leader of the lucrative juice/still market?

The answer most executives were comfortable with was an example of old-style management. They thought they should come to consensus on a step-by-step plan to be executed over five years.

"They wanted one plan that would be a silver bullet. Everything needed to be perfect in this plan. But how could they make a plan when they did not realize that one of their biggest problems was that they did not really know their customer?" says Paulo Roberto Camara, CI&T's chief digital officer. "They needed a new way of looking for answers."

With Adriana's support, we convinced the team to choose a single problem and give us three months to teach them a new kind of problem solving. Claudia and Adriana agreed that the challenge should be new-product development. Launch a new juice or other non-carbonated beverage in three months? No problem, we said. Coca-Cola put together a cross-functional team of business leaders from operations, marketing, sales, product development, finance, and IT to lead this new business venture with the CI&T team, and we created a plan, beginning with our goals for base camp, three months out.

1. Base Camp Objectives:

- _ Launch a new product
- _ Involve customers to help design the next product
- _ Learn Lean Product Development¹
- _ Learn metrics and management system for the value stream
- _ Establish PDCA for problem solving

Choosing a product to launch turned out to be easier than imagined. For months, leaders had wanted a high-end grape juice on their shelves and had watched, dismayed, while more nimble competitors came out with drinks similar to what they imagined. So there was pent-up demand for a pure grape juice in a glass bottle. With this outline, we could split up tasks among team members and start putting together the elements of a new beverage — ingredients, packaging, a bottler, etc. — mostly from outside of Coca-Cola's usual operations, in order to avoid institutional slowdowns.

We still wanted to engage the customer, but we realized that the customer could not drive our decisions if we were going to get everything done in three months. So we laid the groundwork for consumer involvement in the next product.

1. A disciplined method for designing a new product or production process to fit the customer's needs. A number of alternatives are developed and then evaluated against lean criteria, and the team relies on cheap, fast mock-ups in order to test assumptions before going forward.

“In this camp, we were throwing the rope to the consumers,” says Felipe Brito, VP Global Accounts. “Then in the next camp, the consumers would pull the rope.”

Coca-Cola, of course, had a lot of data about their customers. Like most large companies, it maintained huge caches of information about every aspect of product sales. There were IT engineers to collect and house the data and analysts to interpret it, and bureaucracy had sprung up around it. Data reports might take three or four days to be generated, depending on the complexity. If your boss needed data to fill out a presentation at a moment’s notice — and this happened with some frequency — you would have begun keeping your own spreadsheet with data that you would update as it occurred to you. Or maybe your division had found some really interesting data that you kept just for your own use. Data were a competitive advantage.

Over time, there were many such spreadsheets on computers all over the company. Business leaders would show up for meetings armed with conflicting data and argue. Divisions with their own data sources jealously guarded their cache. This is not unique to Coca-Cola. We have seen these data silos pop up everywhere.

Therefore, our first order of business was to break down the data silos that had built up and create a single source for the truth. It had to be a completely integrated, real-time, and easy-to-access font of information. It included all the data streams being used, plus big new resources such as point-of-sale (POS) data from major supermarkets. We started calling it the data lake or, more formally, the Center for Excellence in Analytics.

We set up software that would allow anyone to navigate through the data whenever they needed and then offered training and created a catalogue explaining details about the

data and its sources. Still, we needed to sell people on this single source of the truth, too, so that they would stop relying on their old familiar (out-of-date, narrowly focused, or just plain wrong) data sources. So we also offered an expert interface. The data lake was like a Greek oracle, we explained, and executives could use it through an expert operator to answer the questions that were keeping them up at night.

Market share was one great example. Let’s say that an executive wants to explore the reasons why a product has been losing market share. The assumption is that consumer behavior is changing, but it might also have to do with distribution. With one giant lake of data, we can look at the entire environment surrounding sales of that product — not just the elements that the executive expects to see.

For instance, the weather can be a factor. Certain beverages just don’t sell in warm weather, and summers in Brazil have been longer and warmer than before. If products were still being shipped as if the weather had not changed, that was a problem. Once we showed how the data lake could help us make better assumptions and correctly determine market share, executives were far more interested in sticking to a single source for the truth.

What the real-time integrated data lake *could not* do was reveal the true wants and needs of the customer in any real depth. For many years, Coca-Cola had engaged the services of a research institute to “see” its customers. This is fine for quantitative questions that the executives might have. If a corporation wants to ask how many potential customers there will be for its products in a specific age range five years from now, or whether a younger generation prefers carbonated beverages to stills, a research institute is fine. Ask some questions, wait three months, and you will have an answer in numbers.

But people are more complicated than the data they produce. Carolina Rossi Wosiack, a CI&T strategist with expertise in customer centricity, led our effort to get executives out and talking to people. To understand consumers, we needed answers to qualitative questions such as: “Do you enjoy what you drink for breakfast?” “What is your biggest barrier to being more healthy?” These answers require conversations.

Carolina told the team that we wanted to get to know people, to understand their pressures and problems. Maybe inspiration would come from trying to solve some of those problems, she said.

The team set a goal to have 100 in-depth customer interactions a month. To get there, executives pledged one or two full days a month to conduct surveys outside of the offices and compile their information. This was complicated by the fact that these executives had only 20% or 25% of their time committed to the new project and the rest was still owed to their original job. But the executives gamely joined the effort, and many later described the surveys as the most valuable part of the experience.

Remember that we were targeting high-end, or “highly engaged,” consumers. To make sure the beverage was attractive to this category, it was pure grape and apple juice — no added sugars or flavors — made with fruit sourced from a specific Brazilian farm. This new juice would capture the popularity of farm-to-table, the team thought, and be delivered in one-liter and half-liter glass bottles, because quantitative data said highly engaged consumers wanted glass packaging.

There were still decisions to be made, however. The team thought that one innovation might be found in delivery. If we could find a way to drive sales through a website, distribution

would be cheaper, and the relationship with the consumer would not be muddied by retailers.

So when Carolina was writing up sample questions, she focused on whether people drank juice, what kind and when, how they felt about juice versus other beverages, and whether they would go to a website to order their favorite juice.

“A website? No, no, no,” Carolina remembers people saying. “Why would I go to a separate website for juice? I’ll just buy it with the rest of my groceries.”

From the first round of questions — including online surveys, phone calls, and in-person interviews in bakeries, grocery stores, and shopping malls — the team learned that people thought of pure fruit juice as part of a healthy breakfast. And breakfast was important. Only, they did not always eat breakfast because mornings were chaotic. Who has time?

Together, the team thought about what they heard from consumers and came up with some new ideas. Then everyone went back out to talk to consumers again.

We asked, “How about a breakfast delivery service?” We created a couple of websites, brought our tablets along, and asked people to shop for their breakfast. On one site, they could select juices and other Coca-Cola products and set a delivery time. People shrugged. They did not want a liquid-only breakfast.

On another mock website, our service included bakery items, offering fresh juices, rolls, and pastries. Customers could sign up for a subscription service with deliveries sent to home or office. People asked us whether they could send breakfast to someone as a gift on their birthday. “Sure,” we said. “Why not?” People loved it.

So here was a way people would buy high-end juice on a website. At least that's what they said in surveys. To know for sure, we needed to build the service and see whether they came.

Building a new business is really a set of problem-solving exercises. So while we were building knowledge of our customers, Coca-Cola leaders were also learning PDCA to help with designing the package, contracting a bottler with capacity and expertise in beverages without preservatives, and creating partnerships with two bakeries in Rio de Janeiro that already delivered products to homes and offices. We created the website integrating sales and delivery; another team created a specially branded sack for deliveries.

The main difference between these work assignments and the old way of working was that there were tight deadlines. Big decisions were made by the team — this way we had the benefit of all the business specialties within Coca-Cola — and we used A3s and PDCA to work through issues.

When you work with a bunch of smart people who know their business, this can go remarkably fast. We started problem solving our way through new product ideas in August 2017. Our first breakfast deliveries took place in October. Within two months, a brand-new pure juice product was fully launched in a new kind of glass bottle and was being delivered. It was a great success.

Juice sales blew right past the one-year sales target in the first six months. At year's end, the company had sold nearly triple the original estimate.

But was this enough of a success to continue?

Over the years, an unwritten rule had been followed at Coca-Cola. Any new initiative should be in place for five quarters before it was judged as worthy of continuing. If we followed tradition, we would not be looking closely at our breakfast delivery service again until sometime in 2019.

We have hard-wired PDCA into our thinking, however, so we were preparing the team to *check* and *act* as soon as the service was running and stable. When we hit base camp 90 days after launching this project, the cross-functional team gathered to look at results from across the business.

The service was picking up customers at a steady rate, and the new juice was getting high marks. But operations were overly complex, and the business would require investments and resources that Coca-Cola executives were not able to prioritize at that time. Leaders decided to keep the beverage but not the delivery service business. It was not counted as a loss, however.

Lean digital methods had spurred the team to create a whole new product and market in two months. This way of working could completely transform their business, executives realized. Did they really want to keep lean digital sequestered in the juice/still beverage category that comprised just 20% of Coca-Cola's products?

Their next decision was what told us they were ready to run: they would not wait five quarters before making a decision about this initiative. Executives decided to move the business they had just created to a third party, refocused the lean digital work on the carbonated beverages — or “bubbles” — category, and said there should be experimental projects in every base camp, including new beverages, new sales models, new markets. A cross-functional executive team would lead the next

project, and, for the lead executives, 100% of their time would be devoted to the work. It was like watching a wildfire take off.

Beginning in June 2018, the bubbles team created a two-track project with big goals. First, team members envisioned a digital experience that would engage consumers in a completely new way, to establish relationships that went beyond beverages, to discover and address the most important problems of their customers.

Also, they wanted to launch a new line of carbonated, natural beverages. The beverages would be made from pure ingredients, without preservatives or GMOs² and sold in glass bottles. “The idea was to create real food with bubbles,” says Fernando Ostanelli, a lean transformation director who worked with the Coca-Cola teams. “This was something they had been talking about doing for a while but had not been able to launch”. Flavors such as apple/black tea and orange/passion fruit had already been formulated inside the company but had been sitting on the shelf due to various roadblocks. Building the physical capability, for instance, to pack preservative-free beverages in glass bottles was just one of the hurdles. Would it be worth the investment in infrastructure?

The digital experience, meanwhile, would be focused on solving problems for customers — and specifically for a woman named Isabel, the team decided. She was a mom who wanted to put healthy food on the table for her family, had little time for herself, and lived on vitamins and coffee. She did not get enough sleep. We all knew an Isabel.

Carolina and her team built three types of Isabel profile based on data and surveys: a working mom, an entrepreneurial mom, and a full-time mom. Each of the women did most of

the meal planning and grocery shopping for her family and was inundated with enough advertising already.

Isabel intends to feed her family healthy meals, so she finds time to buy food and cook. But what often gets squeezed out of the equation is meal planning and keeping up with new products and techniques. It is easy to get lost in the grocery aisles. From surveys and data analysis, Carolina and her team could see that Isabel could use some friendly guidance — like a sister or best friend who was a nutritionist and always happy to write down great new recipes and offer ideas.

There are 67 million mothers in Brazil³ and we were willing to bet some substantial fraction would like that help. But surveys said they would not want it from a major corporation. So we found a great startup run by a nutritionist devoted to helping people plan for and make healthy, delicious food. She wanted her website to be that sister or best friend. She just needed the resources to help people discover the website, as well as a good bit of technical assistance with her software platform.⁴

The free website offers weekly menus and shopping lists and enables Isabel to see what her friends are making; she can chat about recipes or create her own menus with family and friends.

Meanwhile, the team for the new line of bubbly juices was launching their products and absorbing what they had learned. By using a packager from outside the company — one that already had the equipment and setup for the new product type — the team had introduced a brand-new line of carbonated beverages without the big capital costs and logistical headaches of rearranging their production lines. The drinks were in grocery store coolers in four months, instead of the 18 months it usually took to bring a new product to market. Consumer

3. <http://agenciabrasil.ebc.com.br/en/geral/noticia/2015-05/there-are-more-20-million-single-mothers-brazil>.

4. We are not naming the website because, by mutual agreement, Coca-Cola is a silent partner.

2. GMO stands for “genetically modified organism” and is the result of a laboratory process that introduces a gene from one species into an unrelated plant or animal.

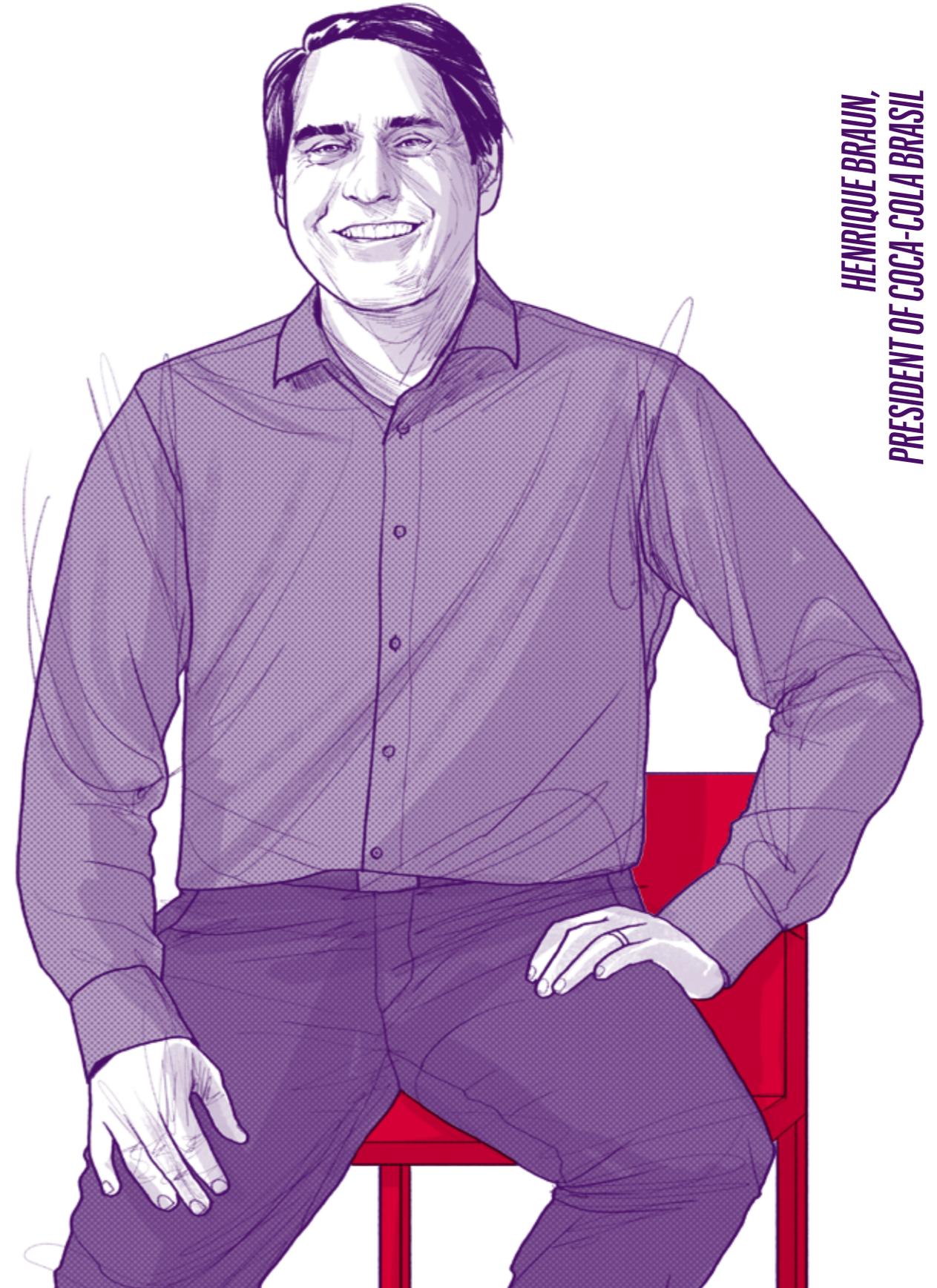
feedback on the new drinks was very good, and they sold out of their initial production run very quickly.

Knowing they could achieve this kind of velocity got them thinking about doing more experiments more quickly, finding new ways to excite the taste buds of an ever-changing consumer population, like exchanging popular flavors with other countries.

The bubbles team, like the juices team before it, had a good grasp of the lean digital working methods and were gaining confidence every week. After working with them through two camps, team members from bubbles were ready to run on their own, which was great because a team in the business-to-business area wanted to go faster, too.

Looking back on it, we can see that our work with Coca-Cola has been nothing like a perfectly orchestrated grand plan. We had setbacks and had to maneuver around roadblocks. But the speed at which new products and business ideas were launched was far beyond what any of us had planned for. And what is really exciting is that the people of this company now have the tools to do this over and over again.

Inside the teams, we found people who were excited to go faster — who had ideas, energy, and courage — and just needed permission and a few new concepts and tools in order to pick up speed. Now, these are the people who will be creating the future opportunities for this iconic brand. They will be creating tomorrow.



HENRIQUE BRAUN,
PRESIDENT OF COCA-COLA BRASIL

Note from Adriana Knackfuss

In 2017, the president of Coca-Cola in Brazil, Henrique Braun, returned from working in China with the message that digital strategy was one of our key priorities. He became the first person at Coca-Cola to appoint a VP of digital transformation, and that was me.

At the time, I was senior director of marketing and had the largest team of all the departments. Every day, I was dealing with people issues. I sat in meetings about marketing; I made decisions about marketing. People followed me into the bathroom, and I came home at night to a long line of emails. It was 100% of my time.

Then, I was offered this chance to do something completely different. There was no guidance, really, on how I should set this up. I just knew that it was an end-to-end position. I was responsible for results, not a department. And I felt very strongly that in order to create transformation, I needed to begin with me. I needed to transform myself.

I started with selecting a very small team: just six people. I gave up my office and sat in a bare room, thinking about how I could change. Coca-Cola is a very complex organization, and what we needed, I thought, was simplicity. We needed better communication, transparency, and higher energy.

Ten years earlier, I had selected CI&T as a vendor. Over the years, I had been very interested in their ideas and methods, and now, I turned to them again and to lean digital. If we were really to embrace the ways of lean digital, I knew we would need our people to see the enormous possibilities in small teams, agile work, rapid investigations. Could I convince them?

Fortunately, our president was with me. When we had our first A3 with CI&T, he was there with all the vice presidents and bottlers, putting sticky notes on the wall, engaging in this very active discussion. It was incredibly energizing.

When we decided that the first camp would be this new product launch, people kind of shrugged and said, “Well, let’s give it a try.” When it actually worked, people paid a lot more attention to what we were doing.

For me, the biggest change — and the most fun — has been in getting close to the work. In my old position, I had people reporting to me who talked directly with people doing the work. I had lots of people handling lots of details. And at the end of most days, I was drained.

Now, working with a small team of people, investigating new opportunities, solving problems, energy is always being created. People from throughout the company have asked to join the team — usually for a fractional percentage of their time — and this has been a great way to see the work and for the knowledge of lean digital to spread.

My real love is leading people. And lean digital has opened my eyes to a completely new role for leaders. We can be close to the work, on teams, coaching people to succeed. To be close to where the magic is happening has changed everything for me.

After a year in this position, I was promoted and moved to Atlanta, Georgia, to become group senior digital director, working with the leaders of different countries on their transformations. We will be creating more products fast in order to teach lean digital around the globe.

III. CONCEPTS & TOOLS

Concepts & Tools

When Amazon bought Whole Foods in 2017 for nearly \$14 billion, the market response was immediate. The stock price shot up, and within two weeks, investors sent Amazon's market capitalization up by nearly \$19 billion. It was like Amazon's largest purchase ever was free.

This kind of confidence in a company is remarkable. Amazon does not have a perfect innovation record. Remember the Amazon Fire phone? It was produced for one year, after which Amazon took a \$170-million loss. So it was fair for many pundits to ask whether a technology giant knew enough about brick-and-mortar grocery sales to keep Whole Foods afloat.

Investors, however, saw what we saw: a master of disruption running a new experiment. It was no wonder that the stocks of competing grocers fell sharply as Amazon's rose.

Why is it that people react so strongly to Amazon entering a new market? To boil the answer down to one word: culture. Amazon is a company that works in small teams, launches experiments fast, aims for 10x improvements, and is famously customer centric. When that Fire phone didn't work out, the product was broken down and rebuilt, in part, as the Alexa smart speaker.

These core elements of the Amazon culture are, essentially, the four pillars of lean digital: customer centricity, small autonomous teams, big goals, and fast experiments to create a learning organization.

The goal of the next three chapters is to fully describe the customized tools that we developed for the transition to lean digital: A3 enhanced with design thinking, strategic hoshin cycles, and cornerstones to embed critical knowledge throughout an organization. We created these tools in-house and then refined them through continuous iterations with partner firms Itaú, Azul, and Coca-Cola.

These chapters are rich in operational detail, and the pace is necessarily slower. So please relax as you load up your tool cart for your own transition to lean digital.

Readers who are less interested in operations detail may want to skip ahead to chapter 10, "Adhocracy," to see how we have changed the work of our top executives.

7. A3 + Design

The genius of problem solving with A3 in a group is twofold. First, we have the A3 to lead us through the problem and solutions in a logical manner. It provides control and direction. The group, using design thinking techniques in order to ensure full participation, supplies depth and breadth. With many voices from many functional areas, we can create a richer understanding of our problems and tap into a greater diversity of ideas.

As humans we are always accumulating knowledge. And most of us are pulling that knowledge from different sources. This is why we firmly believe that the smartest person in the room is never as smart as all the people in the room together.

Bringing out the talents and knowledge of every person, however, requires honest communication and the ability to listen. We have to work to avoid falling back on what we believe is true (confirmation bias) in order to discover what is actually true. This where the tools of design thinking have really helped us.

Our understanding of group problem solving is always evolving, and this chapter describes our 2019 best practices in conducting an A3 that seeks to solve organization-wide problems.¹ This is the step-by-step process we used to jump

1. For A3s that are focused on smaller issues, we may have a much smaller team or even a single person working through the A3. This chapter focuses on large-group problem solving because this is where we have developed unique tools and processes.

to the next level of capability in our own organization and help others do the same.

The Theme

Top leaders select a theme that is of critical importance to the business. This should be both clear and loosely stated, such as “getting more products to market” or “expanding business in Asia.”

Select the Team

We like to have about 20 people on the team, carefully selected by leaders for range and depth of knowledge. It is important to think about end-to-end knowledge of processes that are important to the question. If new product development is the issue, we want people from sales, design, quality, shipping, and operations. We may include outside partners, such as bottlers in the case of Coca-Cola.

We also make sure that a diversity of positions in the hierarchy is represented. A team with too many participants who all know one another from weekly or daily meetings can easily be pulled into established assumptions instead of discovery.

Introductions / Time ~ 1 hour

The CEO or someone of high rank kicks off the project by telling the group how this work is linked to critical business goals. This should be brief and designed to fill the team with energy and a sense of purpose.

Are there people on the team who have not met? If the diversity goal has been met, this is likely. So we begin with an

ice-breaking exercise. A favorite is to give everyone a piece of paper to write three things about themselves, such as hobbies, most recent vacation, etc. Then, everyone folds the paper into an airplane and sends it flying. People pick up the planes, read them, and then walk around trying to match the list to a person there. Or people might introduce themselves by their name and superpower, instead of by their title within the company. The goal is to see one another as people — fellow humans with unknown talents — instead of as functions within the company.

When the project is likely to stretch people into unknown territory, include an introduction to concepts. For instance, not everyone at Itaú was familiar with agile practices, so the facilitator began with a virtual tour of Spotify, showing how the music-streaming giant organized teams and work. The trick is to be concise, knowing that many of the concepts are best learned by doing.

You may also want to invite in an expert for what we call “lightning talks.” If a team is zeroing in on compliance roadblocks in the process, for instance, the facilitator would bring in a compliance lawyer to give a rundown of the key issues to consider. These talks often bring up important current conditions that the team should note for the next phase.

A3: Left Side / Time ~ 5 days

Background

Occasionally, this statement is written before the project begins and is used to introduce team members to the work and to build excitement.

Most often, however, the background statement begins as a loose theme, identified previously by an executive leader. It becomes a finished statement only when we have completed the work of the left side of the A3 and have better knowledge of the current conditions, goals, and gaps. At that point, the purpose of this section is telling the story of the project — why it was selected and what was at stake. Creating the background statement, therefore, is a pivotal piece of work, and it often begins with a tool like the five bold steps canvas² from design thinking.

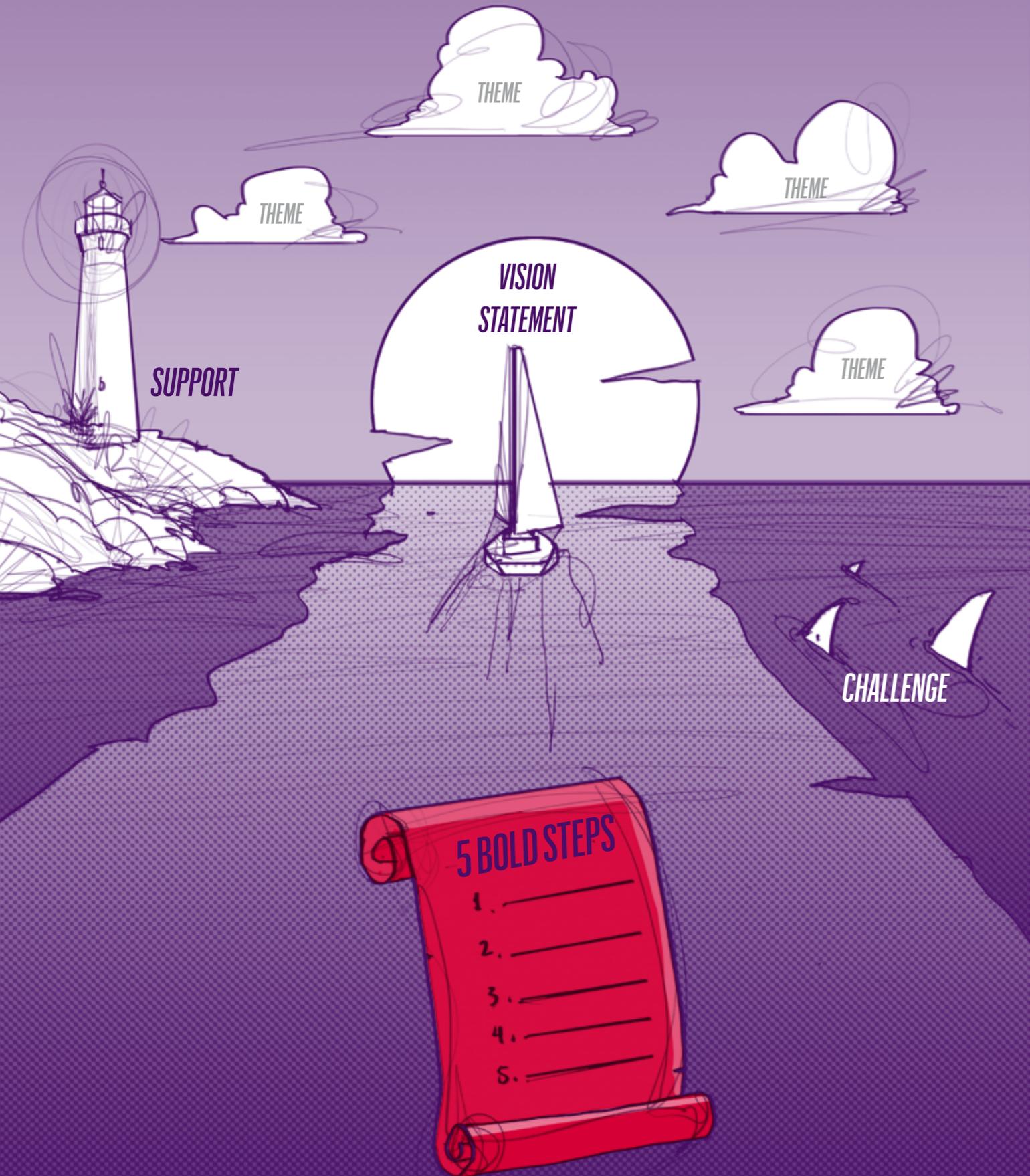
In this exercise, everyone on the team is given a paper printed with the five bold steps canvas. In the center is the big vision statement, which is usually a variation on the A3 theme. For instance, if the theme is rapid product innovation and the company makes beverages, a person might write his or her vision statement as, “Become a company that can introduce 50 new products in a year.”

The themes that surround the vision statement are the key elements needed to make the vision happen. A team member might write “perfect alignment with bottlers” and “faster pass/fail for new products.”

Below this, team members come up with five bold steps needed to make the vision a reality, such as “invite key bottlers to join product design teams” and “remove bureaucracy in compliance procedures.” Team members also note the supports and challenges — also known as opportunities and threats — to achieving the vision.

Next, every canvas is posted on the walls — we call this the art museum — and people walk along, reading the vision statements and themes for commonalities and new ideas. Then

² . This tool and others described can be found in the *Design a Better Business*, by Patrick van der Pijl, Justin Lokitz, and Lisa Kay Solomon. (John Wiley & Sons: 2016).



In this exercise, everyone on the team is given a paper printed with the five bold steps canvas. In the center is the big vision statement, which is usually a variation on the theme. For instance, if the theme is rapid product innovation and the company makes beverages, a person might write his or her vision statement as, “Become a company that can introduce 50 new products in a year.”

everyone takes a bunch of stickers that are small dots and starts putting them next to ideas that resonate. In the end, we have an easy-to-read heat map. Dots have built up next to the best ideas, the most salient points, and this gives us a starting point.

No single vision statement will be the right one. Often, the facilitator will break up several vision statements into their component parts and have people vote on those, too. Then we rewrite. This is the simple process of writing the background statement: listing elements, voting, rewriting.

Current Conditions

Now we have a vision statement to guide us in determining which current conditions we need to find and report. This is where we need to stoke the team's curiosity. What questions do we have that are not answered? To ensure that we are considering all angles, we use "free listing."

The facilitator begins by asking the group what information we need to determine our starting point. Everyone has sticky notes and begins writing their ideas, one per note. If increased sales is the goal, we probably need to know how many leads we got this year and last year. If faster innovation is the goal, we need to know how long it takes to launch a product. Evidence of demand from the customer is also critical information. Team members have a few minutes to write down everything they can think of and post their ideas on the board.

Meanwhile, the facilitator is grouping the sticky notes into common themes. The number of sticky notes in each category provides another kind of heat map that can help direct the team's efforts.

Many questions will be answered by people in the room. We may ask that people collect more information during a break or call on someone outside of the team to bring it in. If we cannot find data to answer a question, we know that we have a knowledge gap, and this is a risk. Measure the risk by asking the team about the importance of this information. For instance, maybe we lack current results from customer satisfaction surveys. If a large number of people feel this is important to know, we may want to run a new survey.

If the team feels that there are unknown logjams in the process, we stop and create a value-stream map. This will probably require a visit to the gemba and/or a visit from experts in the process to help the team build an accurate map.

After the team has pulled in as much focused data as is practical, there is often a debate. Where do we need to dive deeper? What information is critical to the issue? For this, we often use a value proposition canvas³ or more general user journey maps. There are many examples of these tools out there, but what matters most is that the team focuses their discussion on the relationship between a customer and the product. We ask: "What job does this product or service need to do for the customer?". Knowing the customer's pains and then describing how a product or service will specifically address those pains and create value is based only partly on data. Some of this story will be educated guesses from team members, and this is where the value of many voices, many points of view, becomes evident.

Once the team is satisfied that the current conditions are known, some team members are usually assigned to summarize the information. We read the background statement again to see whether we have learned anything that should

3. <https://designabetter-business.tools/tools/value-proposition-canvas>.



Now we have a vision statement to guide us in determining which current conditions we need to find and report. This is where we need to stoke the team's curiosity. What questions do we have that are not answered? To ensure that we are considering all angles, we use "free listing."

be added there, then take pictures of our work and move the sticky notes aside to prepare for the next section.

Targets/Goals

This is the moment to take a step back. Look again at the team's favorite bold steps from earlier and discuss them in terms of what is now known of the current conditions. How can the team reach its goals from its starting point?

After a general discussion, we go back to our sticky notes and more free listing, encouraging people to select the goals that will have the most impact and move the organization in a meaningful direction. The facilitator again groups the answers and creates a summary.

We want more than just aspirational statements, of course. We want hard targets. For this, we poll the team. Let's say we want customer involvement in the product development steps. How much customer involvement? If we want customer input in every step, we aim for 100%. These are the numbers that will become the project KPIs. Before we charge off after these goals, though, we need to make sure we are not flying blind.

Analysis

With goals and current conditions known, it is time to discuss the gaps. What are the root causes of those gaps? Here, we rely again on free listing, and the exercise known as Five Whys in order to build a fishbone diagram.

To begin this discussion, we again ask team members to write down their possibilities on root cause. The facilitator groups the root causes into categories, and we start drilling down.

Why does it take so long to launch a product?

We lack confidence in customer desires.

Why do we lack confidence?

Eight out of 10 products are failures.

Why?⁴

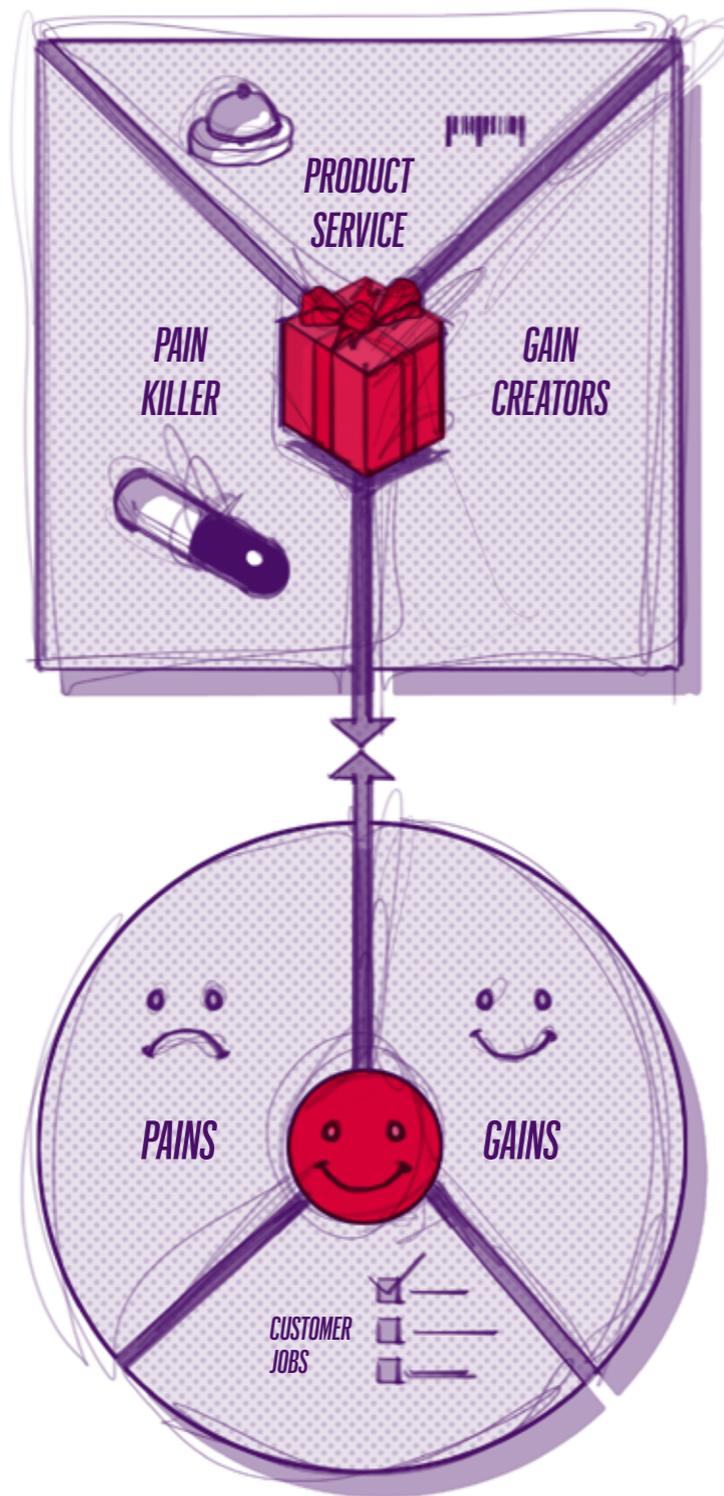
The answers to this will probably require more free listing, more grouping of answers to find the biggest issues.

We rarely go looking for data in this phase. Instead, we rely on group intelligence. We go back and forth between group discussion and free listing to allow people to push into territory that might be uncomfortable. Most organizations have sacred cows that people are afraid to poke. Free listing allows for anonymity while asking those deep questions.

Another good question to ask the group is about systemic failures. We ask them to imagine that we are now 12 months in the future. Why will this project fail? People have seen roadblocks develop over time and can point out weaknesses in the organization that we can address. This is where we often hear about political strife between various silos. These conversations may be uncomfortable, but we know that we cannot address problems that remain hidden or unspoken.

4. The Five Whys can sometimes be three or eight — or any number of — questions. What is valuable about this tool is the way it guides a team to dig deeper to find root cause.

It is very helpful to create a fishbone diagram at the end of this exercise to visualize root causes. These are the issues we absolutely need to address in the right side of the A3, so they should be top of mind for everyone.



We ask: "What job does this product or service need to do for the customer?" Knowing the customer's pains and then describing how a product or service will specifically address those pains and create value is based only partly on data. Some of this story will be educated guesses from team members, and this is where the value of many voices, many points of view, becomes evident.

A3: Right Side / Time ~ 3 days

Implementation Plan

The team now has all the information they need to create the plan: the vision, goals, current conditions, gaps, and root causes. It's time to think big. So we have everyone work independently on solutions. With a fresh sheet of paper, everyone has two to four hours to sketch their solution to the problem. Then, just as with five bold steps, we put all the solutions up on the wall into an art museum, take time to read everyone's papers, and then start voting with sticky dots.

A solution usually has lots of moving parts, so we encourage people to vote on individual elements of the solutions. Then we pull out the most popular elements and remake the solution. Many times, we have been confronted with two very popular but divergent solutions. For this, we need a decider to break ties. The decider is usually the person who owns the A3, but the decider can also be elected by the team or be the highest-ranking person in the room. Tiebreakers are not needed often, but they can be critical to keeping the work going.

Now that we have an agreed-upon solution, we need OKRs, or objectives and key results. The team aims high by selecting three to five main objectives. In the case of these large-team A3s, we break the work into three-month sprints toward the camps. So we aim high, but at a near target. This keeps us rooted.

There can be some confusion about the difference between OKRs and KPIs, so let's clear that up. OKRs are for the moon shots, the big goals, and memorialize the team's agreement on how to measure progress toward those goals. KPIs measure performance of a process. KPIs look in the rearview mirror,

while OKRs are goals and signals about whether the work is on track to meet those goals.

One other list for the team to create is the task list. Many people confuse tasks with key results. Teams want to write down the tasks that are necessary to achieve goals, but that is a separate list. For instance, if a team's objective is to create a portal for people to redeem loyalty points for products, key results might be creation of a seamless website and mobile app experience, integration of flight information from partner airlines, and building a list of products and travel experiences that people can also buy with points. Tasks might include hiring a person to manage the product offerings, building a web-based shopping cart, etc.

Now, there is a really good chance that the team will not be able to complete all of this by the time they hit the first camp. That's OK. These are stretch goals. We recommend including a percentage chance of success next to each objective and key result. Building that list of products and travel experiences requires, perhaps, more time than three months, particularly when partnerships with outside companies need to be established. Is there a 50% chance of completion? Poll the team for the right numbers.

If every OKR has a 100% chance of completion, the team has most likely aimed too low.

Follow Up

Every A3 is different, but all require frequent status checks and problem solving. If we leave the high energy of an A3 team without a schedule of regular team and subteam PDCAs, we almost guarantee failure.



Why does it take so long to launch a product?

We lack confidence in customer desires. Why do we lack confidence?

Eight out of 10 products are failures.

Why?

The answers to this will probably require more free listing, more grouping of answers to find the biggest issues.

We recommend that PDCAs are scheduled weekly or, at most, every 15 days. Wait too long before checking on the progress of those OKRs and there is a good chance that they will be dropped or snarled in unforeseen problems.

When all the OKRs are considered complete and running smoothly, the PDCAs might be spaced a little further apart. But the work still needs to be supported, and team members still have much to learn from implementing new programs and processes into an organization.

A final note. In our experience, there have been A3 teams that choose solutions that are somewhat shallow, that do not stretch the team far enough to truly address the issue. This might be the result of team members who are distracted, rushing the process, or simply unaccustomed to thinking outside of their niches. We accept this occasional result because of what we get in return: speed.

A3 + design was created to improve speed, to get experiments and solutions into play faster. After refining and then running these teams for the past five years or so, we can say with assurance that the trade-off is in our favor. >>>

8. Hack Your Hoshin

A3 + design is the starting point of this chapter. This method of thinking and working is the beating heart of our version of *hoshin kanri*, but there is a crucial distinction between the two. Nearly any problem can be addressed with A3 + design. However, few problem-solving projects are actually about hoshin.

Hoshin is always about matters of strategic importance. These projects or inquiries are focused on an entire organization or value stream; they involve stakeholders from throughout the process and have teams that have the authority to change fundamental working patterns.

And the A3 owner or executive champion must be capable — and willing — to change strategic direction and gain agreement about new ideas in incentives, training, and job roles. Hoshin is a powerful lever for transformation and must be wielded by a person of influence in the organization.

Every hoshin begins with a critical need, as well as some clarity around the problem at hand. More clarity will be gained during a team's investigation into current conditions, but the team leader and executive champion must be clear on the essential nature and extent of the issue.

To illustrate, we return to Itaú, where the lean digital transformation was spreading from one division to the next in 2018. There was great energy and purpose where transformation was underway. But in the auto division, where loans are written and serviced for a variety of customers, the mood was bleak.

There are a couple of important things to know before we begin. First, Brazilians love cars with an affection that is both genuine and restless. Wealthier people buy new cars every single year. It is expected. Even people of modest means buy and sell cars every few years, always looking for a newer image of themselves rolling down the highway. Also, most people use credit for any significant purchase, paying small sums monthly. This is especially true for cars.

And, yet, buying and selling cars is a complicated, rule-bound process. There are many layers of bureaucracy to get through. Therefore, most auto dealerships organize and assist with every step of the process in order to sell cars. In particular, they direct people and businesses to the lenders they like working with. In this world, dealerships have a great deal of influence. For Itaú's auto lending division to be successful, they needed strong partnerships with car dealers, as well as with consumers, corporations that buy or lease cars for employees, rental car companies, and manufacturers.

The auto financing division at Itaú was doing passably well. It had about 10%–13% of the market share and was stable or growing a

little every year. Itaú's leadership, however, was not satisfied. By 2020, leaders wanted auto financing to have 25% of the market.

Looking at the market and their opportunities, leaders of the auto division did not see how they could get there. Internally, they discussed the possibility of simply liquidating the division. A hoshin session with CI&T's Leandro Angelo felt to some managers like a last-ditch effort to save the business.

Every member of the auto financing team gathered in the summer of 2018, along with Itaú division directors representing car services, wholesale, products for wholesale, and digital solutions for mobile banking. There were 32 people, in all. Going in, we knew that background, current conditions, and gap analysis would take time to pull together, so we scheduled hoshin sessions for one day every week for 10 weeks. The process looked like this:

- _ **Background:** 1 day
- _ **Current conditions:** 2 days
- _ **Gap analysis:** 4 days
- _ **Solutions:** 2 days
- _ **Follow-up planning:** 1 day

From the beginning, these team members challenged themselves to look at the issue broadly. They were not just talking about writing loans for cars. They were talking about people and mobility. People need to get around. And getting around was expensive. Getting car loans was too slow. They could see there were many bottlenecks in their own processes.

Following a five bold steps session, more discussions, heat mapping, and free listing, the team agreed on a big vision: Itaú would be recognized as a purveyor of mobility solutions. Maybe that would mean being the best automotive loan

supplier. But maybe the team would be offering different solutions to mobility problems, too. They wanted to think big.

Thinking big meant running experiments, with MVPs, agile teams, customer experience mapping, and testing new incentives with customers. All of these became the themes surrounding their big vision. They just needed to figure out how to begin.

The current-conditions sessions started with a value-stream map of the process. Team members knew they needed more insight into their disparate customer base. That base included individual consumers, corporate buyers, rental car companies, and car dealers. The team discussed what the customers wanted and what their pains were, and they did a lot of free listing to try to develop insight. In some ways, it was like trying to draw a moving octopus. So the team decided to dive deep into the pains and gains of just two customer types: corporate and consumer. The team divided into two in order to focus on each customer group.

Over the week between sessions, team members gathered reports and surveys. Itaú had paid a lot of money over the years for beautifully presented reports on their customers, but these had rarely been consulted because doing so was not part of anyone's job. Now, the teams mined those reports for all the information they could get and found some important distinctions. About 75% of their loans were retail (to individual consumers); 25% were corporate. Value-stream maps were created for each customer experience.

They mapped customer journeys through the process. Teams did more free listing, discussing the pains customers might be feeling and the value Itaú could bring. People listed the products and services they currently offered that would help. There were many gaps.

For instance, consider an average consumer. Let's say she is a suburban business owner with a five-year-old Toyota. She really wants a newer BMW but is not sure how much she can afford. Should it be last year's model or something newer? To make this decision, she needs to know her available credit and how much the monthly payment would be for a 2019 BMW sedan versus a 2018 model. She — like most consumers today — wants to begin research in the comfort of her own home or office. To meet her needs, the team realized, we needed to offer a search tool that would find the dream car within her budget and answer all her financing questions.

A few years earlier, Itaú had purchased an online seller of cars. It was an underused start-up, but if they could integrate the search function for actual cars with financing, they could answer all the customer's questions. At least, that was the hypothesis. The question remained: Did we really know all of the customer's questions?

Four days of gap analysis over the course of a month made it clear just how little information the teams had in existing reports. They could see from Itaú sampling surveys that 82% of their customers wanted to buy a new car in the next year and that 83% of those people would need credit extended by a lender. And 26% of the bank's revenue was actually brought in by consumer car loans.

But what did those customers want? What were the most important goals to target?

"Our biggest challenge was in finding the information that would enable us to prioritize the gaps. We needed more than feelings. We needed facts," Leandro said.

By this time, a careful reader will recognize at least one important element missing from the teams: customers. Of course, every member of the team was also a customer, as they all had car loans. But insiders will inevitably look at solutions through the lens of their current processes. We needed fresh eyes, and the team recognized this.

As we completed the days of gap analysis, we created a new list of must-haves. First on the list was including customers in our decisions. We needed new ways to collaborate with the end users. Also included in that list of must-haves were visual management, reorganized teams, a new incentive structure — to replace current practices that discouraged collaboration between divisions — and a new digital experience.

Over two days of meetings to discuss solutions, the top three were identified as:

_Developing a methodology to include clients in our work, to hear their needs and build better relationships. This would include consumers, dealers, rental car companies, insurers, and financial credit companies.

_Reorganizing teams to line up with end-user types instead of internal functions.

_Creating autonomy for teams as they search for solutions. Like most banks that are partially driven by compliance, there was a lot of bureaucracy at Itaú around job types and individual scope of responsibility. To be effective and work in short cycles, teams needed decision-making power over their budgets.

When the final version of the solutions was read, the entire team burst into spontaneous applause. Every person rose

from their seats, clapping loudly for this change in direction. They had arrived 10 weeks earlier as a collection of people, each mired in their own problems and concerns. They had been protective of their turf and not very hopeful.

“They proved to themselves that they could see global problems and had the power to change direction,” Leandro said. “They showed they had the nerve.”

The teams wrote their OKRs for the first camp and reorganized to align with customer-centric value streams. The internet-based car sales team moved offices to join the rest of the automotive division, and the team created a knowledge map to understand the skills people had, what they needed, and the gaps.

As the teams moved toward their first camp, they worked with other divisions in the bank to simplify governance rules, allowing teams to have greater control. This was a big change for a company unaccustomed to questioning compliance rules.

They also found a friendly corporate client who was willing to send a few people to work in Itaú teams. This was the first experiment to test the hypothesis that customer participation would make the teams stronger. If it worked well, their target was to have one-quarter of their corporate clients joining auto division teams as needed.

The bigger goal was still to have 25% of the market share by 2020. The difference was that people in the automotive division were reaching eagerly toward that goal, running experiments to see what would work, instead of contemplating failure. >>>

9. Cornerstones

Cultural change requires new thinking, altering the ideas that are at the root of everyone's motivations and behaviors. Think of cornerstones as levers to change those behaviors and thinking.

Agile has served this function for many companies. It changed the way that people worked so profoundly that it also changed the way people thought about work. It permanently changed their habits. This is what makes agile a cornerstone.

On its own, however, agile is not enough. In our own transformation, we discovered that no single cornerstone was enough. Agile changed team behaviors, but we also needed to learn things like focused problem solving (PDCA) and value engineering. And, then, once our teams were behaving differently, we needed to alter the thinking of higher-level managers and leaders, as well.

What we have discovered through the course of several transformations — our own and with our partners — is that everyone first needs clarity around a sense of urgency. We must know where we need to go and why. Only then do we see what levers (cornerstones) we need to pull from the inventory of options.

Therefore, let's begin with a problem — an end-to-end problem that stretches from the customer through design, delivery, management, and leadership. One of the companies we have been working with, for example, is very large and responsible for some of Brazil's critical infrastructure. The company was structured in functional silos with a lot of internally driven rules. Its product had been stable for so long that innovation was not a priority. Delivery on new initiatives typically took twice as long as promised. Meanwhile, the world was changing. The company needed to provide better products and service before some start-up came along and did it instead.

Leadership had tried one thing and another. Many teams were working in agile methods; they used design thinking and had in place a process to validate their decisions with customers. It was clear, however, that the customers were not feeling these changes. The company seemed like its same-old problematic self, and leaders did not know what was holding them back. Their spreadsheets indicated that improvement should have already occurred.

So we gathered 35 of the company's top executives for a hoshin session to find the source of their pain. We led the group through the five bold steps exercise, asking everyone to create a vision, themes, and steps toward that goal. We asked for their highest ideal — the vision that would create 10x improvement. The bold steps canvases went up on the wall. We read them, voted, and did more free listing to come up with this: within 12 months, they wanted to have a reputation for being the most reliable, fastest, and easiest partner for their clients. This is what would make these leaders proud.

Three days after our strategic planning session, we went to see customers, to watch how they interacted with products.

We saw that this company's products were overly complex and had low reliability. About 40% of users had trouble simply logging in. There were 40 items in the software menu, but customers were using just one. There were a lot of frustrated calls to customer service.

Meanwhile, the infrastructure company's own software development team had a backlog of 16 projects. Left to their own devices, the team would need four years to work through the list. Even if we cut the number of projects in half and then in half again, they might finish in one year — not fast enough to meet the company's strategic goal.

It was clear that we needed to dig into the company's internal design and production processes. We created a value-stream map of the current processes, constructed on a meeting room wall in sticky notes, and planned how to overhaul the way they worked.

We wanted to change this company's work processes, management, leadership, and customer expectations. Deadline: 12 months. We had clarity and determination to set out on a new path, but for many it also felt overwhelming. Where to begin?

The strategy we use for organizing and driving large projects is camp by camp (first described in chapter 4). Think of a group preparing to climb Mt. Everest. The climbers create a plan to hike as far as they can to a camp where they can rest and check their equipment before continuing on to the next camp. Focusing on getting to one camp at a time is the key.

So the first thing we do is create our goals for base camp, which is where we want to be three months from now. Each camp includes the cornerstones that are relevant for the work being

done. In the case of the large Brazilian infrastructure company, their cornerstones would be OKRs and value engineering. (See full descriptions later in this chapter.)

Two weeks before we were scheduled to arrive at base camp, the team met to discover actual progress toward the objectives and, based on that, to determine the OKRs and cornerstones for camp one. Camps are not resting places; they are planning centers to prepare for the next climb.

Moving this way allows us to shock the company's culture in regular bursts. We do not want to hit everyone with too big a dose. But we do want to introduce big changes regularly so that change — and learning pieces of the new system — is anticipated and becomes a habit.

A final word on cornerstones: each requires deep mastery of the concepts and practices. Better to be a master of a few than mediocre in all. As your organization needs to teach and apply new cornerstones, find an external coach to assist or — as we often did — learn from the books that are available in nearly every subject.

Here is a list of cornerstones we have developed for our own transformation and our transformation practice (or hoshin work, as we often call it). We have grouped them in three categories.

Lean Design & Delivery

Stable Teams

A team is no more than a collection of individuals until they develop a working rhythm. Many organizations are in the habit of frequently moving people around. But teams should

stay together until they reach productivity, which is defined as the ability to deliver finished work in a timely manner. This is also a leadership discipline, as it sometimes requires working through personality issues. Committing to stable teams means paying attention to personal growth of team members and working through issues that arise.

Scaled Agile

Teams using agile practices are autonomous and fast moving and require frequent customer feedback. When we spread these practices throughout an organization, coordination is critical. This means deeply understanding the needs of agile teams and how they fit into larger objectives.

There are large, complicated schematics out there showing how to scale up agile methods throughout an organization. We did not find these useful. Instead, we have used a lean framework along with design thinking tools throughout CI&T and our partner organizations to manage work in a way that is consistent with the spirit and practices of agile.

Short Cycles

This cornerstone is about embracing rapid experimentation. When we have teams breaking their work into segments and then sprinting toward interim goals, we create the ability to quickly test ideas and encourage innovation. The trick is to resist prescribing a completed product. Let the team experiment with new ideas, guided by customer needs.

When leaders tell a team, “This is what we want you to produce in the next three months,” the excitement and energy of the team will be stymied. Our teams regularly produce fresh ideas

for meeting customer needs in two or three weeks because they are not given lists of specifications and precise timelines. If experiments do not produce hoped-for results, we lose weeks instead of months.

Pull Production/Continuous Flow

A pull production system is one that responds to the customer’s wishes (or pull) instead of internal schedules based on forecasts designed to maximize the use of assets like coders and test equipment. Continuous flow is a system designed to move each piece of work along its path toward completion without delays due to organizational needs.

Put these together and you have a system that works smoothly to meet customer demand instead of guessing at what customers might want next year and then creating the product in batches that build up between functional departments. In software development, the old “push production” meant that we guessed at what products a customer might want, designed the product, built the code for it, and sent it to marketing or sales to push out the door, hoping that it would catch on. When we begin with the customer in mind and then build cross-functional teams to avoid intradepartmental holdups, we are working toward continuous flow.

DevOps

A compound of development and operations, this practice aims to eliminate the old functional wall between software development and operations (deploying that software). Seeing the two as one continuous cycle enables us to eliminate redundancies, pick out the most important — the most customer centric — elements, and automate the rest.

DevOps is what led us to automate software integration and testing in the Azul case study, allowing faster and more confident cycles of development. Quicker software releases meant more customer feedback into the process, which allowed us to better understand what those customers really wanted.

Value Engineering

This is the prioritization of all work tasks based on customer needs. All projects have tasks that will result in creating what the customer really needs and tasks that produce what the customer merely wants. Customers first need, for instance, to redeem frequent-flier points for products as painlessly as possible. Without this, a frequent-flier app is worthless. Redeeming points then is the first order of business for an agile team. It would also be cool to present the customer with bonus points for selecting certain products, such as a special offer for flights that are not heavily booked on certain days. Optional features like this are “wants” that fall further down the development cycle.

Experience Design

This is an investigation of the customer experience with a product. Their experience is the journey they take — from awareness of the product to selection and usage — and how they feel about it along the way. Our job is to understand the job a product is doing for the customer, study how well the product performs, and maximize the good (value) while eliminating the pain points. We do not know what will make our products easier and more valuable until we understand the role the product plays in the customer’s life.

MVP

The concept of minimum viable products — creating the simplest product to meet customer needs first, before adding bells and whistles — is easy enough to understand. But its true power is realized only when MVP is employed in an environment of short cycles, rapid learning, and PDCA to solve problems. MVP is not an end goal; it is an important concept in the process of building, measuring, and learning.

Lean Management System

If processes change is to be sustained, management must change as well. This is a cardinal rule that is often overlooked. Remember that leading radically different teams — autonomous, customer focused, and dynamic — requires a new skill set for managers that must be taught.

We have grouped some cornerstones under the “lean management system” pillar to guide organizations as they begin training managers for a lean digital world.

Visual Management

We cannot manage or change what we cannot see. This is the central truth behind visual management. If a process attribute such as productivity, cycle time, or error rate is important enough to measure, it should be displayed for all to see. The same goes for work-in-progress. Just as our agile teams display the pieces of work (stories and tasks) in categories — to be done, in process, finished — organizations should post work of any type to allow everyone to see progress and problems.

Transparency has become a popular watchword. Visual management can be thought of as internal transparency. By being honest



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and open about how work is done, we can make strides toward removing shame and secrecy and promote problem solving.

PDCA

Plan-do-check-act is a well-known problem-solving sequence. More importantly, it is a management tool. When we teach others how to work through problems using a scientific method, we give them the tools to find and solve their own problems. We recommend using the same PDCA form throughout the company to ensure common understanding. Make sure the PDCA has columns for due dates and to show who is responsible for completing items.

Teaching PDCA is not a one-off task. Anyone in management should expect to coach PDCA multiple times. Sometimes we are introducing the concepts fresh or reminding a person how to work through a certain step. Sometimes we coach to underscore the importance of the discipline and to create clear expectations of how a person should work through a problem.

Production Metrics

We use production metrics to help us see where we are heading as well as where we have been. Metrics that we include under this category help us predict user interaction outcomes and business outcomes, such as number of items waiting for user acceptance (this should be kept low to avoid stocking), number of defects, productivity, etc.

Objectives and Key Results: OKRs

Objectives are clearly defined goals. Key results are measurable benchmarks toward achieving those goals. OKRs were

used at Intel in the 1970s and popularized at Google, where cofounder Larry Page said, “OKRs have helped lead us to 10x growth, many times over.”¹

Objectives are the big goals, the moon shot, of any project and should be limited in number. Three objectives are the norm in our work. Key results are signals we choose to help us determine whether the objectives are on track. If our objective is to run a marathon, attending regular training sessions and showing greater endurance over time would be key results. If training is not accomplished, it is unlikely the marathon can be run.

Lean Leadership Development

Companies that have attempted systemic transformation are accustomed to making bold changes in frontline work processes and management. That’s where the problems are, right? So leaders hire consultants who produce reports about how the front line needs to follow some new rules about how work is delivered. This rarely transforms anything much.

To create and sustain change, leaders must think in two other dimensions: leadership and management. We need to transform ourselves from authoritarian leaders into teachers and coaches who enable good work. And then we need to be prepared to ride the wave of change because transformation does not end. It evolves as our needs evolve.

1. Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs, by John Doerr (Penguin Publishing: 2018).

Go-see @ Gemba

Becoming a coach and teacher begins with the simple idea that you do not know everything (or even, probably, much of anything). And there is no other way to learn what you do



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not know than by going to where value is being produced in your organization, watching how it is done, and asking respectful questions.

This is a discipline that is difficult for anyone who is used to having the answers and telling people what to do. Many of us require the presence of a coach at first, or a colleague who can help keep some of our instincts in check. Leaders who become comfortable learning at gemba must then coach others to do the same.

Once we learn to truly see the work, our fundamental ideas about how to collect information — and about the source of good information — will change forever. This is the groundwork for being able to accurately assess current conditions.

A3/Hoshin Kanri

Chapter 7 explains how we work through A3 in a group setting. But we also use A3 as individuals to solve more focused problems. The A3 guides us to solve problems using the scientific method, and that is its power.

In a lean digital environment, an A3 is one of the most commonly used tools. It is one of the first stepping-stones most people encounter on their lean journey, and organizations must be prepared to teach and coach everyone in its use.

Shuhari/Learn by Doing

Shuhari, or Shu Ha Ri, is a three-part learning cycle borrowed from the martial art aikido. In the first stage, Shu, a person learns a discipline precisely, following prescribed rules. In Ha, students explore the underlying principles of the rules and

learn to make adjustments. Ri is when students take what they have learned of the discipline and creatively construct new practices to serve their needs.

The shuhari practice can be observed in our use of A3 in hoshin. In the beginning, we applied ourselves to learning and following the A3 rules as established in the Toyota Production System. Then we looked at each section of the A3 and asked, how can we better achieve our objectives? Finally, we experimented with design thinking tools to construct new practices. Our experience of precisely following the rules of the TPS A3 in the beginning meant we really understood the purpose of each part of the A3 and could improve our practice.

Now, when we coach colleagues who are new to a practice, we first teach the principles of shuhari so that they understand why we begin with a disciplined approach. >>>

IV. NEXT STEPS:

OURS & YOURS

Next Steps: Ours & Yours

The beating heart of lean digital is experimentation. At CI&T, we never stop pushing ourselves to think about leadership, management, and work processes in new ways and trying out new ideas. This section is all about those frontiers.

In “Adhocracy,” we invite you to check out our newest experiment into the work processes of leadership. It is neither complete nor perfect, but it is shaking up our ideas about work and the ways that we organize ourselves to lead. >>>

10. Adhocracy

Sometimes, we need to look closely at other organizations in order to see our own. Think for a moment about some issue at the executive level in your company. Chances are what springs to mind as the root of the problem are personalities clashing or territorialism — all the stuff that gets under your skin. But are those annoyances really the issue?

Working with executive teams in other companies, we began seeing the bigger picture. Instead of personalities, we saw snarled lines of communication and responsibility. The company's power structure, in fact, was often the source of problems.¹

And we were not different. Those other leadership teams helped us put a name to the root cause of our own high-level trouble: hierarchy and bureaucracy. Our executives spent so much time in bureaucratic activities caused by our hierarchy that they grew isolated from our customers. Non-value added activities kept them from the front line of value and made everyone feel overworked.

1. Rule no. 1 in a lean culture is that the root cause of a problem is almost always in the process, not the people.

A hierarchy — where all decisions belong to the highest person on the organizational chart — is the antithesis of a lean organization. But it is how companies seem to naturally organize.

Every time we investigated the cause of slowdowns and roadblocks in companies that needed to respond faster to opportunities, a big cause was their power structure. Functions were arranged in fortified silos. Put vice presidents of operations, marketing, and HR in the same room and we could not always tell they were working for the same company. In many ways, they were not. Each was working to protect and further the objectives of their own silo. This made decision-making both aggravating and slow.

As CI&T grew, we too were constantly creating new directives and structures to deal with the fact that we had more people. It was classic bureaucracy: always expanding, creating new and more complex rules.

A bureaucracy is not entirely bad, of course. When you need control and clear decision pathways, a bureaucracy is useful. And it was certainly a better management system than what it replaced in the eighteenth century, which was the ironclad whim of a nobleman or boss. At least in a bureaucracy, decision-making resides in a professional position instead of a person. But this system is notoriously slow and encourages people to be risk averse. There is little incentive to move quickly or think creatively.

A company that is focused on lean thinking will naturally move away from bureaucratic structures into something more organic. Teams form to solve problems across functional areas and then dissolve and reform with new members to address the next issue. This is the ideal.

We found, however, that it is not enough to hope that a new power structure and culture will develop around cross-functional problem solving. We needed to move much faster and more intentionally than that.

And then, early in 2018, we found ourselves in a crisis of success. At the time, each of the 30 executive managers in our Latin American operations was assigned to a customer contract and often had more than one. The executive performed strategic sessions with the clients, coordinated production of our digital products for the client, and helped guide them toward new projects. But many executives complained that their workdays were overbooked with meetings and phone calls on internal issues. They had no time for personal development or the kind of creative work that elevated them to executives in the first place: envisioning and developing new product offerings.

In many ways, this time crunch was a natural consequence of our structure. Talented software designers and developers could become scrum masters. Adept scrum masters could then become a project manager, taking on oversight of a few scrum teams, as well as interfacing with customers, and booking new work. Next step on the ladder is becoming a senior project manager, which oversees a few project managers and develops new business opportunities. Executives had oversight of their direct reports and a client or clients and were supposed to envision and develop new products.

Each step up the ladder meant responsibility for more people, more of our infrastructure, as well as taking on new jobs.

We had more work than our executives could handle when we entered into negotiations with a major insurer to take on a large project. We wanted to take the work but were also pretty sure that none of our executives had the capacity to lead this new contract.

We've been in situations like this before, with more opportunity than capacity. We end up in long, contentious meet-

ings where people argue about the value of their projects and how little time they spend with family. In the end there is blood on the floor and scarred relationships. We did not have time to hire and train new executives; we needed to find more efficient and flexible methods for leading customer accounts.

So we explored other leadership models that would complement lean thinking and immediately appreciated the flexibility of the adhocracy. A word coined by the American futurists and authors Alvin Toffler and Heidi Toffler in 1970, adhocracy described how people would organize themselves in the face of fast-moving technologies.²

In a theoretical adhocracy, small groups of people work together in squads to meet opportunities. Opportunities can be customer work or a self-generated project, such as re-branding or exploring a new market. Squad members can be from throughout the organization or from the same area with different levels of seniority; what is important is that members have something to contribute and a real interest in the work being performed. Decision-making authority lies within the squad and with the person considered to have both technical expertise and conviction.

In CI&T's adhocracy — formed in early 2018 — all executives were now formed into squads of between two and five people to share the work of meeting the customer's needs. This would give each client a number of executives to connect with. Clients benefit from more points of view, while our executives had more freedom to move between different relationships and types of work.

In the old model, we had four levels of executives. The top two levels — including the CEO, COO, and executive VPs —

2. The inspiration for our version of adhocracy can be found in the book *Fast/Forward: Make Your Company Fit for the Future* by Julian Birkinshaw and Jonas Ridderstråle (Stanford University Press, Riverdale, CA: 2017).

were managing the lower two levels of executives, including those 30 executive managers. The two lower levels spent a lot of time explaining what they were doing to their bosses.

In the new model, all the executives were doing direct client work. The c-suite executives, five VPs, 15 directors, and 30 executive managers were formed into 12 autonomous squads of three to five executives each. So executive managers had more clients, but in the shared-work model, they had a lot less reporting and explaining to do.

Pivotal concepts, for us, were that people should be able to follow their passions in choosing their customers and that emotional conviction would be a better guide than a spreadsheet full of facts.

The idea that emotional conviction should be the guide might sound a little scary at first, as if we are going to turn over important decisions to the loudest voice in the room. That is not the case. Adhocracy is not anarchy. Instead, we are telling our people quite clearly that we do not want to be paralyzed by overanalysis. We knew our people were smart and took their reputations seriously. We trusted them to bring their best knowledge to the team and then to take risks.

We created clear rules and a structure governing these squads. Each one of the 30 executives in our Brazilian operations, for instance, belonged to two or three squads, each of which was dedicated to an opportunity — a client or other project. Executives asked to join squads or were recruited into squads based on their interest in the type of work being done, their expertise in the client's field, or just because they worked well with other members of the team.

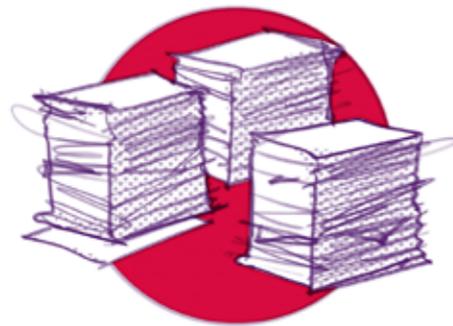
We also looked closely at the internally driven tasks performed by each executive, such as performance reviews for direct reports and financial reporting, and moved some to other functions or reconfigured the way they were done.

When new clients required a lot of attention and creative thought, or when a long-term client needed a fresh point of view from our executives, we conducted a rebalancing of executives among the squads. In our original model, this kind of executive reshuffling would have been called a reorganization. A reorganization would take about six months to negotiate and execute, and it was awful. Worse, it could happen twice a year. By the time one reorganization was complete, a new one would enter the planning phase.

The biggest pain was for Cesar. As CEO, he was the ultimate authority and had a lot of uncomfortable discussions with people who were nervously gauging their worth to the company by where they ended up on the organizational chart.

"It is terrible to have that power over people," Cesar says. "When people are fighting for power, either implicitly or explicitly, it is a painful discussion. I much prefer people talking about their emotional connection to the work, to be angling for a particular position because they are really interested, not to get a better title or rank."

As opposed to a reorganization, a rebalancing took about one or two weeks to redraw squads and put people in place. Our talks during those rebalancings did not revolve around the org chart or the power map. We talked about the personal connection people felt toward various opportunities. We spoke of directions in which people wanted to grow. So far, Cesar has initiated each rebalancing — and we had five of

**HIERARCHY****BUREAUCRACY****ADHOCRACY**

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them in the first eight months of our adhocracy — but in the future we expect that others will take the initiative to call for a rebalancing and complete the process.

In addition to rebalancing, we have established four pillars to support our adhocracy: personal development reviews, pushed performance reviews, guilds, and opportunity-driven PDCA's.

Those first two items are intended to provide feedback, both formal and informal, to people in these high-pressure roles. The first review is one an executive can ask for at any time and is intended to help people receive steady feedback and assistance as they move between roles and squads. The second review is the more formal annual personnel review.

Guilds are another kind of support system. These are collections of people with a common interest such as machine learning or advanced analytics. Guilds are usually made up of people across many squads who message each other often on our in-house system and meet regularly in order to explore their subject more deeply. This not only supports team learning but also ensures that a subject of existential importance to our company is not trapped in a single silo or team.

Finally, the opportunity-driven PDCA column recognizes the fact that PDCA problem solving is our fundamental guide when doing work inside squads. Whether a squad is trying to set a new strategic course for a customer's digital initiative or deciding how to present CI&T offerings to a European market, scientific problem solving is our bedrock for decision-making.

With these supports in place, adhocracy has been popular within the fast-growing ranks of executives. (As of January 2019, we had 52 executives and 2,000 employees worldwide).

But it has perhaps been most popular with Mauro Oliveira, vice president for our Latin American operations.

In our old model, Mauro was the ranking executive known to every Latin American client as the CI&T point person. Thirty companies considered him the person to call for complex questions or if something went wrong. Most clients had good relationships with the executive assigned to their account, but they still wanted Mauro's attention.

In addition, Mauro was responsible for tracking and reporting revenue, gross margin, and budgets with monthly forecasting. Eight directors reported to him, and each of them mentored and managed two or three junior executives. Mauro was both removed from the work and expected to be intimately knowledgeable in all the details.

In the adhocracy model, Mauro belongs to one or two squads and is able to take deep dives into those client transformations. In addition, he is an advisor to our internal branding squad. Writing those forecasting and revenue reports was reassigned to the controller's office, and while Mauro is still recognized as a vice president, he does not have directors reporting to him. Instead of being a chief bureaucrat, report writer, and point person, Mauro belongs to squads that rely on collective intelligence. Including his.

"I like the fact that now it's clear that no one will ever know everything or will outsmart a group of people focused on the problem at hand," Mauro says. "We are fully embracing the collective intelligence and empowering people to truly connect to our customers' challenges."

Most striking is the emotional connection we have been seeing people develop toward the clients and their work. People

have very different attitudes when they actively chose to work on a squad or were recruited onto it in recognition of their talents and desires.

Of course, there are still issues that require high-level decision-making. We might need new people brought in with specific talents; we might foresee less business being generated in certain areas. To address these issues, Mauro and Cesar and other top executives have regular PDCA-driven status meetings to discuss needs and opportunities. These meetings are aligned with our hoshin cycles throughout the year and focus on how we will adapt to changing environments.

“When you look at how we were doing things before, you can see that we were promoting executives into their positions based on the value they were bringing to customers, and then we gave them too much other work. They were being promoted right out of their value proposition,” Cesar says. “Now we have optimized how and where executives spend their time, and the biggest benefit that I have seen is speed.”

Adhocracy might spread to other areas of our business. A team in HR was experimenting with the form in early 2019. But we were not rushing to create adhocracies everywhere. Just because it works in one area does not mean everyone should follow suit.

The finance and legal departments, for instance, are the safety belts of our organization. They make sure that we meet payroll every month and that we comply with our contracts and international laws. We were not sure we wanted to encourage compliance officers and accountants to take bold, entrepreneurial steps. These areas remained working in the bureaucracy model, where the person who is recognized as the authority retains decision-making control.

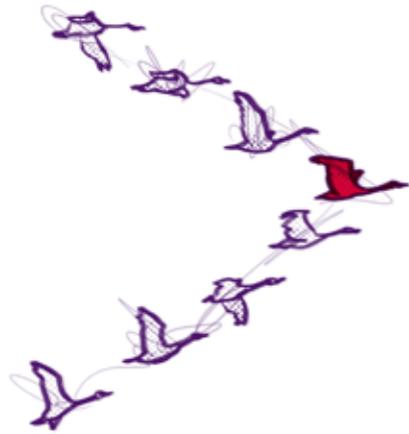
And in the production area, where coders and engineers work in agile teams to build digital experiences, a meritocracy is in place. In this model, team leaders — aka scrum masters — are expected to actively seek the opinions and input of their highly skilled teammates. If someone has a good idea, or an argument that makes better sense than the senior team member’s concept, that better idea is expected hold sway. There is a formal reporting system — from team members to scrum masters to project managers to senior managers — because many of the employees in this area are new. But titles are less important than the knowledge and ideas that everyone brings to the table. The blend of bureaucracy and meritocracy works well in this environment.

Design Principles for Adhocracy

In early 2019, we could see that we still needed better linkage between sections running in a bureaucracy and those in a meritocracy or adhocracy. Our goal was never to create new types of silos based on governance, so good communication across working styles is critical.

The most important aspect of our company is not how we are organized but how we bring value to the customer. Adhocracy has helped us remain flexible in the area we need it most: our direct customer relationships.

DESIGN PRINCIPLES FOR ADHOCRACY



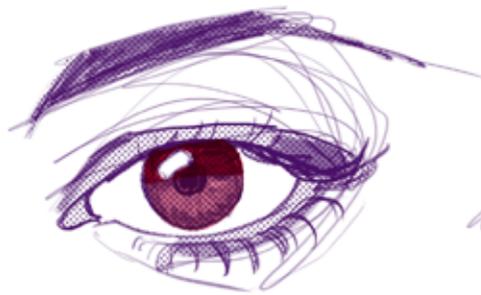
1. ORGANIZE AROUND
AN OPPORTUNITY



2. OPPORTUNITIES
ARE TRANSIENT



3. SPEED IS
ESSENTIAL



4. ACTIVITIES ARE
TRANSPARENT



5. MANAGEMENT IS
A LIGHT TOUCH



6. GOVERNANCE IS
FLEXIBLE

In early 2019, we could see that we still needed better linkage between sections running in a bureaucracy and those in a meritocracy or adhocracy. Our goal was never to create new types of silos based on governance, so good communication across working styles is critical. The most important aspect of our company is not how we are organized but how we bring value to the customer. Adhocracy has helped us remain flexible in the area we need it most: our direct customer relationships.

APPENDIX

Glossary of Key Terms

A3. This is the scientific method for problem solving carried out on a single sheet of A3-size paper, where people define the problem, the current condition and the target state, analyse the issues, identify root cause, propose countermeasures, and describe the results of implementation.

agile. To move quickly and easily. Also, a form of project management that took root in software companies. Agile was born out of a meeting of 17 software developers in Utah in 2001 who subsequently wrote The Manifesto for Agile Software Development, calling for close collaboration with customers, iterative development of products, and flexibility in responding to change.

continuous flow. A system designed to move each piece of work along its path toward completion without unnecessary stoppage.

design thinking. A collaborative approach to innovation and new product development created by the global design company, IDEO. Design thinking emphasizes brainstorming, quick iterations, experimentation, and short deadlines.

DevOps. A term combining software development (Dev) with IT operations (Op), DevOps is a set of practices intended to eliminate the old functional wall between software development and operations. Seeing the two as one continuous cycle enables us to pick out the most important — the most customer centric — elements of building and deploying software and automate the rest.

experience design. An investigation of the customer experience with a product. Their experience is the journey they take — from awareness of the product, to selection and usage — and how they feel about it along the way.

free listing. A technique commonly used in design thinking to gather data by asking people to list every item they can think of related to the question or subject. Often this is done with sticky notes on a white board.

gemba. The place where value is created.

hoshin kanri. A process to help leaders focus their strategy development and deployment efforts. Developed in a few major Japanese companies during the quality movement of the 1950s, hoshin planning is used to select the critical few measures on which to spend an organization's energy.

KPI. Key performance indicators. KPIs measure performance of a process. KPIs look in the rearview mirror while OKRs are goals and signals about whether the work is on track to meet those goals.

MVP. In software development, the minimum viable product has just enough features to satisfy early users and is intended to collect feedback for future development.

OKR. Objectives and key results. OKRs are for the moon shots, the big goals, and memorialize the team's agreement on how to measure progress toward those goals.

PDCA. Plan, do, check, act is the problem-solving cycle used in a continuous improvement environment. Popularized by W. Edwards Deming in the 1950s, and then as a key concept of the Toyota Production System, PDCA is an expression of the continuous, cyclical nature of identifying problems, studying the environment, proposing countermeasures, and measuring impact.

pull production. A system that responds to the customer's wishes (or pull) to begin producing instead of reacting to internal orders.

scaled agile. To spread the concepts and work patterns of agile from a software development team throughout an organization.

stable teams. A team reaches stability when it is productive, meaning that it can consistently produce good work at the expected rate.

stories. A short description of a software feature from the point-of-view of the end user. An example might be: ability to search for available camping spots in California parks.

tasks. A breakdown of the work involved to complete a story.

value engineering. The prioritization of all work based on customer needs. The team works in collaboration with a customer to list stories — or software features — in the order of their importance or value. The highest-value features are then completed first.

waterfall. In this style of project management, each step of the product development process was completed before the next step began. Analysis was first, then specification of requirements, design, implementation, testing, and launch. This was a slow, methodical approach.

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