Lean IT Summit

The New Frontier of Lean:

The Digital Lean Enterprise

Watch the video
https://youtu.be/gsmw9CldJwY

Lean IT Summit 14 & 15 March 2017

Lean Principles are essential for Digital Transformation

Lean for Digital

Digital for Lean

Digital Capabilities are essential for the modern Lean Enterprise

 https://youtu.be/gsmw9CldJwY

Part One

- How do you separate Digitization and Big Data **HYPE** from reality?
- How do you determine what digitization and big data capabilities may be worth **your** investigation and experimentation?

Part Two

- **Three Lean value-enablers** essential for the Digital Lean Enterprise

May 25, 1961
President John F. Kennedy

"We choose to go to the moon in this decade, and do the other things, not because they are easy, but because they are hard."

July 20, 1969
Neil Armstrong sets foot on the moon

Elapsed time: 8 years 1 month 25 days

Existential threat: Cold War, Nuclear Arms Race, Space Race

How did we get there?

“User stories” included:

- ✓ Leave earth’s atmosphere and reenter safely
- ✓ Keep humans alive in space
- ✓ Launch a large payload
- ✓ Extravehicular activity (spacewalk)
- ✓ Dock two space vehicles
- ✓ Leave earth orbit and travel to moon
- ✓ Separate lunar lander, land on moon, and launch again
- ✓ Conduct hundreds of experiments on moon

In less than ten years:

- ✓ Develop scientific and industrial community and infrastructure
- ✓ Invent, develop, test and deploy countless new technologies
- ✓ Deliver high reliability capabilities under extremely challenging, completely new conditions

 https://youtu.be/gsmw9CldJwY

The Digitization Moonshot

- Existential threat to many industries and organizations
- Rapidly emerging and unpredictable technologies
- New industries and partnerships
- New economic and social structures

Risk

"about 50 percent of the S&P 500 will be replaced over the next 10 years; too many companies lack a coherent vision of the future."

Clayton Christensen and colleagues at Innosight

Reward

Digital [masters] outperform their peers: "26% more profitable than their average industry competitors, generating 9% more revenue with existing physical capacity."

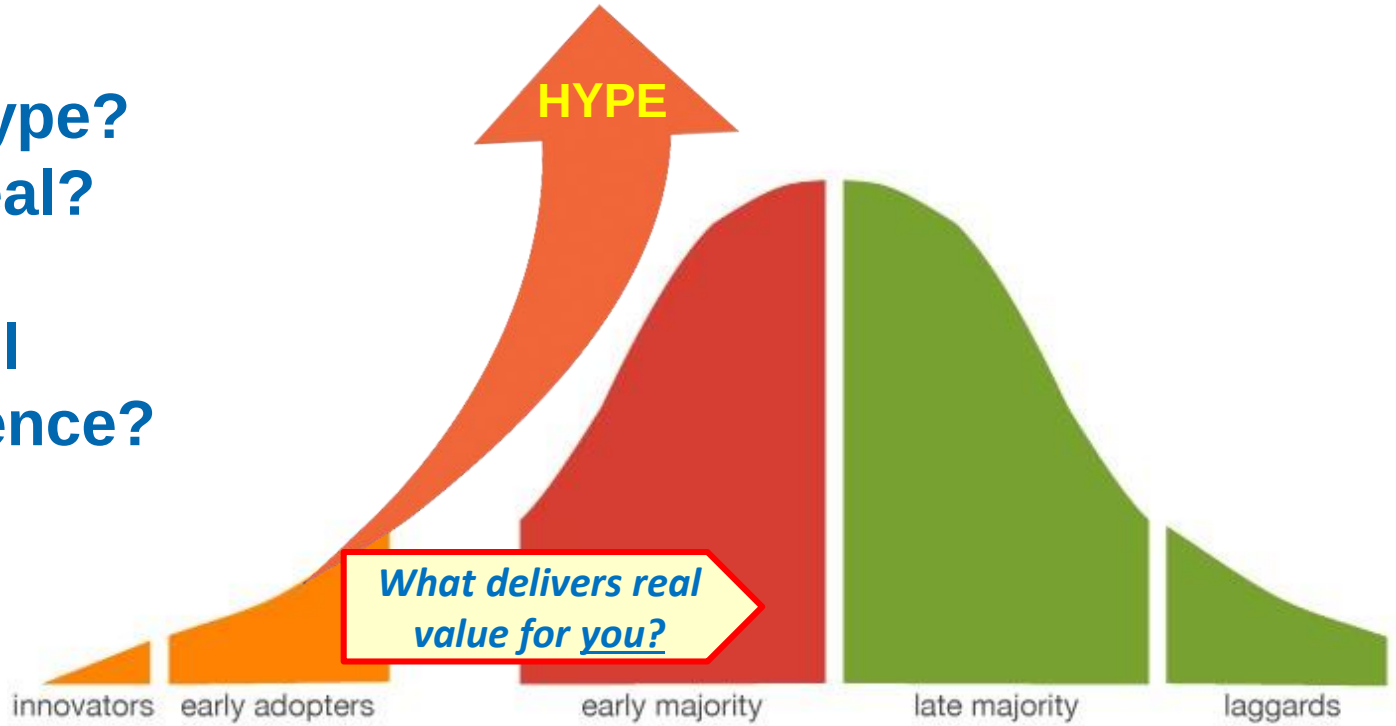
Leading Digital, MIT Center for Digital Business

 https://youtu.be/gsmw9CldJwY

The Digitization and Big Data Chasm

What is hype?
What is real?

How to tell
the difference?



What is “Digitization”?

An Adaptive Learning Human/Digital Ecosystem

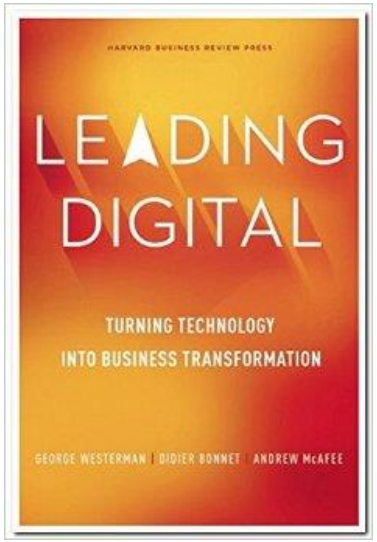
https://youtu.be/gsmw9CldJwY

Source: Steve Bell, The Digital Lean Enterprise

Digital Masters focus on making their businesses different through technology, not on technologies themselves.

You can differentiate your company through three broad categories of digital capability:

1. Customer experience
2. Operational processes
3. Business models



MIT Center for Digital Business

To understand what ‘digitization’ means to your business, let’s consider five dimensions

1. Adoption by industry sector
2. Adoption by technology
3. Application of a specific technology to a particular problem or opportunity
4. How application of a specific technology may vary by industry, and by customer or worker engagement
5. How convergence of digital technologies creates an infinite variety of potential applications

 https://youtu.be/gsmw9CldJwY

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Dimension 1:

Digitization Adoption by Industry

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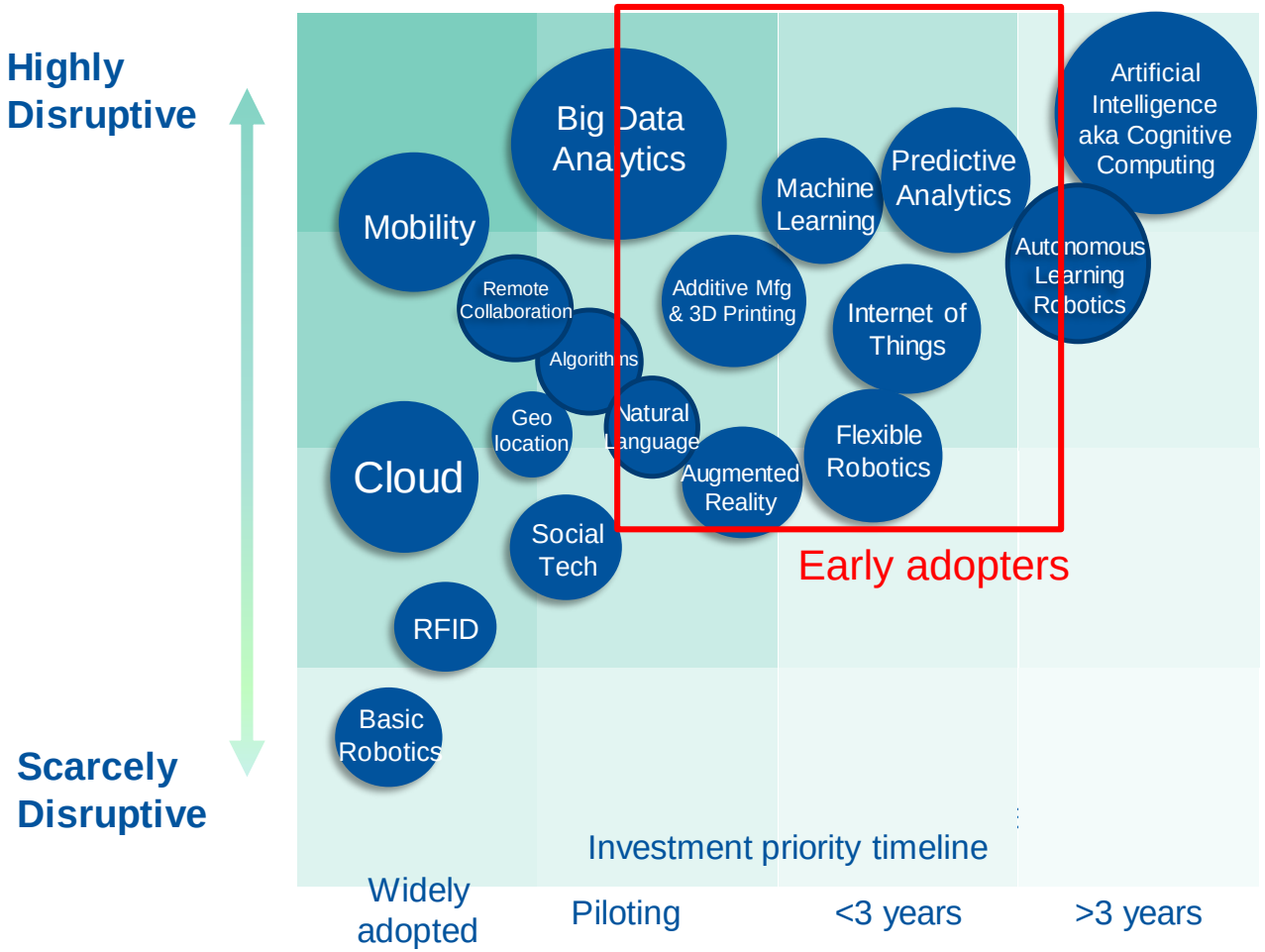
Dimension 2:

Digital Technology Adoption



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Dimension 3:

Applications of Digitization

Customer engagement, interaction, experience, and listening

Workforce enablement: collaboration, knowledge management, learning, interactive standard work

Product and Service digitization: technology as a product, technology embedded into physical products, enhancing the experience of using them, and providing customer service for them

Business process improvement, supply chain optimization automation, algorithms, artificial intelligence

Managing complexity: self-service configuration, algorithms, pattern recognition, geolocation mapping, natural language, machine learning, artificial intelligence, cognitive computing, and more . . .

Big (and Small) Data Analytics: problem solving, experimentation, modeling and simulations, decision support

 https://youtu.be/gsmw9CldJwY

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Dimension 4:

Application by Industry, & by Customer and Worker involvement

	Mobile Customer Experience	Mobile Worker Enablement
Consumer Financial Services	Transactional apps, predictive account inquiry, priority alerts, preference based notifications	Algorithms, automation, system status notifications, compliance alerts
Retail	Proximity marketing, Omnichannel experience, in-store comparisons and research, augmented reality design/choice	Real time analytics to drive design, purchasing and promotions, customer service chat
Manufacturing	Home appliance remote diagnosis, auto safety and security	Preventive maintenance alerts, team collaboration, geolocation, video standard work

 https://youtu.be/gsmw9CldJwY

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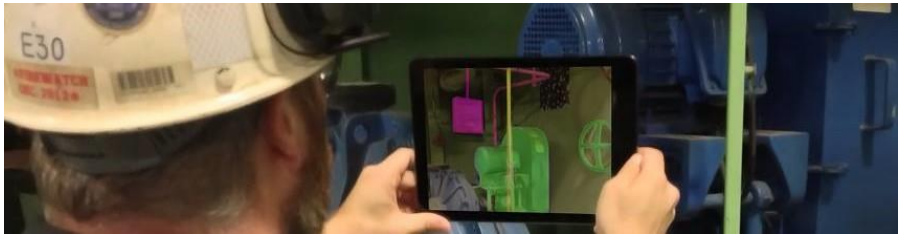
Dimension 5:

Digital Convergence

This is Convergence . . .

Internet of Things
+
Automated Alerts
+
Mobility
+
Augmented Reality
engineering overlay
=
Interactive, data-driven diagnostics, preventative maintenance and continuous improvement



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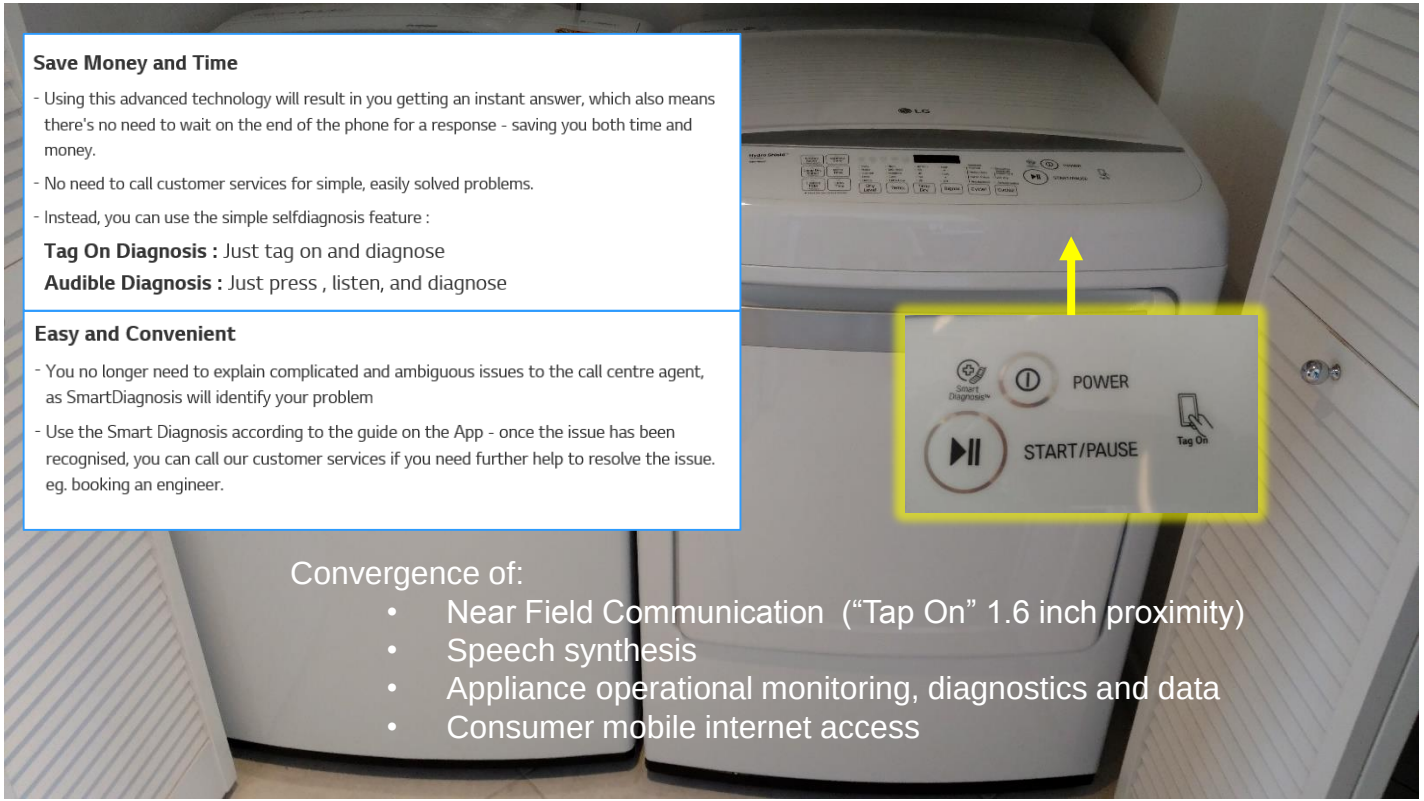
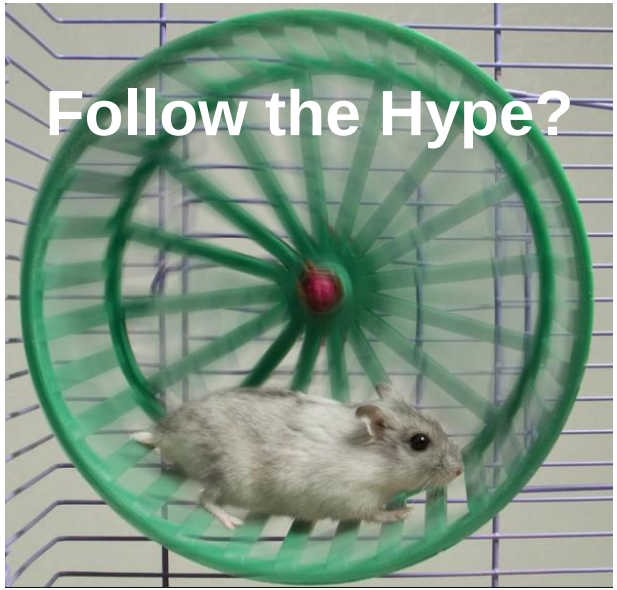
Our Customer Convergence Experience

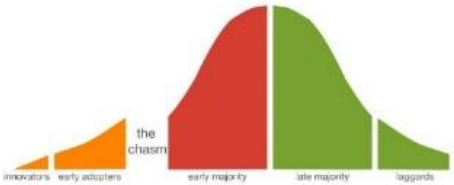


Digital convergence will continue to accelerate



Or pursue the value?

How to Cross the Digital Chasm



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New, "sexy" technologies aren't enough. Operational excellence is also necessary to bring new products and services to market quickly and efficiently.

McKinsey Global Institute

What really sets the leaders apart is the degree to which they put digital tools in the hands of their employees to ramp up productivity.

Gartner

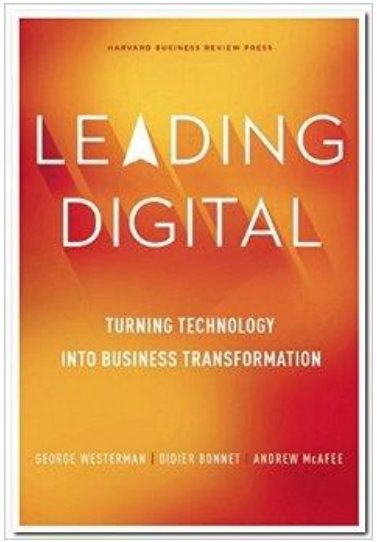
Organizations are moving from vague notions of data and analytics to specific business problems that data can address. Big Data success depends on a holistic strategy around business outcomes, skilled personnel, data and infrastructure.

Part Two

Three Lean value enablers essential for the Digital Lean Enterprise

You can differentiate your company through three broad categories of digital capability:

1. Customer experience
2. Operational processes
3. Business models



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Value Enablers of the Digital Lean Enterprise

Purpose

Customer

Value

Experience

Engagement

Process

Flow

Development

and Operations

Products & Services

People

Problem Solving

Data

Context

Strategic Alignment

Business & Operating Models

The boundaries between physical and digital, products, services, channels, and experiences are blurring . . .

Emerging digital convergences, business and operating models are seemingly limitless – large enterprises must learn to think and act like Lean Startups

- Physical products and services often include an increasing amount of digital value, to the point where the original market may be disrupted *(e.g. Media, Tax preparation, Automobiles)*
- Digital services may spinoff or integrate with physical products *(e.g. Google Nest, Amazon Echo)*
- Omnichannel: Physical and digital channels that blend into a seamless customer experience *(e.g. retail, consumer banking)*
- Products and services that gather usage data to continuously innovate and create more value *(e.g. Google Maps, Tesla)*

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Lean is a system for adaptive learning

Lean Management Systems and Behaviors

Lean Startup

- ✓ Innovate in conditions of significant uncertainty
- ✓ Experiment to validate the Value Hypothesis before pursing the Growth Hypothesis
- ✓ Quickly pivot when needed

Pursue the Growth Hypothesis

Lean Product, Software and Process Development

- ✓ Rapid, iterative improvement and innovation of physical and virtual products and services, and the processes that support and deliver them
- ✓ Agile, Scrum, Kanban, DevOps, Continuous Delivery, and Agile at scale are all derived from Lean principles

Lean Operational Excellence

- ✓ Continuously improve speed, quality, cost, customer experience and satisfaction, employee engagement
- ✓ Leverage your strengths, address your weaknesses

 https://youtu.be/gsmw9CldJwY

Purpose

Customer

Value

Experience

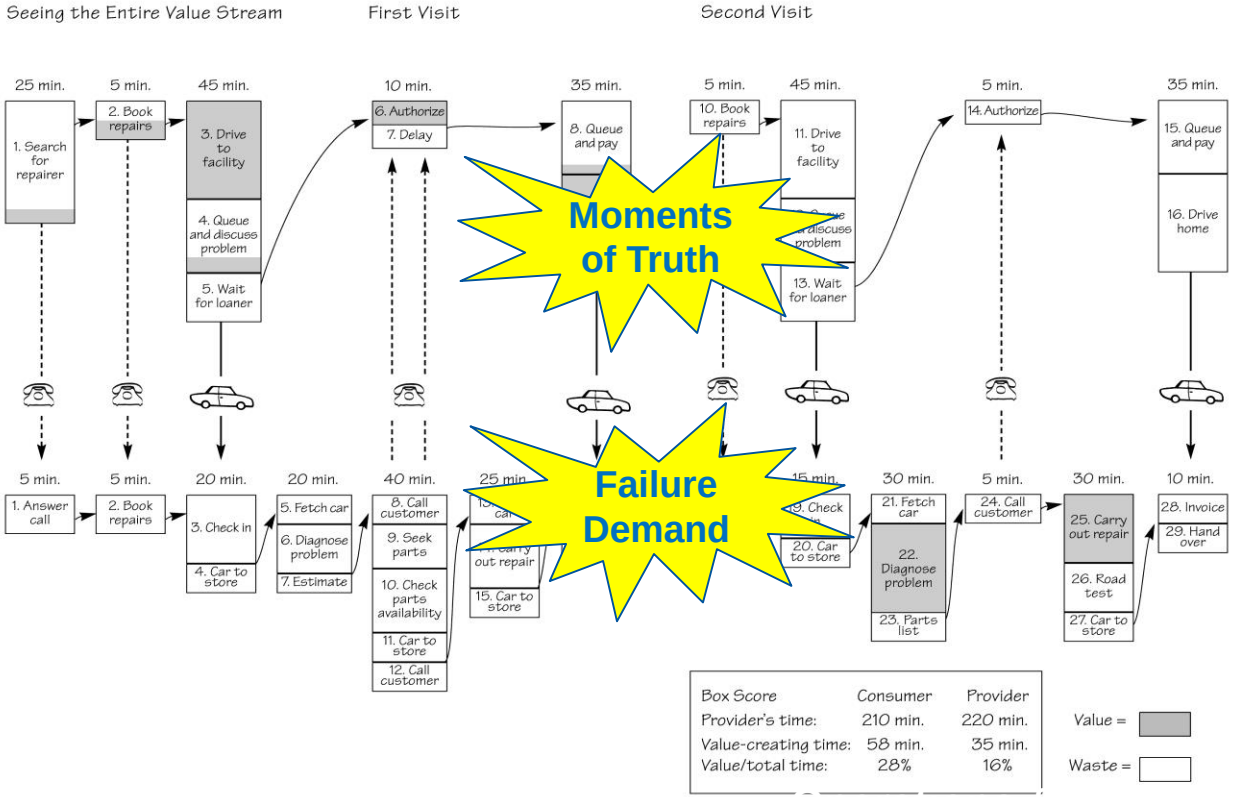
Engagement

How to understand “Customer Experience”

Customer
Value
Experience
Engagement

Customer Experience

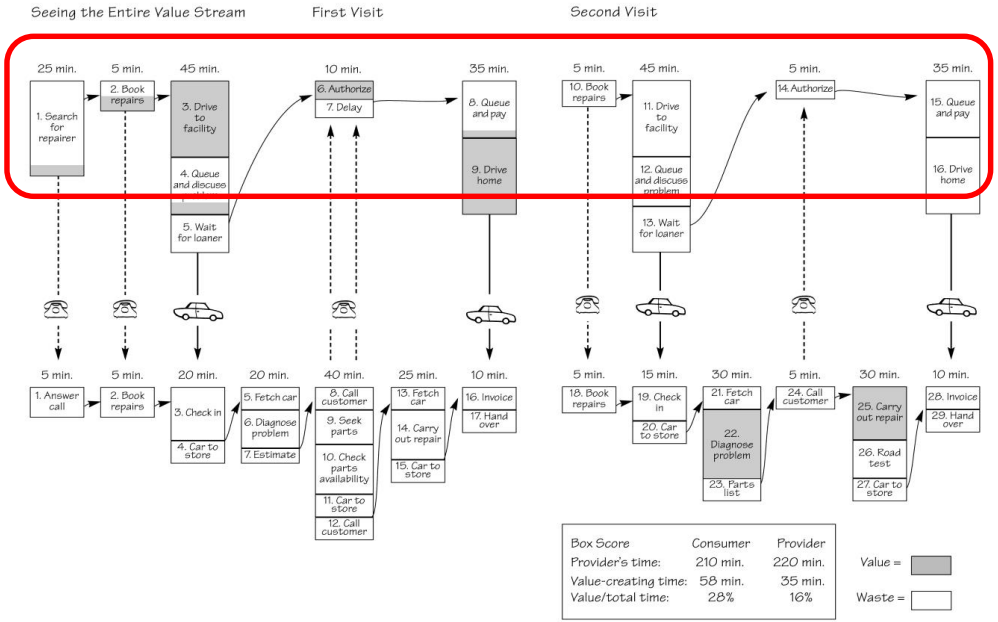
Provider Experience



Source: Womack and Jones, Lean Solutions: How Companies and Customers Can Create Value and Wealth Together

“Virtual Gemba” to measure Customer Experience, Engagement and Subjective Value

Customer
Value
Experience
Engagement



Gather customer experience data:

- Time
- Incorrect diagnoses
- Rework cycles
- Number of phone calls
- Number of interactions
- Number of return visits
- Auto usage and performance onboard data and diagnostics
- Loyalty
  - New purchases
  - Net Promoter Score
  - Social media ratings

✓ **Detect patterns and trends**

✓ **Conduct experiments (PDCA)**

Process

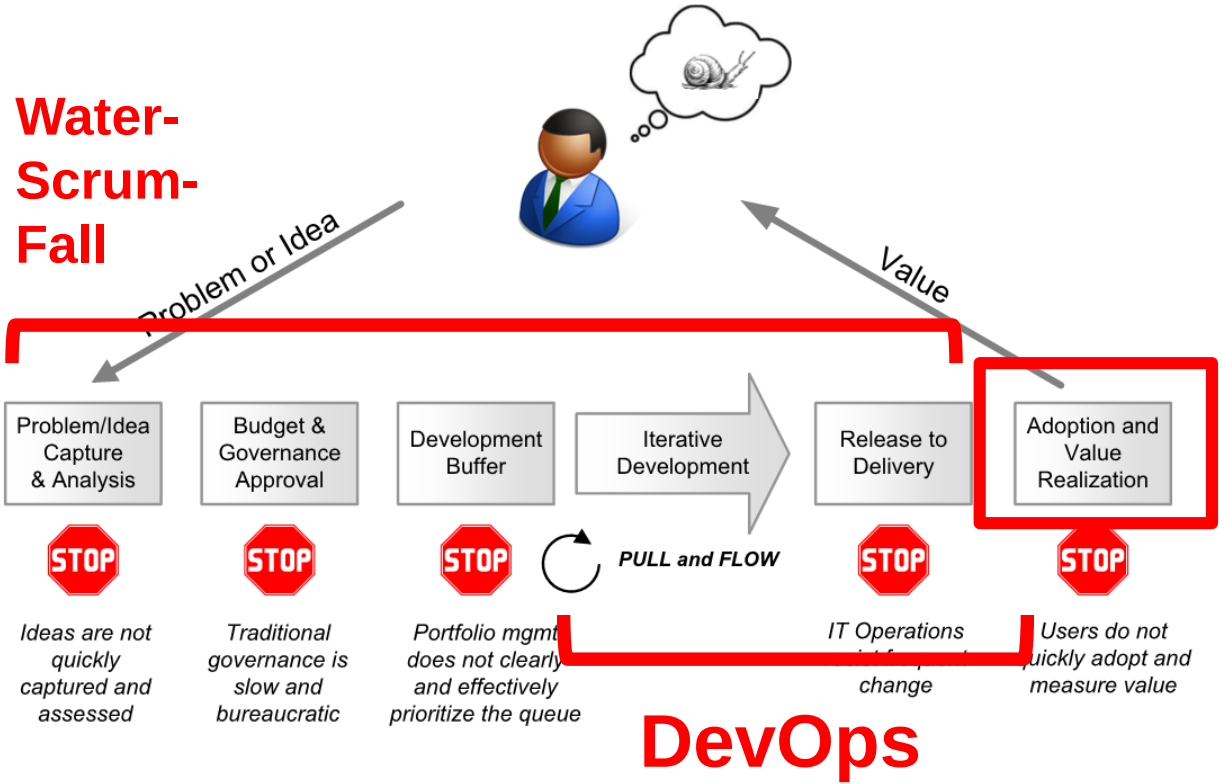
Flow

Development

and

Operations

Continuous Flow From Idea to Delivery



Many don't measure this well, and validate the initial value hypothesis (aka business case)

Research proves Lean practice is essential to DevOps success

Conclusions:

“When employees see the connection between the work they do and its positive impact on customers, they identify more strongly with the company’s purpose, which leads to better IT and organizational performance.”

“When product teams take a lean approach to product design and delivery, organizations see a positive impact on both IT performance and culture, leading to higher levels of organizational performance.”

“Taking a lean approach to product development predicts higher IT performance and less deployment pain.”

Cyber-Physical Speed to Market

John Deere

"It's easier to implement agile on our web properties than it is to apply it to combines, sprayers and tractors, but everyone has the same process and the same mentality."

Tesla

- Some updates move from digital design into physical product iterations in as short as one week
- Product enhancements upload while you sleep

"Since I purchased my model S one year ago I have received constant updates that have improved small comfort features and fine-tuned autopilot based on the data sent back from the entire Tesla fleet. The result? Every few months I get a better car and my satisfaction and level of delight with the brand goes up."

 https://youtu.be/gsmw9CldJwY

People

Problem Solving

Data

Context

Strategic Alignment


I'M GOING TO HAVE TO SCIENCE
THE SHIT OUT OF THIS
The Martian, 2015

Use Data to Test your Hypotheses!

Evaluating well-designed and executed experiments that were designed to improve a key metric, only about 1/3 were successful at improving the key metric!

Online Experimentation at Microsoft, Kohavi et al

80% of the time, we are wrong about what consumers want – the truth is in the data

Big Data at Spotify, Adam Kawa, Data Engineer

 https://youtu.be/gsmw9CldJwY

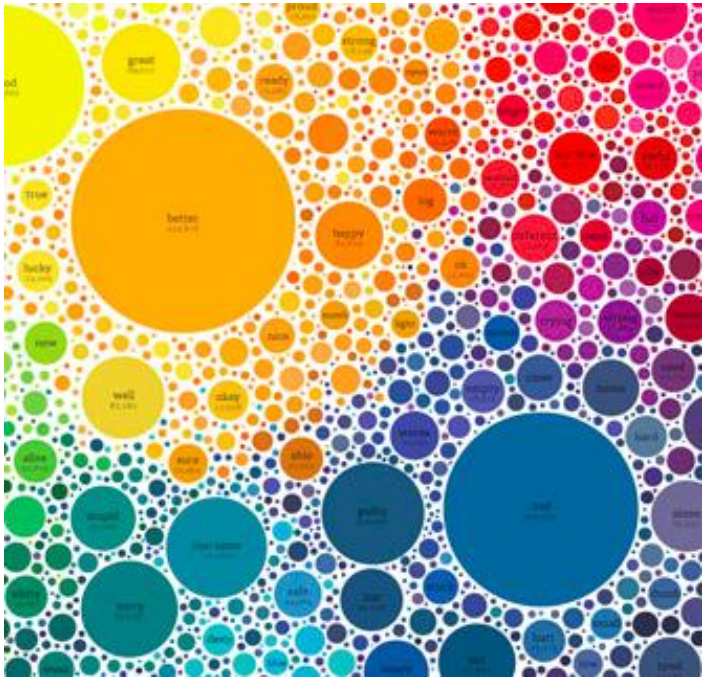
Gemba and Virtual Gemba

Problem Solving
Data
Context
Strategic Alignment

Gemba: Direct Observation and Experience using our senses

Blend of both enables more nuanced understanding – not just what they want, but why they want it, and what they might like if they found it was possible . . .

Virtual Gemba: Extending our senses and our frame of reference



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Skillful Analytics is key whether the data is Big or Small

Big Data =

Volume

Variety

Velocity

Two Analytics Approaches

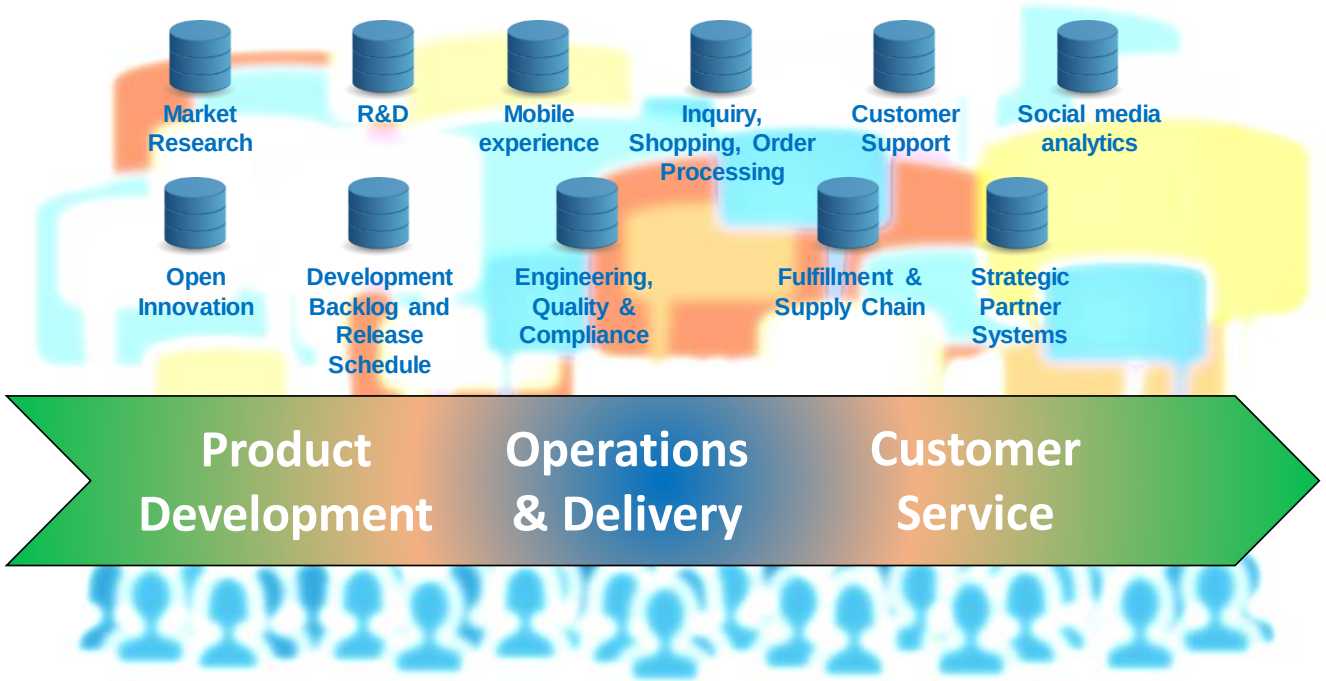
Problem first

Optimize the use of data to ask the right questions, form the right hypotheses, design the right experiments, and make informed decisions.

Data first *"unsupervised machine learning"*

Interpret emergent patterns with the right context and purpose to yield useful insights and innovations.

Seeing the Whole Value Stream with Big and Small Data



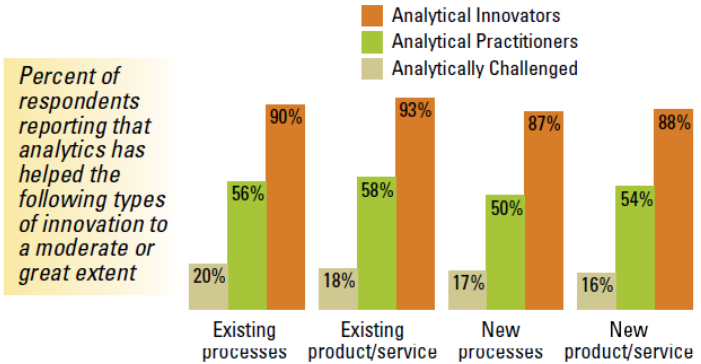
Source: Cutter IT Journal, Big Data and Lean Thinking, Balancing Purpose, Process and People, Bell & Bell, June 2016

Analytics across the enterprise

Problem Solving
Data
Context
Strategic Alignment

Bridgestone Americas:

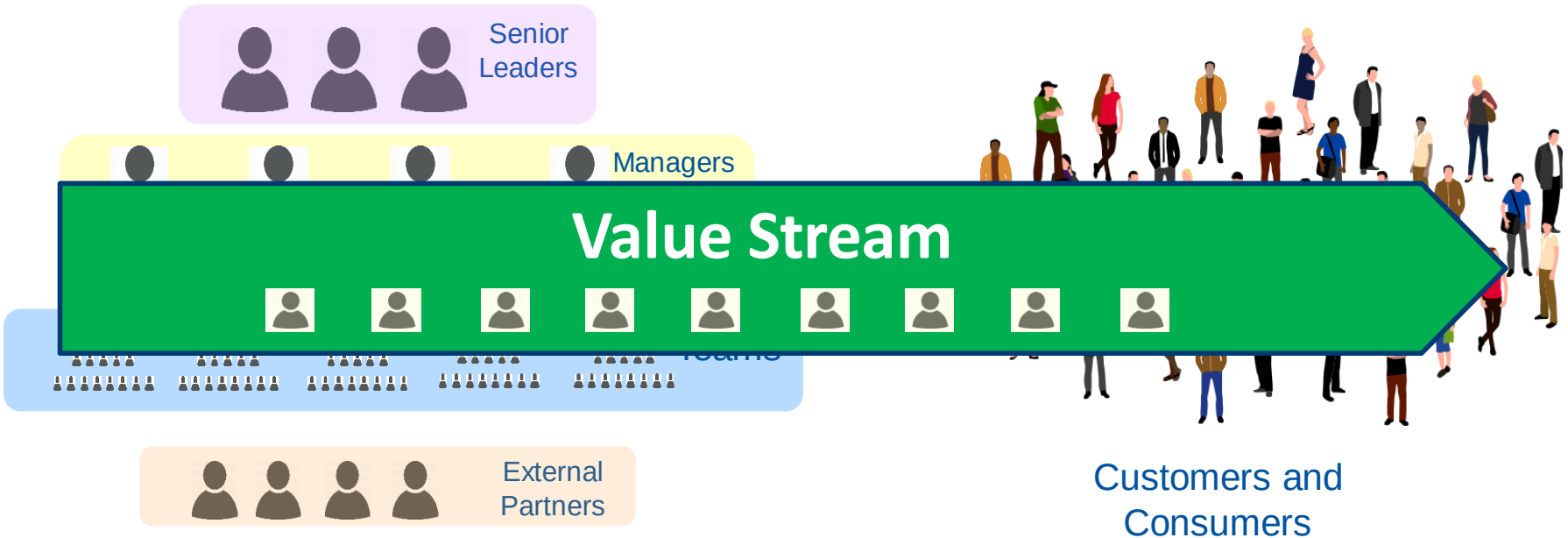
- Only one data analyst was working in the credit division, then in 2014 he was promoted to director of analytics for Retail Operations
- Analytics is now helping in diverse areas:
  - Select best locations for new stores
  - Automate inventory provisioning to 2,200 stores
  - Allocate 22,000 employees for peak demand



Source: MIT Sloan Research Report, 2017
Analytics as a Source of Business Innovation

Context Matters

Context Can Be Elusive



A Value Stream Steward* transforms a group of participants into a team

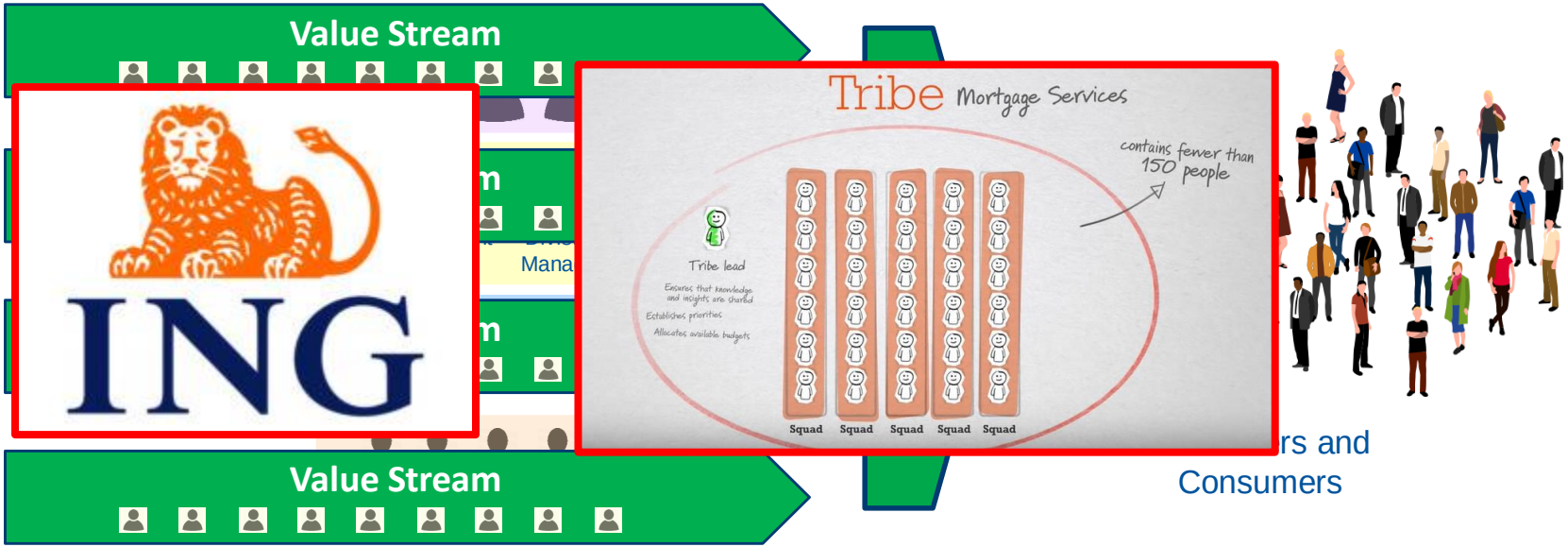
Problem Solving
Data
Context
Strategic Alignment

- Help them understand who the customer is and what they want
- Help them understand the strategic context and develop a shared purpose
- Help them visualize and streamline the process
- Help them identify and respond to abnormalities and new conditions
- *Help them select the right problems and design the right experiments (including digitization technologies)*
- *Help them sort out the data and establish useful metrics*
- *Help develop technical capabilities within the team*

 https://youtu.be/gsmw9CldJwY

** Also known as: Product Owner, Chief Engineer, Service Manager, Tribe Lead*

Omnichannel context: Meta Value Stream

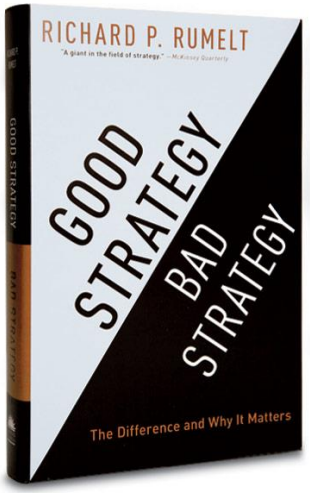


Source: Cutter IT Journal, Accelerate and Scale Digitization with Lean Leadership Practices, Bell and Bell, February 2017

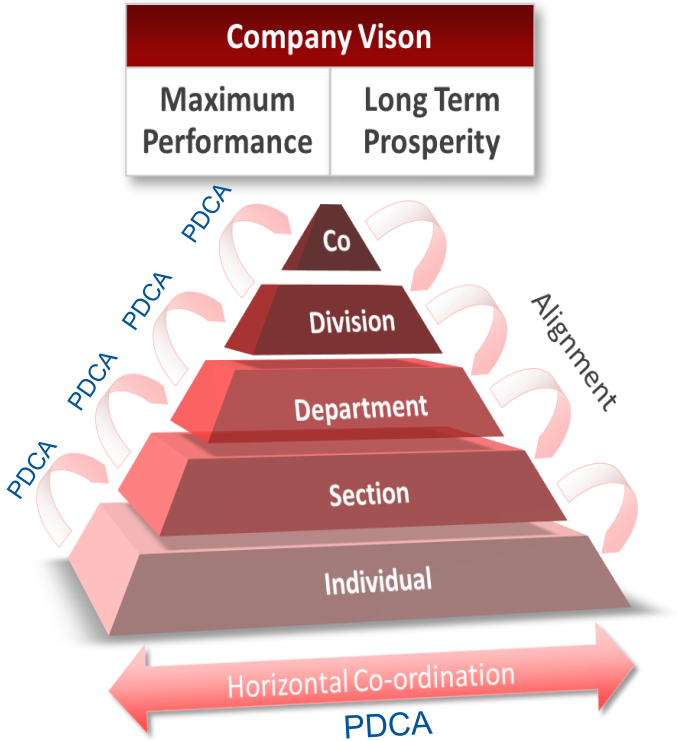
Strategic Alignment

Good strategy honestly acknowledges the challenges being faced and provides an approach to overcoming them. It creates new strengths through subtle shifts in viewpoint. A good strategy has coherence.

Bad strategy tends to skip over pesky details such as problems – it ignores the power of choice and focus, trying instead to accommodate a multitude of conflicting demands and interests. A bad strategy has multiple goals and initiatives that ‘symbolize progress’.



Hoshin Kanri* at Toyota

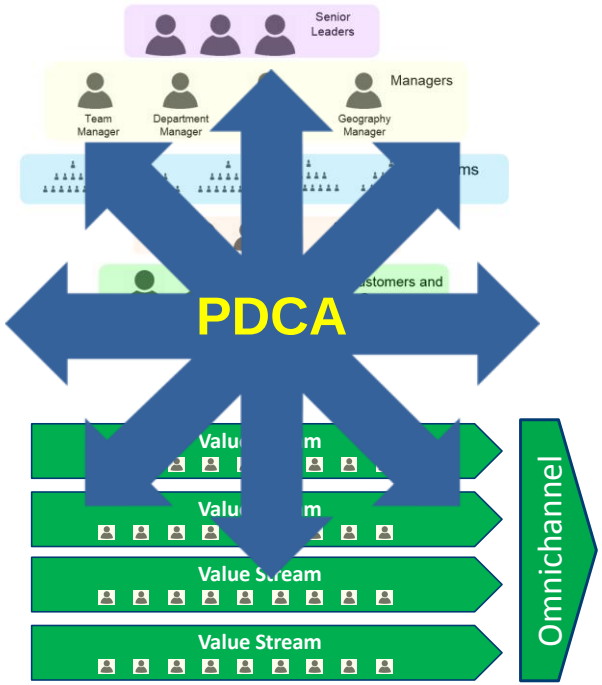


- High level Hoshin is not very prescriptive
- Aligns strategy and execution by understanding the essence of what we are trying to achieve
- Focus on projects with clear contribution
- Engage all levels of the company
- Give special attention to closing the loop with Check/Act (PD**CA**) Stages
- DO THE RIGHT THINGS

 https://youtu.be/gsmw9CldJwY

** also known as Strategy Deployment*

Hoshin Kanri is a Simple, Scalable Pattern



- Deployment and execution of a vital few strategic imperatives
- PDCA cascades down, up and across the enterprise, engaging all decision making contexts
- Solve problems in locally relevant organizational contexts
- Align problem solving and project investments towards clear strategic intent
- Focus on what you need to improve rather than what you can improve
- Promotes dialogue and shared learning, validated by experiments and data

Hoshin Kanri in the Digital Age

- Leadership must set a bold challenge, and focus on a vital few strategic imperatives
- The relationships among physical and digital, products, services, channels, partners and customers are dynamic
- Everyone must understand the essence of what they are trying to achieve, engaging all levels of the extended enterprise
- Models and behaviors for prioritization, problem solving and decision making must be fluid – not overly prescriptive or rigid

SpaceX first stage booster recovery at Cape Canaveral Feb 19, 2017

See the video: The Lean Management System and Agile-at-Scale, 2015 Lean IT Summit *http://bit.ly/2madGbvLITS*

Reflections on the Digital Lean Enterprise Journey Ahead

- Improve Quality before Speed
- Emphasize capability development for sustainable performance and adaptation
- Use patterns and practices as guideposts, but make them your own
- Value human interaction, not just the data
- Make continuous learning part of your DNA

 https://youtu.be/gsmw9CldJwY

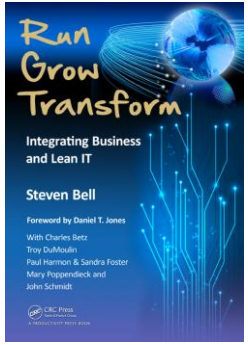
Lean IT Summit

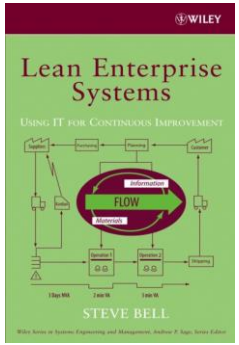
Lean IT Strategies

Empowering Enterprise Agility

Steve Bell

Karen Whitley Bell





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