



Driving the Digital Agenda Requires Strategic Architecture

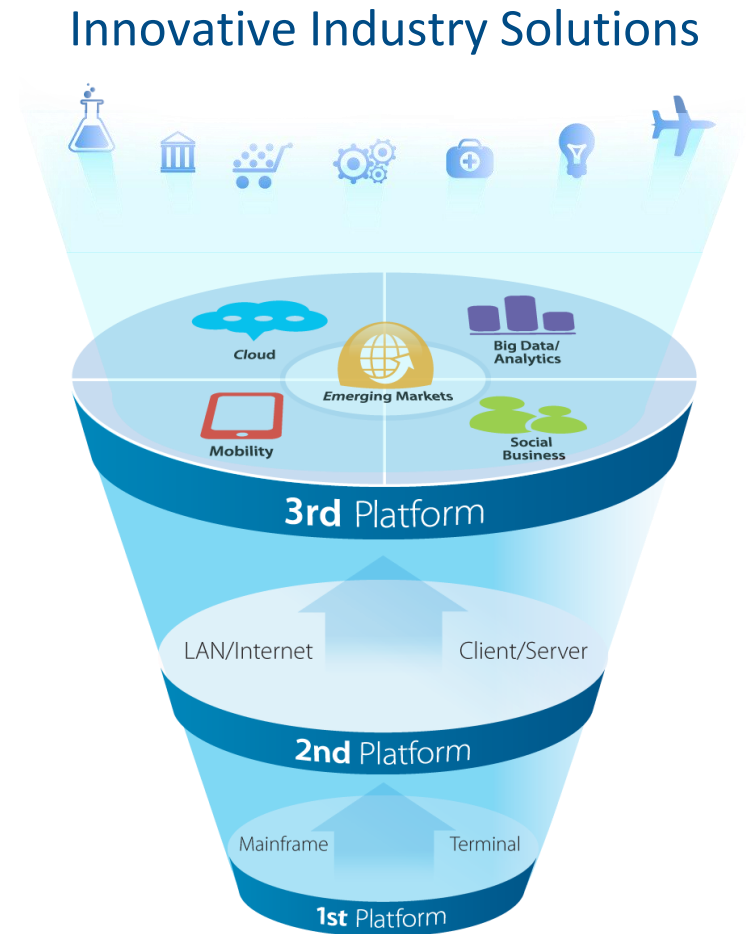
Mike Rosen
Research Vice President
IDC IT Executive Program

The 3rd Platform is Enabling Transformation

1/3rd of leading businesses will be disrupted by new 'born on the 3rd platform' competitors.

The 3rd Platform allows businesses to:

- Build deeper relationships with their **customers**
- **Innovate** around new products and services
- Improve their own internal **operations**



Innovation Accelerators



Will these Technologies Transform Your Industry?

In the Next 3-5 Years



Robotics

Surgery Automated

Surgeons use computer-assisted or robotic surgery techniques to assist in 50% of the most complex surgeries.



Cognitive Systems

Fraud Reduced

Cognitive analytics reduce fraud, waste, and abuse by 10%, resulting in \$300 billion in global savings



Internet of Things

Public Safety Transformed

75% of State and Local Governments Use Citizen Data in Transportation Management and Real-Time Crime Centers.



Next Gen Security

Data Breaches Mitigated

50% of the top 100 global retailers encrypt all customer data in flight and at rest, declaring "Trusted Data Certification"



3D Printing

Logistics 'Last Mile' Revolutionized

60% of manufacturers are able to choose between same day supply chain and 3D printed



Augmented & Virtual Reality

Field Service Revolutionized

Field service team staffs drop by 40%

The Transformations are Everywhere...



Not a dental
scanner, but a
revenue center
Orthodonture platform



Not a bed
The latest, cloud connected,
biosensor and fitness
platform



Not an airplane,
but a flying
datacenter

A380



"The A380 was a real step in technology compared to other aircraft we maintain," says Air France's Trigona. Operators needed to develop new IT capabilities and processes to keep the software up to date and in good working order. "You have more than 700 software [modules] on the A380," adds Menegat, "but they can be fitted on nearly 1,500 positions on the aircraft. So you just cannot manage that on an Excel table..."

700 applications, 7 million lines of code

2017 Ford GT



- Carbon Fiber part yields “best power to weight ratio”
- 3.5 L V6 produces 600 + hp
- Active suspension
- Turbocharged intercoolers
- 10 M lines of code



The Dark Side of Digital Transformation



Hackers Remotely Kill a Jeep on the Highway—With Me in It

ANDY GREENBERG SECURITY 07.21.15 6:00 AM

“two researchers managed to take control of an unaltered vehicle’s electronically controlled subsystems (radio, AC, wipers, transmission, steering, brakes) from afar, using the Internet connection its entertainment system makes through the cellular network”

Update: Chrysler recalls 1.4M vehicles after Jeep hack

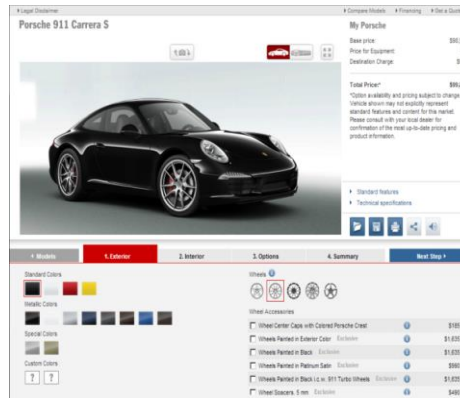
COMPUTERWORLD



The End Game...New Digital Products and Services



IT-enabled
Business
Processes
Automating Business Processes

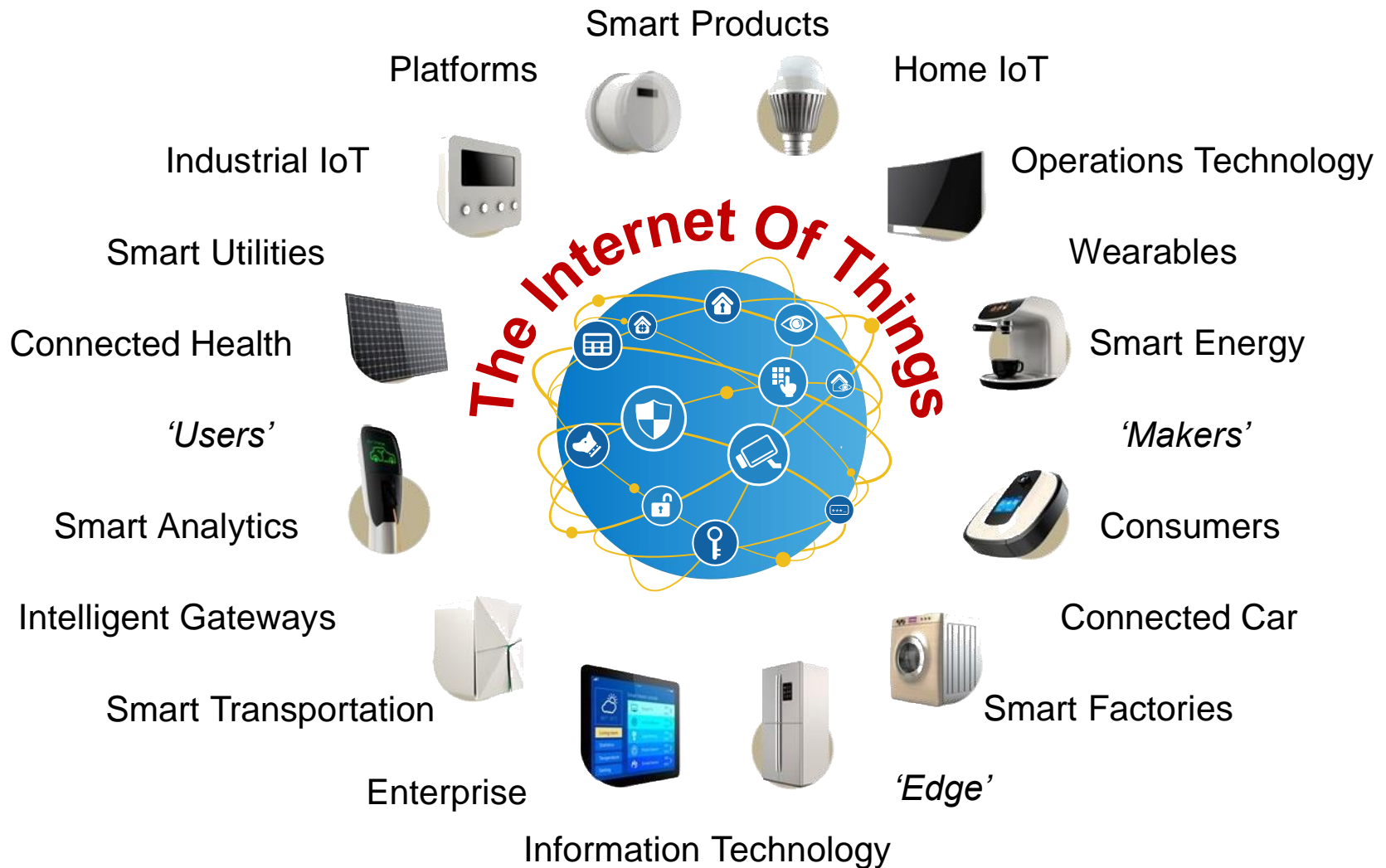


IT-enabled
Services
Transforming Business
Processes

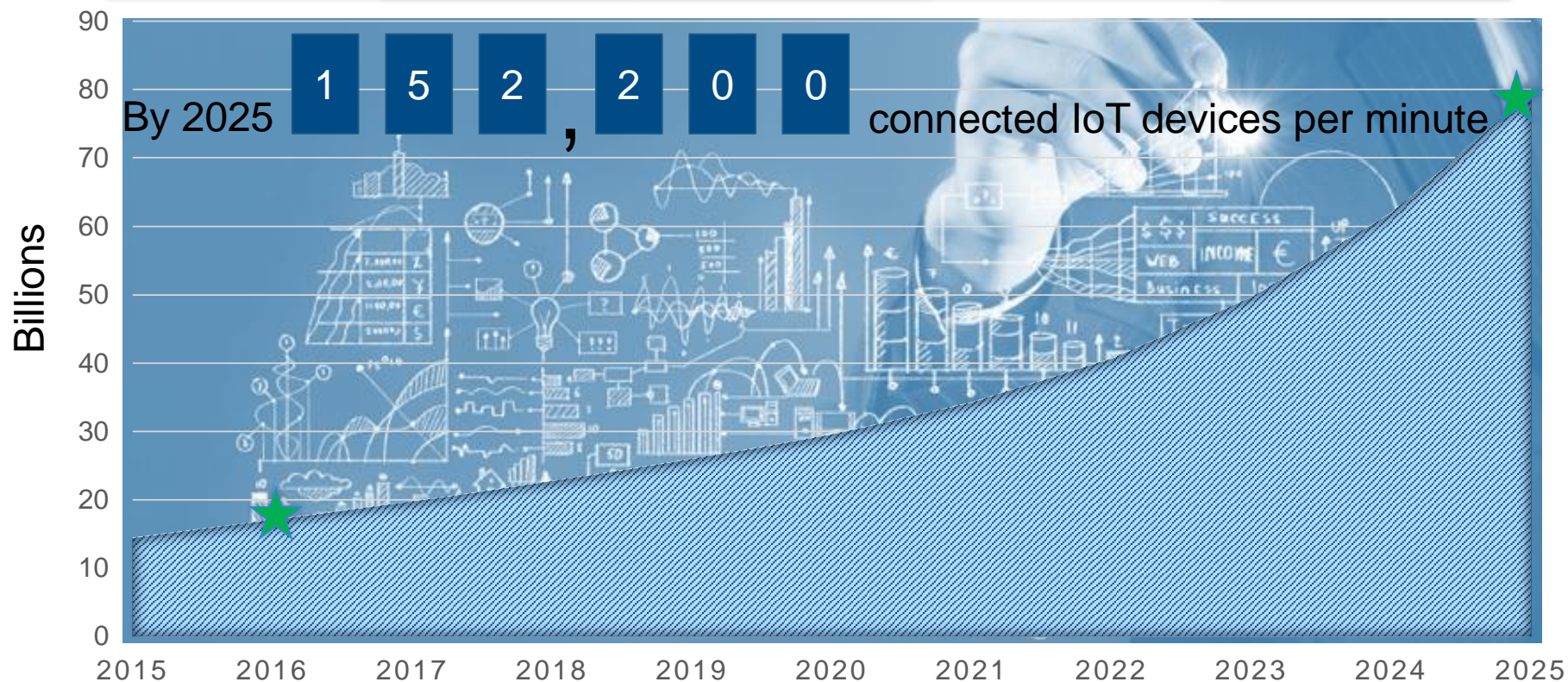


Digital
Products
Creating Digitally-enabled
Products and Services

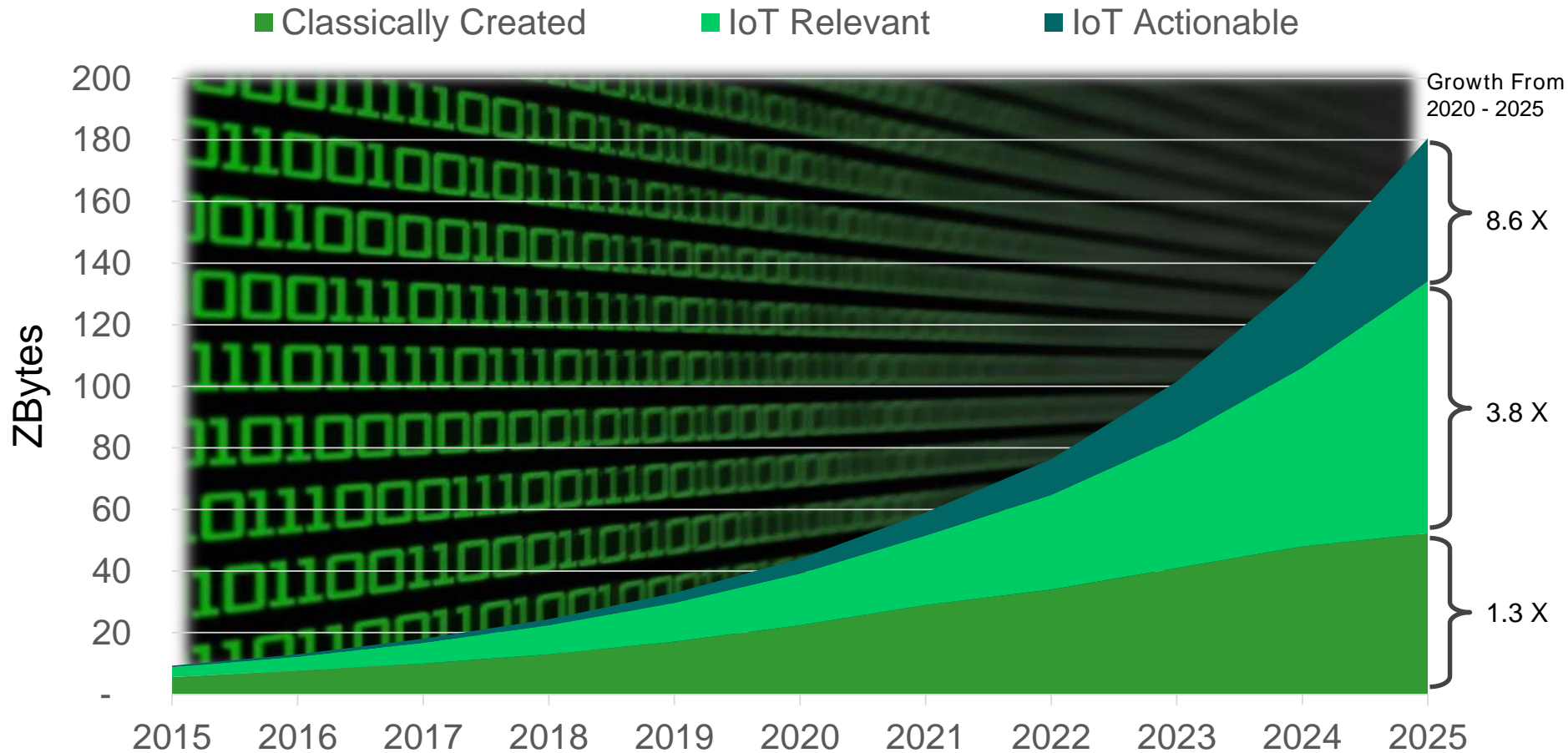
The Internet of Things



IoT Connected Device Forecast



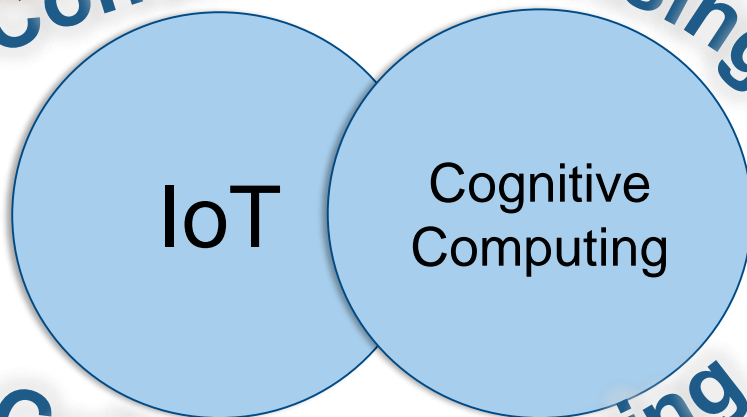
IoT Data Sources



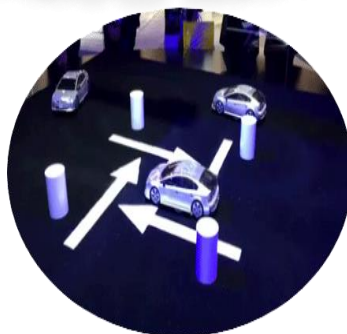
Next Generation Apps



Continuous Sensing



Collective Learning



Source: IDC Feb 2016 analysis of CB Insights database; IDC industry/function categorization of results of search for companies with keywords "Machine Learning" and/or "AI"

Discussion

- Which aspects of digital transformation:
 - Provide the best opportunities?
 - Present the greatest threats?
- What are your key challenges?

Digital Transformation

The application of 3rd Platform technologies to fundamentally change the way something is done.

Leadership Transformation



Omni-Experience Transformation



Information Transformation



Operating Model Transformation



WorkSource Transformation



Three Actions Toward Digital Transformation



Information Transformation

The ability to leverage information for competitive advantage by enabling the business to respond to opportunities swiftly and with superior intelligence



“Digital Explorer”

Information informs
decision making



“Digital Transformer”

Information provides a
competitive advantage

Information as a Competitive Advantage

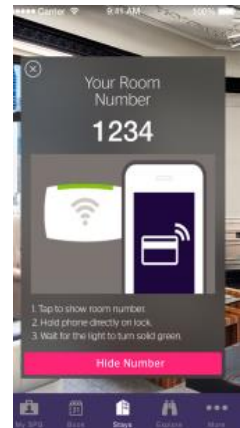
Mine data to better understand customer base



Build personalized programs for highly profitable guest



Use enhanced experiences to retain margin



starwood
Hotels and
Resorts

Operating Model Transformation

The ability to make business operations more responsive and effective by leveraging digitally connected products/services, assets, people and trading partners.



“Digital Explorer”

Connected systems improve operational performance



“Digital Transformer”

Connected systems fuel new revenue streams

Connected Systems Fuel New Revenue Streams

Digital Service Platform Creates Competitive Differentiator

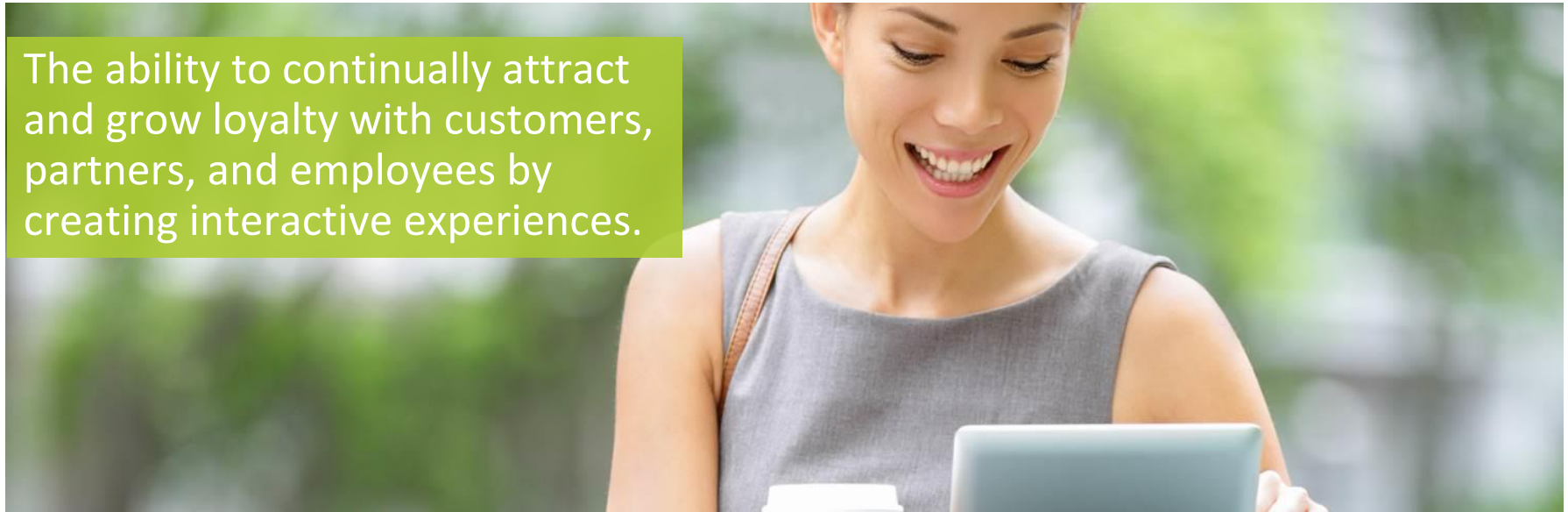


Intelligent Building Traffic System Creates New Revenue Streams



Transforming Omni-Experience

The ability to continually attract and grow loyalty with customers, partners, and employees by creating interactive experiences.



“Digital Explorer”

Customer experience innovation that says “look at me”



“Digital Transformer”

Customer experience innovation that alters market expectations

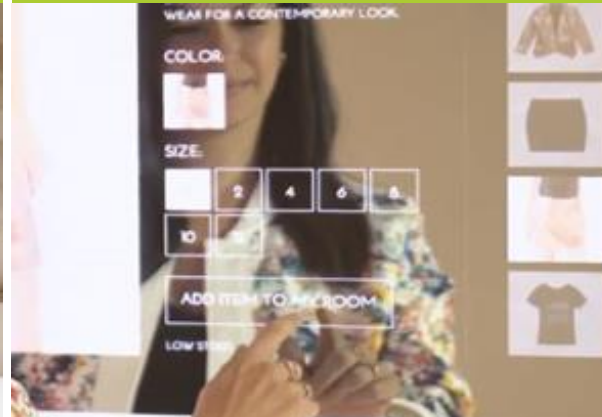
Expectation-Altering CX Innovation

Shopping journey starts in any channel



Connected glass shopping wall

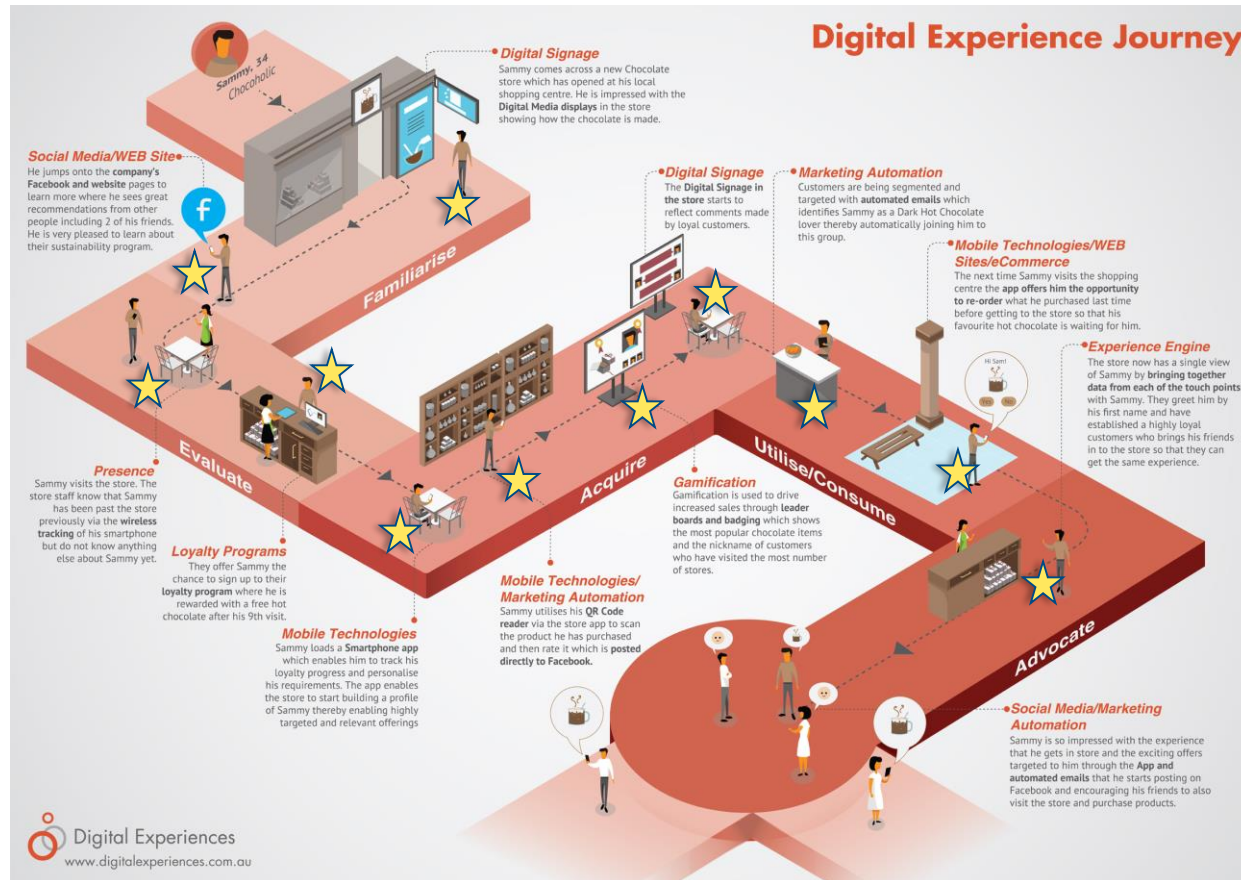
Triangulate customer, product, and employee



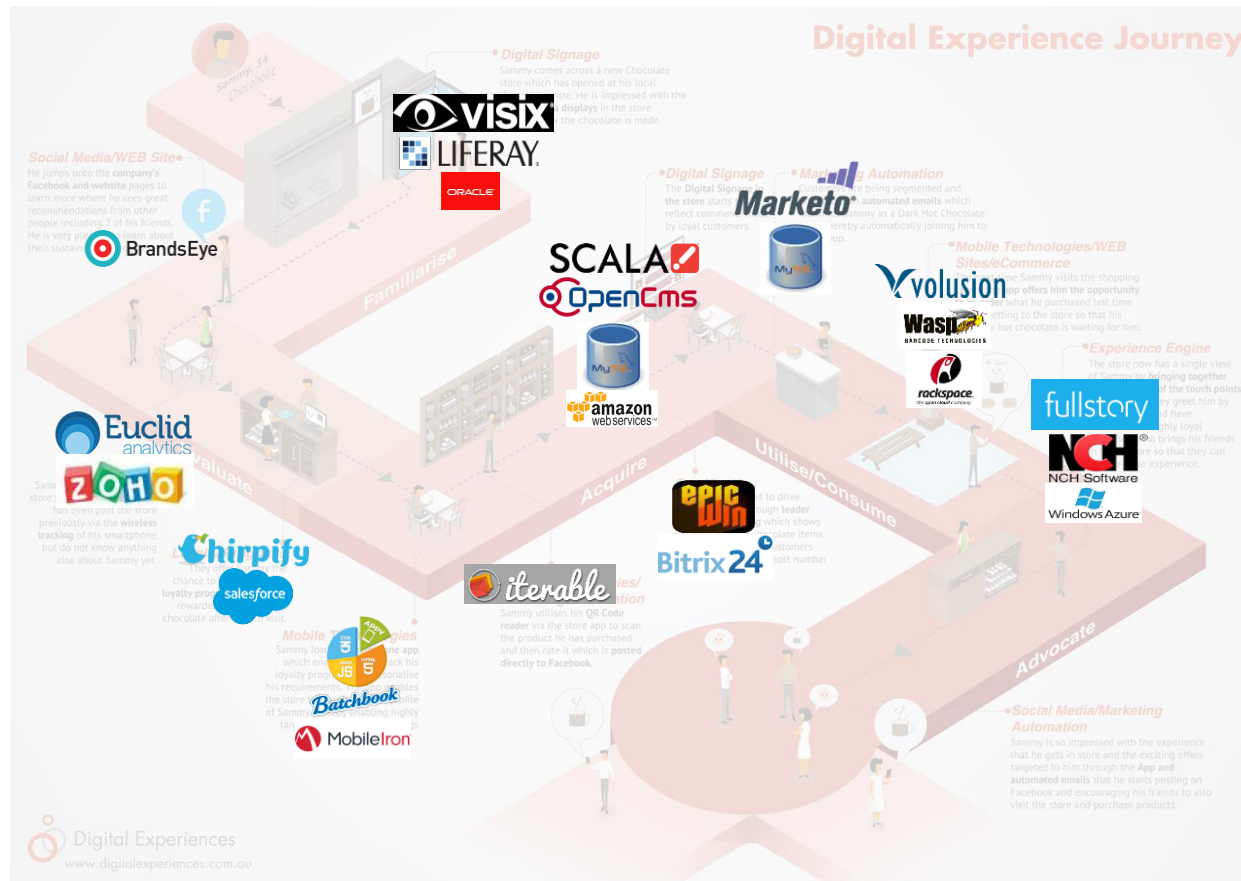
Interactive fitting rooms

REBECCAMINKOFF

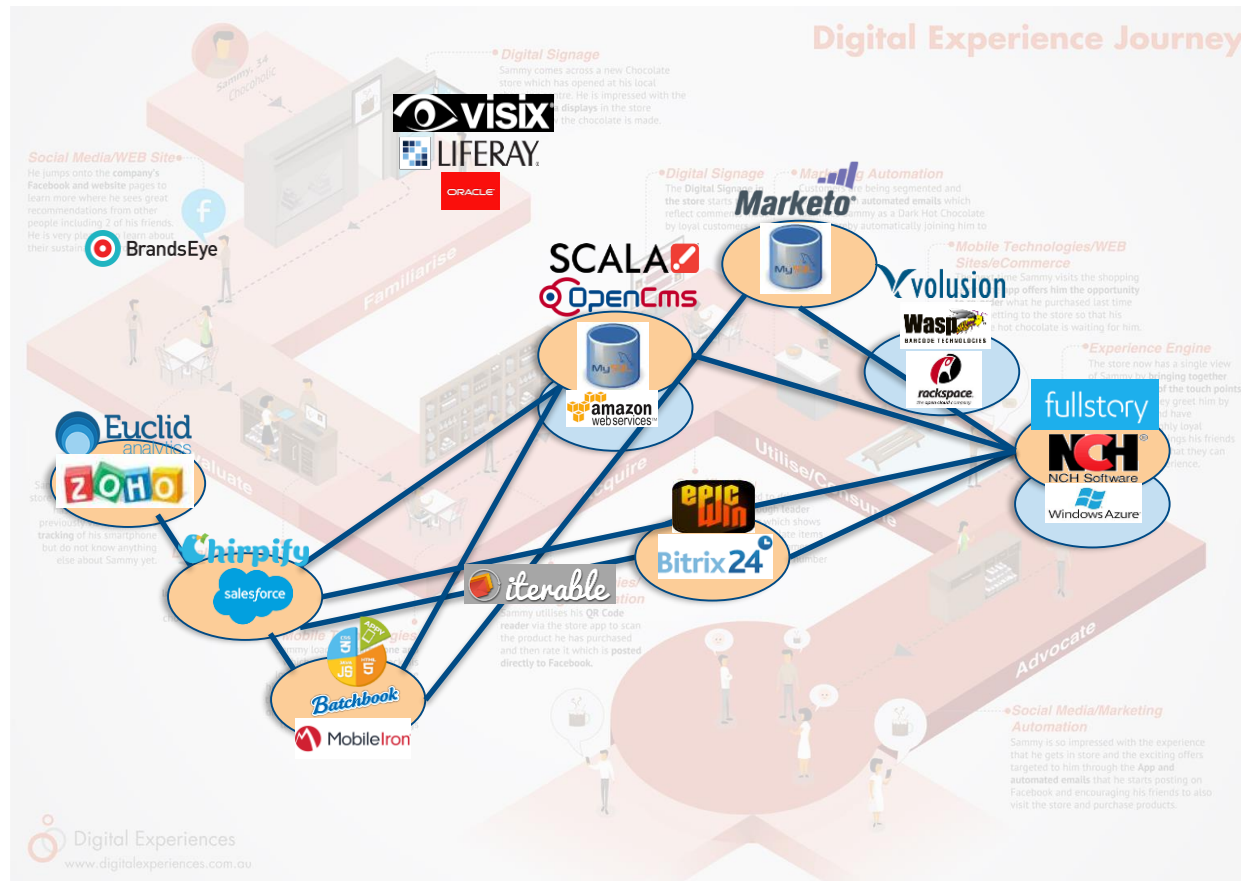
OmniExperience Journey Example



Technology Map



What a Mess



What Does the Cloud Mean?

Virtualization
Hybrid
IaaS
SaaS



to IT...



Finally! I don't
need IT anymore. I
can get everything
myself in the cloud



to Business...

Sustainable DX Requires Strategic Architecture

“By 2017, 60% of business lead digital transformation initiatives will not be able to scale due to a lack of strategic architecture”



Drivers

- IT spending shift to LOB
- Independent sourcing actions increase costs and complexity
- Need for agility and quickness

Challenges

- Tactical imperatives versus strategic concerns
- Culture
- LoBs want to maintain local control
- Inconsistency and redundancies

Benefits

- Improved customer experience
- Maximum value and synergy
- Speed and flexibility
- Positioned for continual change

Dynamic Cloud Landscape

As the Cloud market grows quickly... there's still turbulence to be aware of .

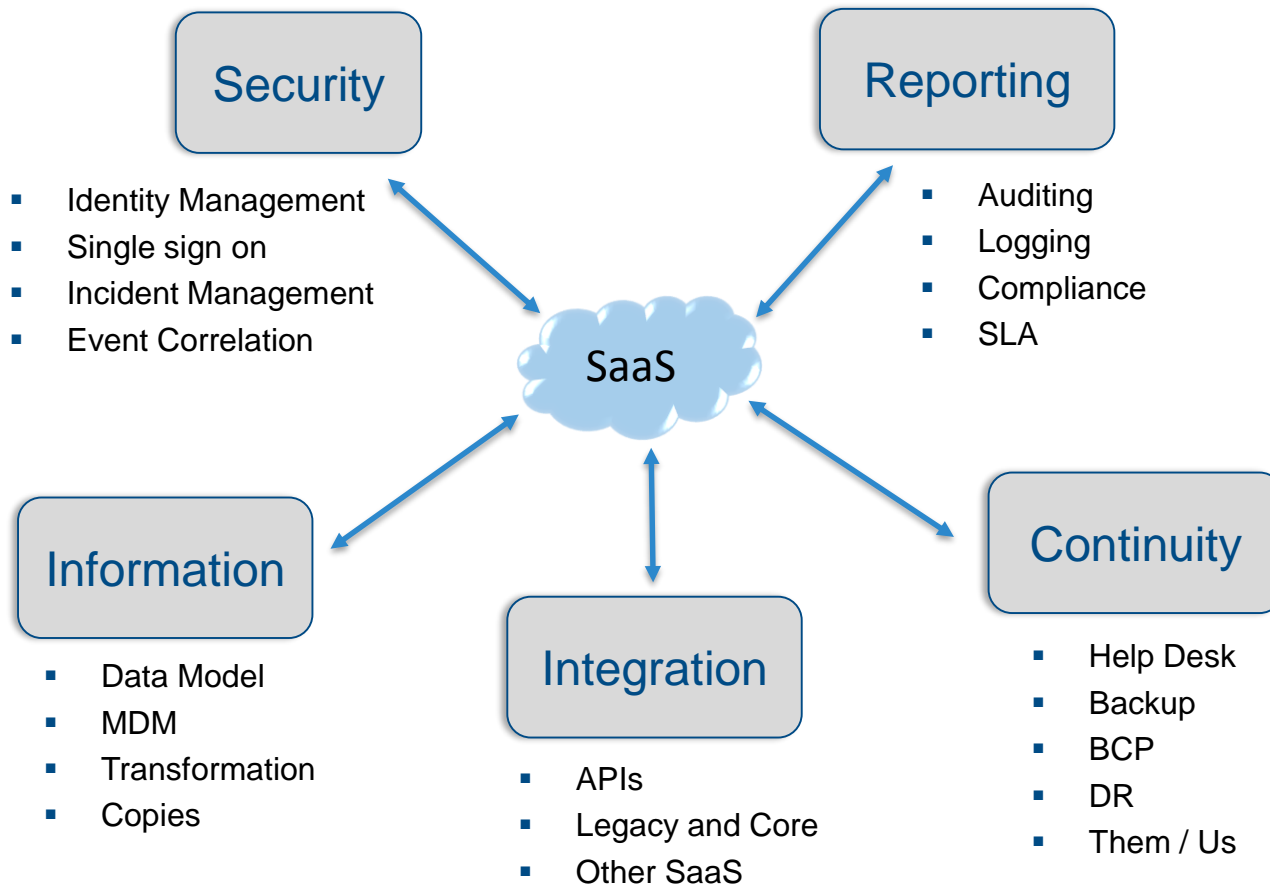
*By 2017, **35%** of vendor sourcing relationships around 3rd platform technologies will fail.*

***75%** of IaaS provider offerings will be redesigned, rebranded, or phased out in the next 12-24 months.*

*By 2017 IT buyers will actively channel **20%** of their IT budgets through industry clouds. By 2020 **100+** "Industry Clouds" emerge, disrupting today's established industry market leaders.*

Source: IDC.com, 2015

Integration Architecture



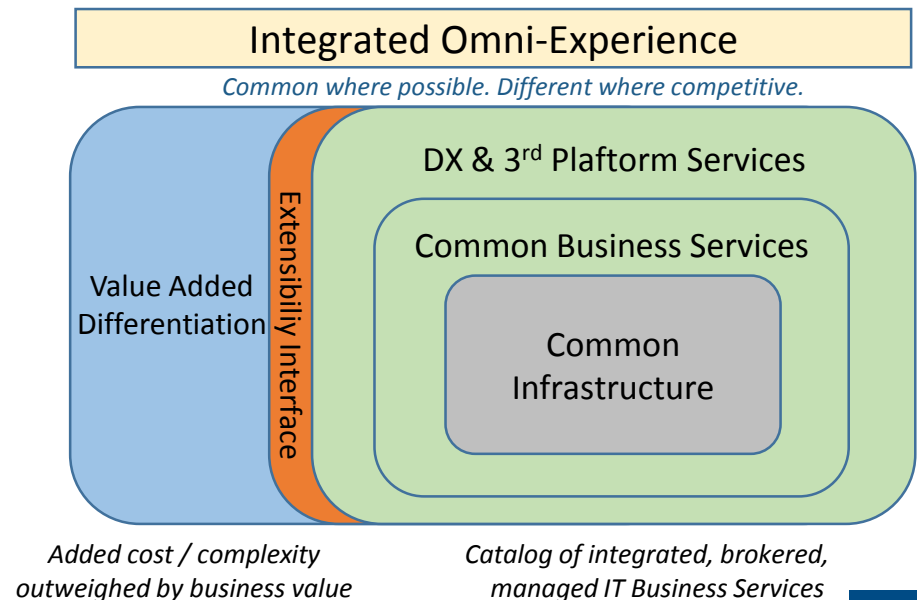
Sample SaaS Planning Matrix

True cost to acquire and own: How does a specific cloud service fit into the enterprise environment?

	Factor	Requirements (Describe how to meet them)
Operations	Incident Management	<i>How are incidents reported, managed? What can I see?</i>
	Change Management	<i>How are changes planned, tested, integrated, managed?</i>
	Monitoring	<i>Security monitoring, operational monitoring</i>
	Auditing	<i>Who did what, to what, when?</i>
	Logging	<i>What will be logged, where? How is it accessed?</i>
	Compliance	<i>What regulations apply? How verified?</i>
	DR / BCP	<i>What are requirements? How performed?</i>
Architecture	Integration	<i>What other systems need to be connected to?</i>
	Security	<i>How will service be integrated into enterprise security, SSO?</i>
	Information Semantics	<i>What information does this have? Need? Schema?</i>
Finance	SLA Monitoring	<i>Are SLAs being met? How do we know?</i>
	Sourcing	<i>Single point of contact for all users and services?</i>

Managing Complexity

- Identify what should be *common* in order to maximize:
 - Brand, customer, experience, infrastructure
 - Efficiency and effectiveness
 - Identify what could be *different* in order to maximize:
 - Channel, customer segmentation, geography
 - Market differentiation, competitive advantage
 - Define interfaces to extend the common to support valuable differentiation
-
- **EVERY** place that something is different results in added costs and complexity
 - Architecture provides a framework for cost/benefit analysis



Case Study: Wells Fargo Bank



THE WALL STREET JOURNAL.

Wells Fargo & Co. Is the Earth's Most Valuable Bank

- Large US Bank
 - 4th by assets – \$1.8 Trillion
 - 1st by market capitalization – 254B
- 70 million customers; 8,700 branches; 12,800 ATMS; 260,500 employees
- 80 LoBs: Banking, insurance, investments, mortgage, and consumer

- Reduced operational expenses
 - Applications, servers, dbs, maintenance, operations, integration, DR/BCP
- Increased
 - Consistency, customer satisfaction
 - Business opportunities, new products, cross sell, speed to market, market leadership

- Payment systems
 - Each line of business insisted that they have a unique that nothing could be done by others
 - 17 or everything, plus some
- Payment Architecture determined that 85% was the same
 - New system implemented
 - Principle: “Common where possible. Different where competitive”

Source	Accolade
Global Finance	Best Bank for Payments and Collections Best US Internet Bank
Barron	7 th - World's Most Respected Companies 22 nd - World's Most Admired Companies
Banker's Magazine	Best US Bank
Brand Finance	World's Most Valuable Bank Brand
Keynote Research	#1 Overall Mobile Performance, Ease-of-use, Quality, Availability
Diversity Inc.	11th top company for diversity
Careers and the disabled	Top 50 employers
United Way	#1 US Workplace giving campaign

Discussion

- Does your organization have:
 - Project Portfolio Management?
 - IT Governance?
 - Architecture?
- How can architectural issues be raised with business and enterprise leadership?

IT Leadership Challenges

- Complexity of the IT infrastructure
- Obtuseness of enterprise IT to the non-technical
- Inability of leadership and business to understand consequences
- Inability of technology leadership to explain technology issues in the language-of-business
- Reluctance to fix / fund based on lack of understanding or visibility
- The need-for-speed within IT; shortcuts

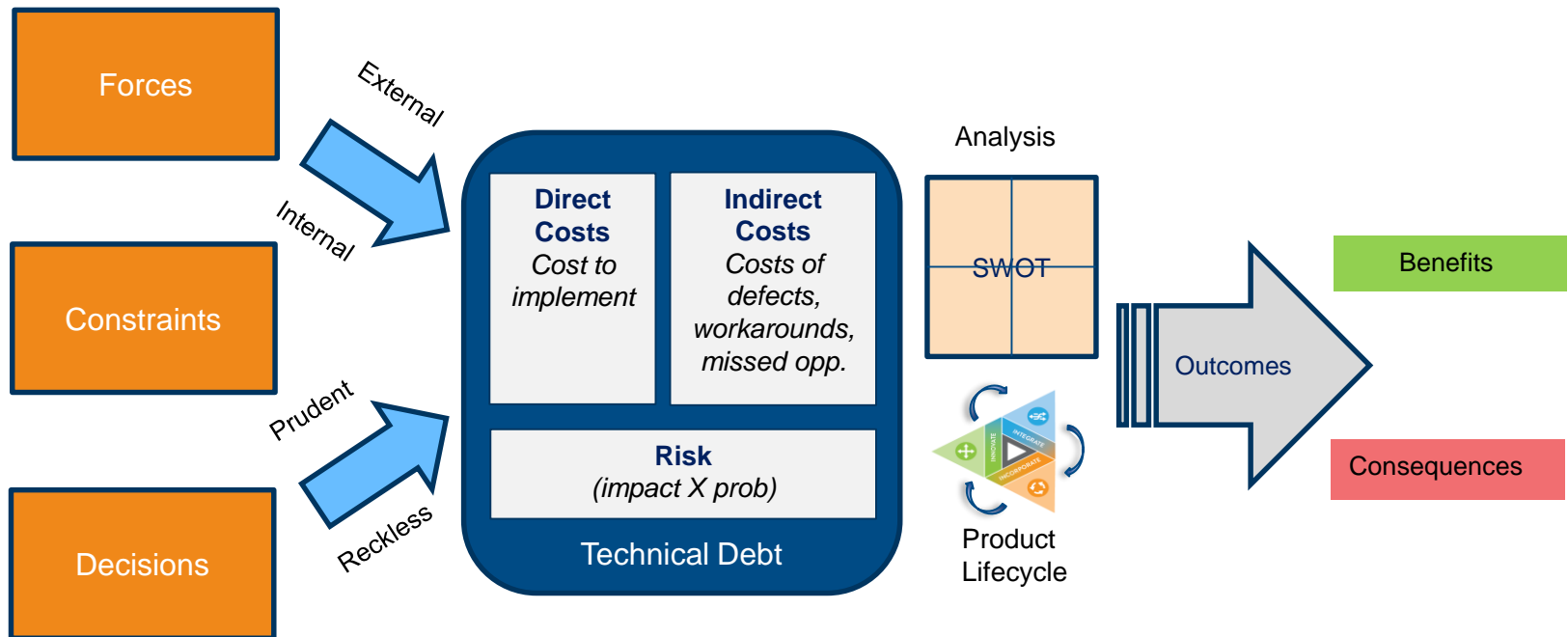
Need-for-Speed Can Cut Corners, Create Liabilities

- Lack of interoperability
- Inconsistent information
- Security Vulnerabilities
- Unfinished integrations with core systems-of-record
 - CRM
 - Financial and Accounting Systems
- Lack of business continuity capabilities
- Short-cuts on CX design
 - Inconsistent branding
 - Lack of ADA capabilities
 - No multi-language support
- Redundant systems and clouds
- Etc...

What is Technical Debt

- The residual cost of completing technology tasks left undone in the race to be agile, innovative, or from lack of funding
- The ongoing costs of inconvenience, inconsistencies, and lost opportunities
- A framework for a business discussion about IT constraints, limitations, and risks
- A methodology for describing (one aspect of) IT "state" in the language of business
- A Managerial Accounting technique for framing unfunded technical liabilities
 - Which constrain the ability to innovate and sustain IT operations
 - ...and add risk, operational inefficiencies, costs.
 - The cost to bring IT infrastructure into compliance through the current budget period
 - ...in the context of Sarbanes/Oxley 'disclosure' statement wrt IT business recovery

IDC's Technical Debt Framework



Technical Debt Management:

A business conversation to inform decision, based on cost and risk, to maximize value and benefits and minimize consequences

Indirect Costs (Interest on Debt)

- To paraphrase Ward Cunningham, “Every minute spent on not-quite-right implementation counts as interest on that debt”
- So, every minute spent on workarounds, dealing with bugs, lack of interoperability, managing inconsistencies, customer care, manual processes, awkwardness, etc. are indirect costs
- Worse, the debt compounds itself
 - Every change or enhancement made without fixing the debt adds workarounds, inefficiencies, complexities, fragility, and costs
 - Every integration, without fixing the debt, add dependencies and unknown complications
 - Each added change gets harder and harder, slower, riskier, costlier
- There is also an impact on the ability to attract and retain talent that is part of the interest on that debt. Nobody wants to work on a crappy system...

Technical Debt Mgmt: *Best Practices*

1. Systematically quantifying & communicating technical debt
 - Quarterly technical debt exhibit
 - 1 page summary with risks and liabilities, plus details
2. Using technical debt and liability as a means for communicating risk and priorities to executive and business leadership
3. Applying a risk based approach to debt evaluation
4. Factoring debt into product lifecycle costs
5. Integrating technical debt into enterprise planning

Technical Debt Summary Exhibit

Unfunded Critical Technical Liabilities Summary – Q4 FY16						
Application /Project	Cost to fix	Indirect Costs	Description	Risk		Consequence
				Likely	Impact	
Customer Journey	32K	1 FTE	Integration of loyalty program with email marketing	H	H	Manual workarounds, ineffective email campaigns
CRM	57K		Integration of custom back office process with CRM	H	M	Incomplete/inconsistent CX 15% decrease in NPS
Cloud	44K	26K / yr	Consolidate multiple cloud vendors	H	L	Inefficient vendor relationship unnecessary app integration
Analytics	65K		Aggregate multiple data sources	M	H	Incomplete customer insight, 30% less cross sell
Exec Dashboard	48K	.25 FTE	Automate data collection and integration	H	M	Manual tasks, Business decisions based on old information
Core	235K	38K	Upgrade to most recent version of core applications	M	M	Known security vulnerabilities Additional maintenance costs
Servers	98K		Upgrade EOL hardware	M	L	Some core applications cannot be upgraded, operating costs

Note that likelihood of risk is related to the budget cycle. e.g. High risk means that the consequence of debt are highly likely to be experienced in this budget cycle.

Transforming the IT Organization is Multi-Faceted

2nd Platform IT

Business Innovation IT



Source: IDC, Enterprise IT Transformation Maturity Model, 2014

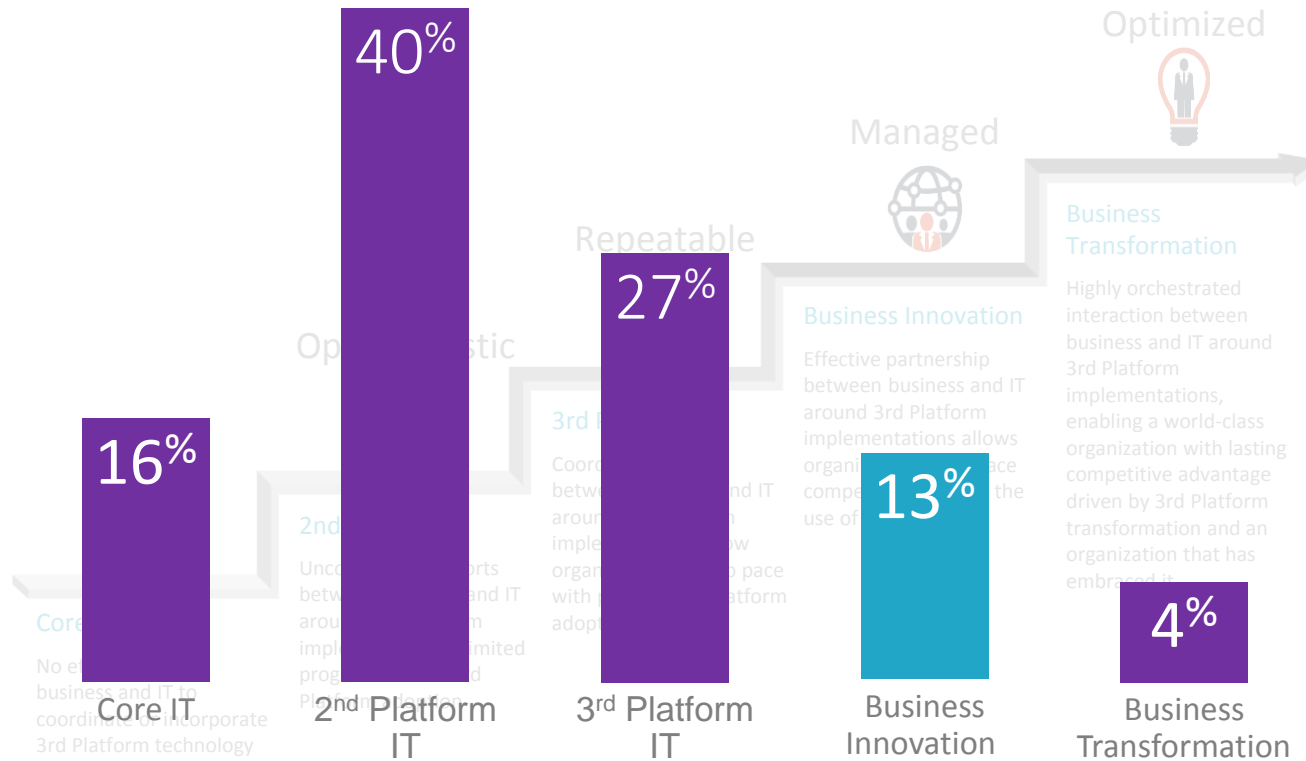
Transforming to a Business Innovation IT Org

IDC's Enterprise IT Transformation MaturityScape



Source: IDC, Enterprise IT Transformation Maturity Model, 2014

Are You Transforming Your IT Org Fast Enough?



67% of Organizations are Operating at a 2nd Platform IT or 3rd Platform IT Transformational Stage

Source: IDC's Enterprise IT Transformation MaturityScape Benchmark Study, August, 2014. n-156

How Relevant is Digital Transformation to You?

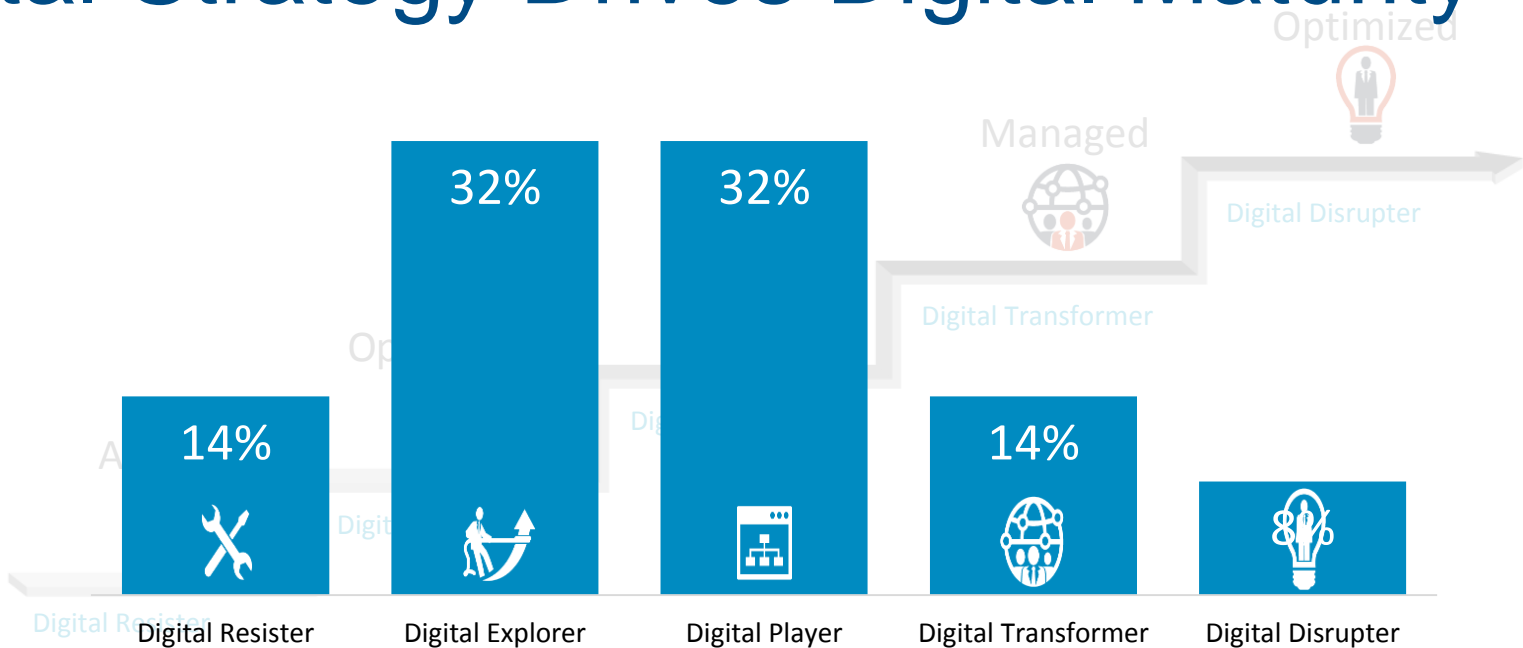
- 76% of companies see digital technologies disrupting their industry
- 82% of companies see digital technologies as an opportunity
- 26% see them as a threat

Main barriers

- Too many competing priorities (43%)
- Lack of overall strategy (33%)
- Security concerns (25%)
- Insufficient technical skills (25%)

Source: MIT Sloan Management Review and Deloitte's 2015 global study of digital business

Digital Strategy Drives Digital Maturity



Top Barrier

Lack of strategy

Lack of focus

Lack of skills

Strategy

Customer, Productivity

Vision, Governance

Transformation,
Innovation, Governance

Culture

Siloed

Integrating

Integrated, Innovative

Leadership

Limited skills

Learning digital skills

Digital and 3D Leadership

Transformation Challenge

Enterprise
Agility

Local
Agility

Fragile and Inflexible Architecture

Lack of EA results in fragile and inflexible IT systems that cannot incorporate 3rd Platform technology. Inconsistent processes and data create unnecessary costs and complexity.

Business Outcome
"Quick and dirty"

Wasted time, money, and opportunity.

Opportunistic

Standardized Architecture

EA supports standardized platforms that enable better results for some PDB and utilizes 3rd Platform solutions. Integration issues limit end-user processes and 360-degree views.

Business Outcome
"Make it better"

Projects benefit from lower costs, faster time-to-market

Repeatable

Business Architecture

EA supports reduced operating costs and increased reliability, consistent business critical information and process. 3rd Platform solutions deliver value with minimal disruption.

Business Outcome
"Make it consistent"

Acquisition and retention of business end customer through operational excellence

Managed

Enterprise Wide Architecture

EA supports enterprise-wide interoperability, improved decision making, and portfolio management. It provides timely business response based on data analysis and system flexibility. 3rd Platform solutions drive business initiatives.

Business Outcome
"Make it actionable"

Business excels in strategy, planning, and execution

Strategy-to-Execution Architecture

EA supports outstanding strategy-to-execution, portfolio, and information management. Strategic deployment of transformative 3rd Platform solutions yields ongoing enterprise market leadership.

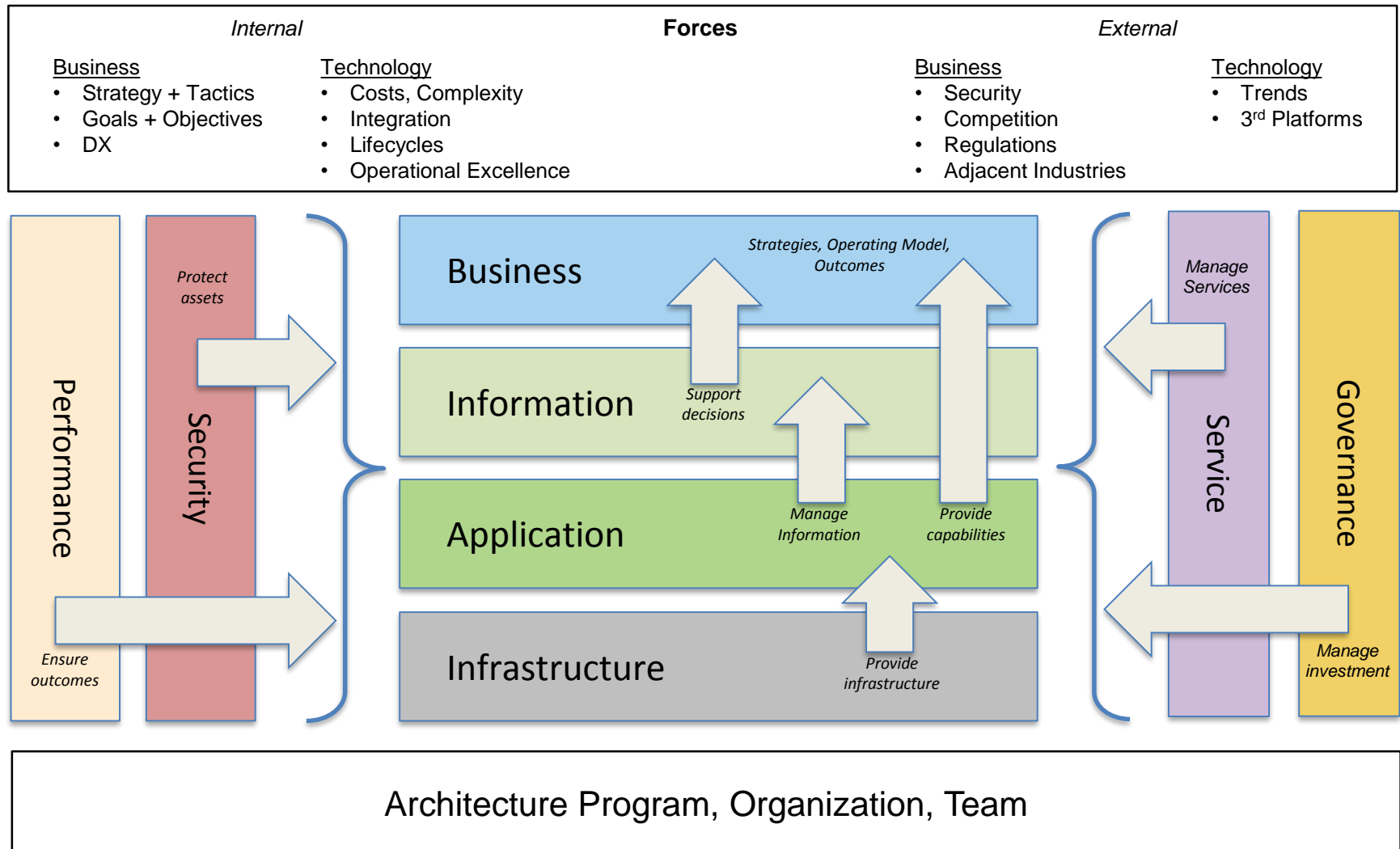
Business Outcome
"Make it differentiated"

Business has sustained competitive and game-changer advantage

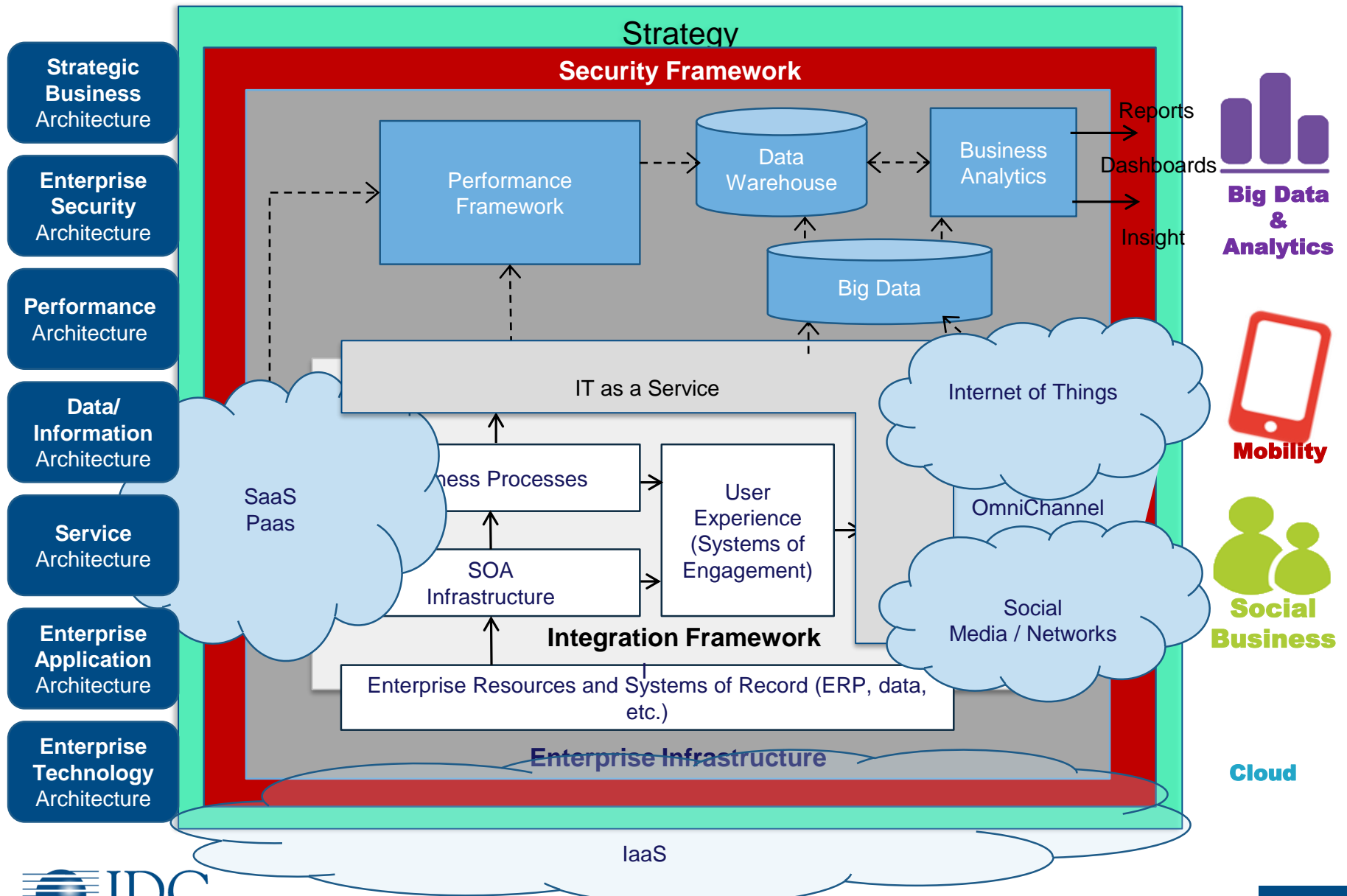
Business silos

Architected business

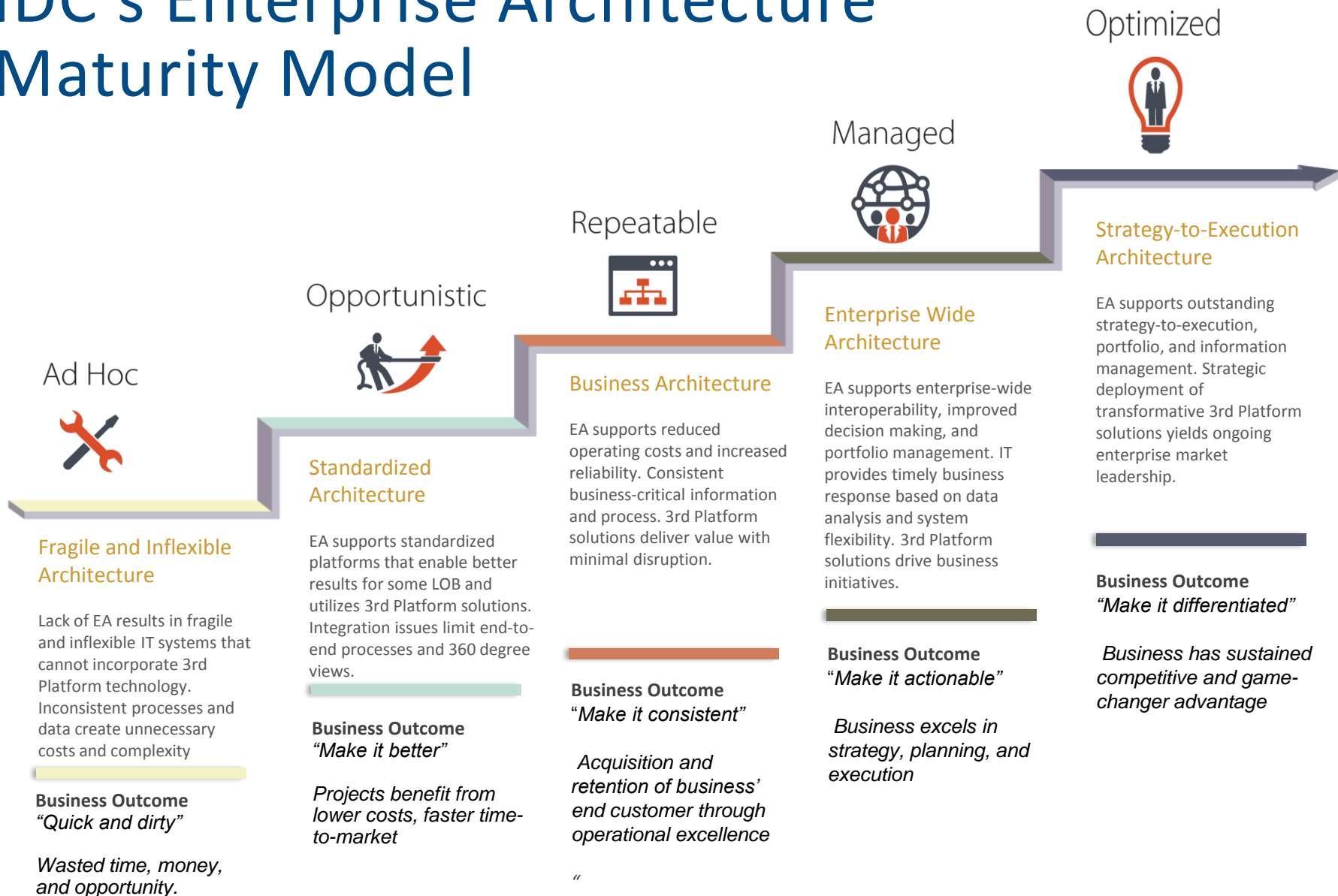
Strategic Architecture Framework








3rd Platform Reference Architecture



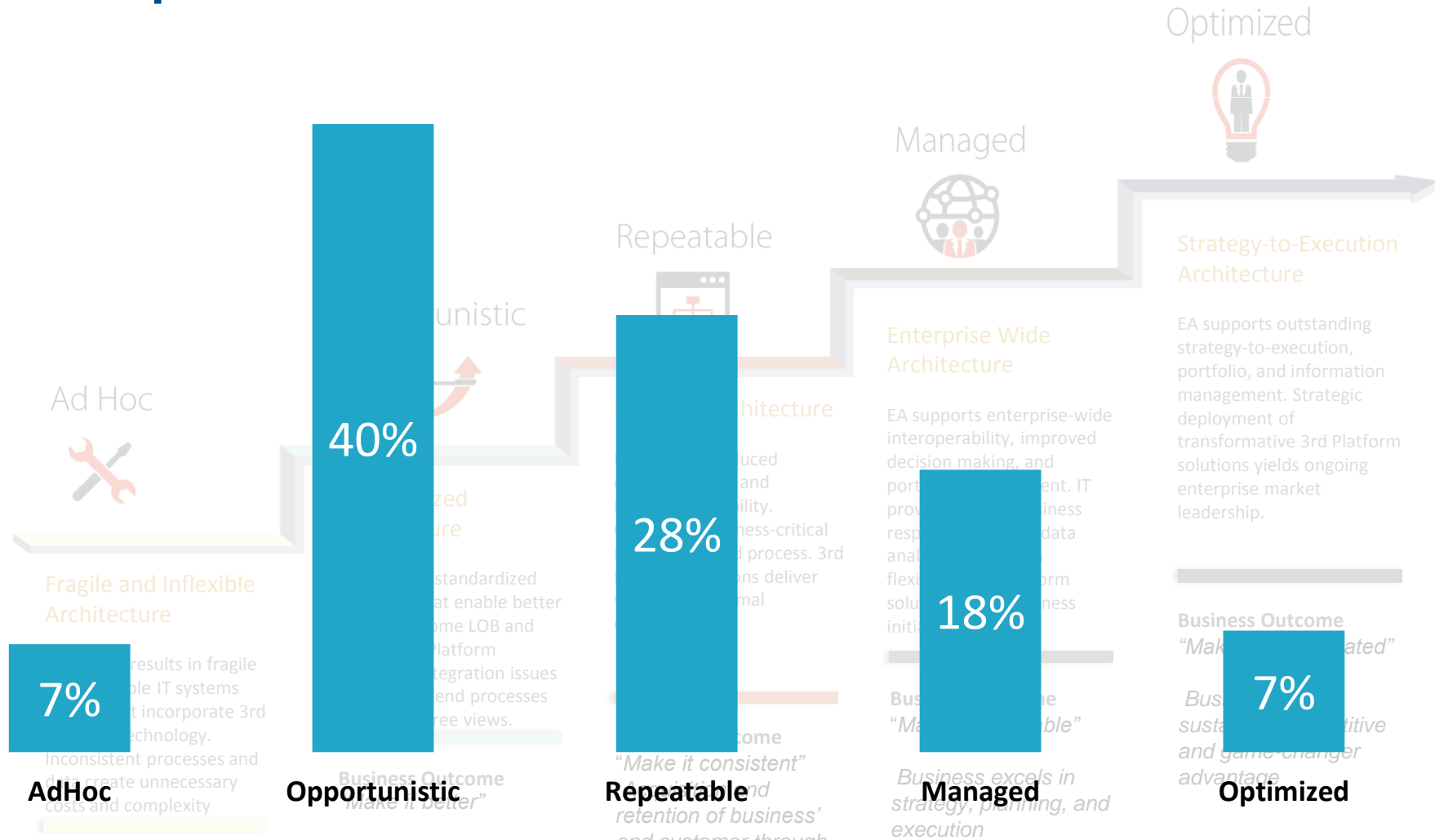
IDC's Enterprise Architecture Maturity Model



Maturity Model Dimensions

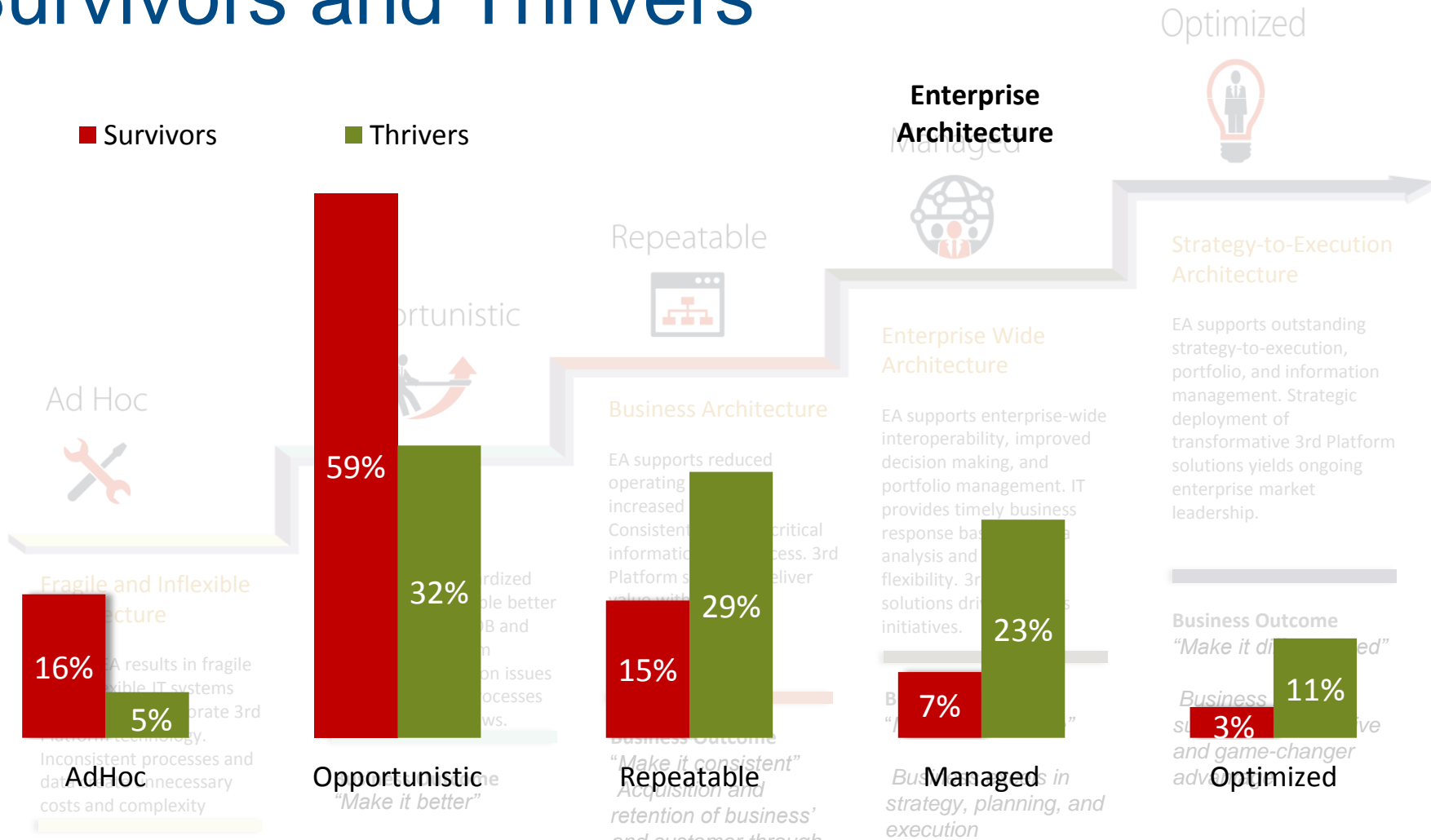
	Dimensions	Sub-Dimensions			
 Leadership	Leadership	Vision & Innovation	Executive Participation	Technology	Culture
 Business	Business	Business Strategy	Value Decision Making Risk	Alignment Sponsorship Influence	
 Technology	Technology	Mobility & Social	Cloud & Big Data	Integration & Security	Information Management
 Organization	Organization	Community of Practice	Governance-Planning-Portfolio	Roles & Structures	Metrics & Benchmarking
 Deliverables	Deliverables	Processes & Methodology	Standards & Reference Architecture	Scope	Repository & Reporting

Enterprise Architecture Transformation



47% of Organizations are Operating at an AdHoc or Opportunistic Level

Survivors and Thrivers



75% of Survivors are Operating at an AdHoc or Opportunistic Level

Architecture: What do you think?

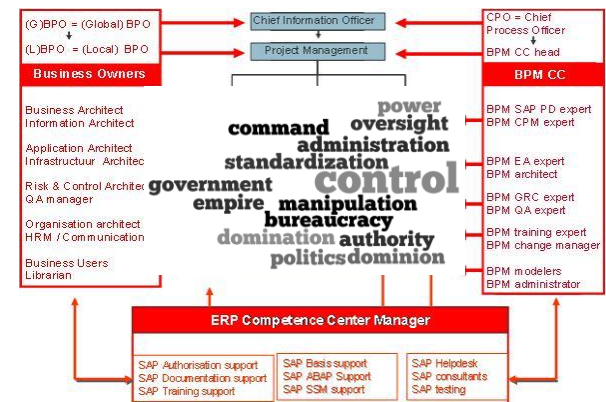
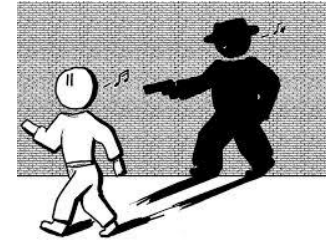


Discussion

- What is the perception of architecture at your organization?
- How is architecture typically structured or focused?
- What would work better?

Delivering Value

- In many ways, architects have been their own worst enemy.
- Traditional architecture programs focus on creating architecture. Then, they depend on process and command & control to govern implementation.



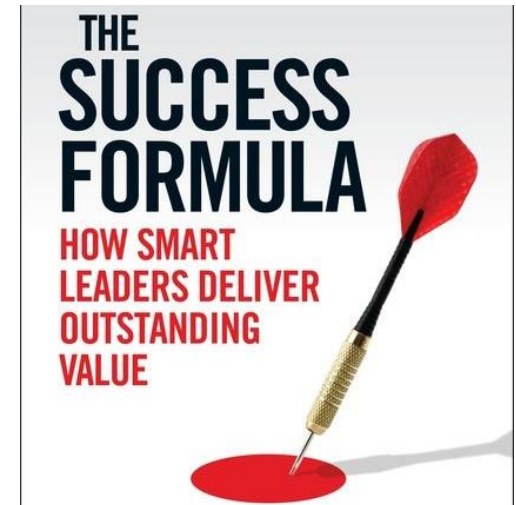
“Creating architecture does not create value. Value is only realized when architecture is used to influence decisions.”

Success Formula

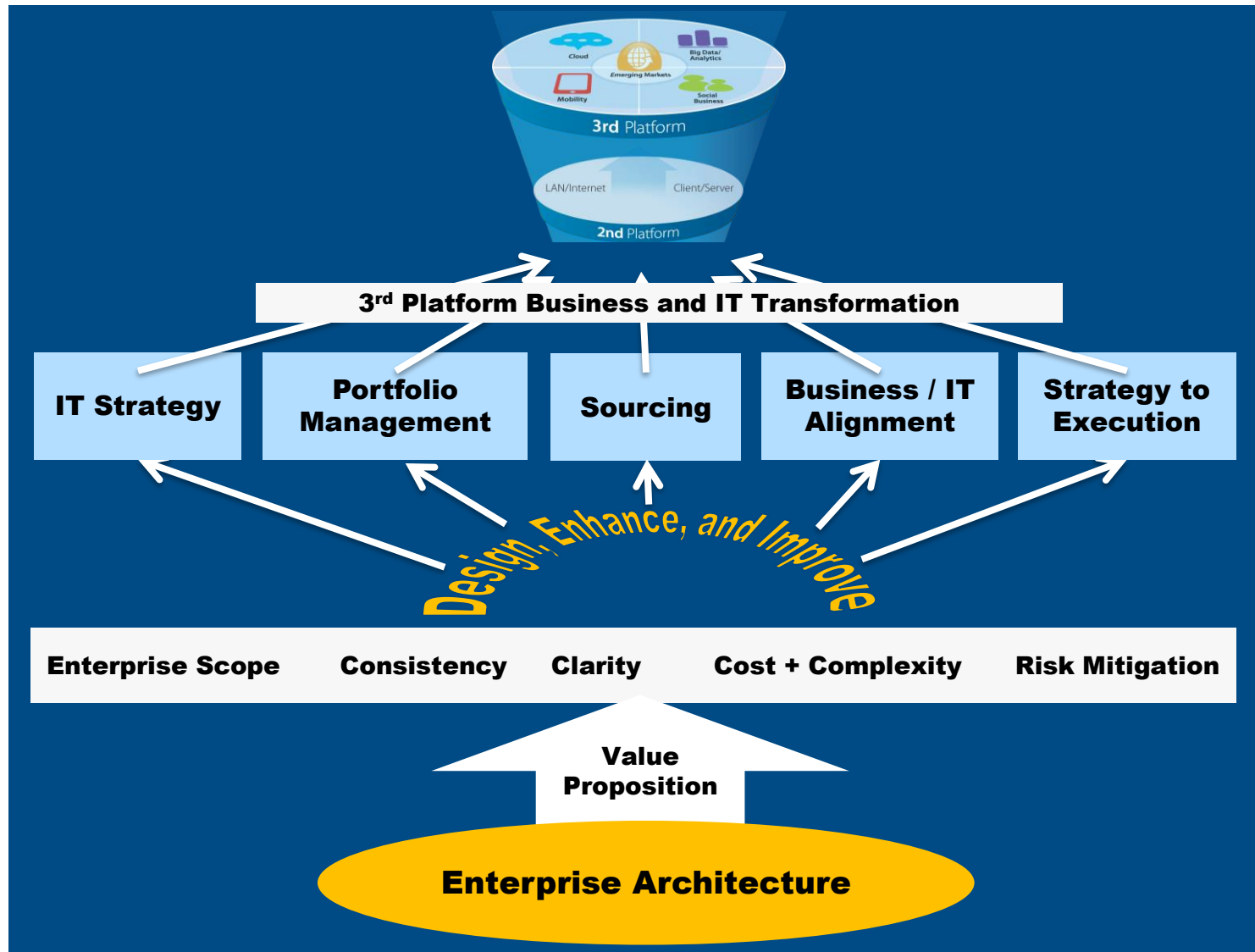
- The formula for a successful Architecture is simple:
 - *When you make it easier/more valuable for people to do their job by using architecture, they will;*
 - *If you make it harder for them, they will fight you.*

Architecture Checklist:

- What are the goals?
- What decisions do you need to influence to achieve them?
- Who makes those decisions?
- What processes do they use to make them?
- Where are the opportunities within those processes to influence the decisions?
- What structure of artifact would be useful
 - At that point in the process
 - For that individual
 - From their perspective, tools, and skill set?
 - ...And consistent with architectural principles and best practices!
- How do we make one? How do we engage them to help?
- How will we measure if it is working?

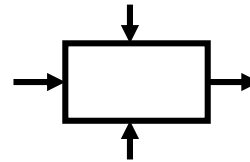


Enterprise Architecture Value Proposition



Investment in Isolation

Investment by itself

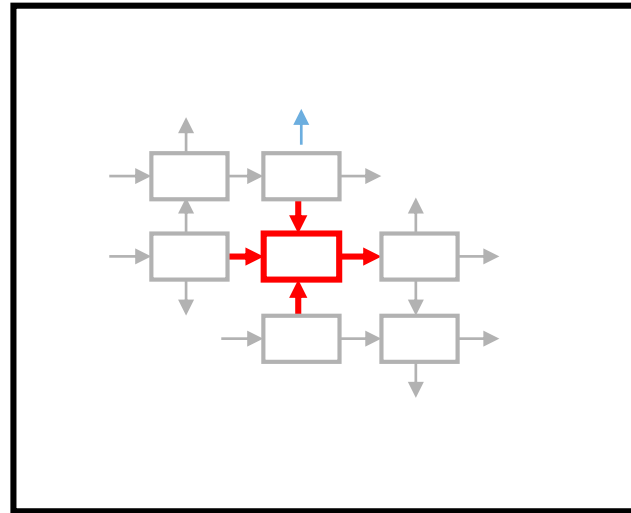


$V_u = \text{Value to User}$

Total Value $V_t = V_u$

Investment Within the Enterprise

Investment within the Enterprise



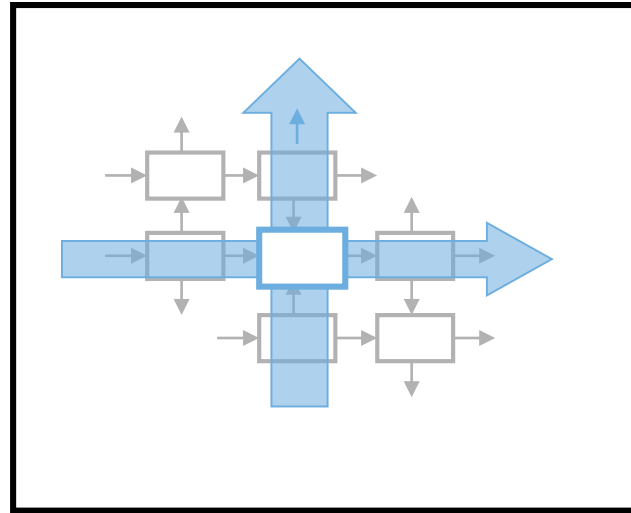
V_e = Value to Enterprise

V_u = Value to User

Total Value $V_t = V_u + V_e$

Investment Connected to Infrastructure

Investment connected to Infrastructure



V_i = Value to Infrastructure

V_e = Value to Enterprise

V_u = Value to User

$$\text{Total Value } V_t = V_u + V_e + V_i$$

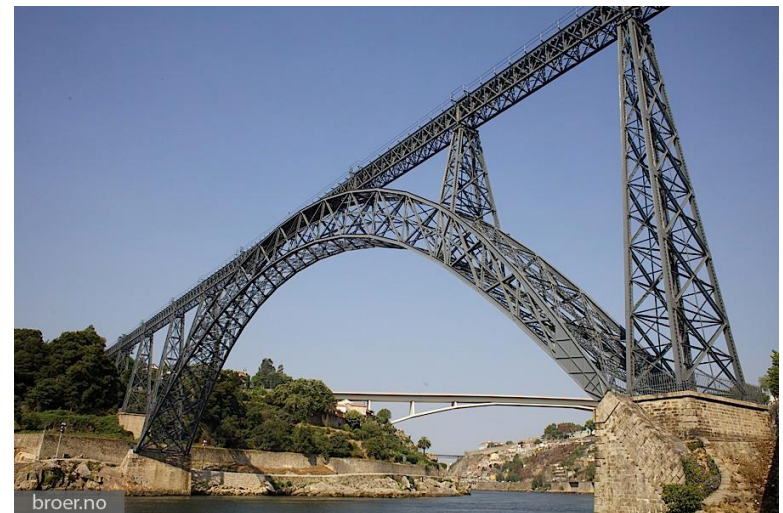
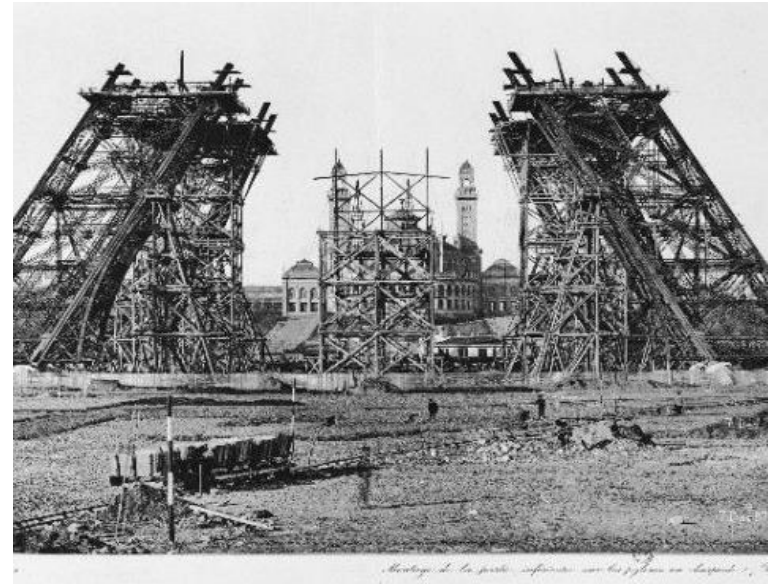
Tour Eiffel

- Built in 1889 for Universal Exposition
- World's most visited paid tourist attraction
 - Over 220M visitors
- 300m high, 125m wide
- Cost: 7.7M francs
- Paid for itself in 1 year
- What is the Value?



Tour Eiffel Construction

- 18,038 parts prefabricated in the workshop by 100 workers
- Assembled on site by 132 workers using 2.5M rivets
- Revolutionized building construction
- First major structure built using prefabricated parts
- What was the value?





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