Business Value of Agile Organizations

Strategies, Models, & Principles for Enterprise-Level Agility

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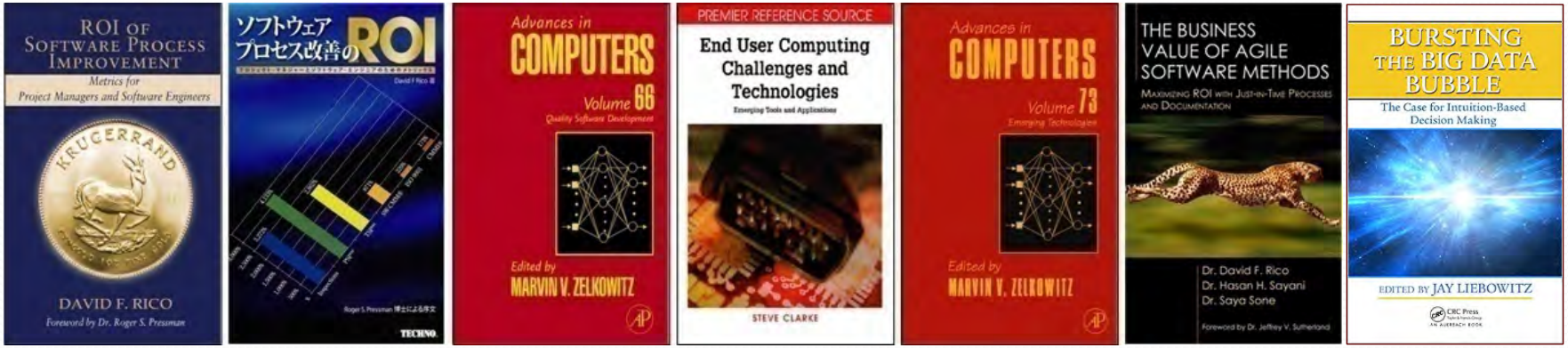
Agile Cost of Quality: http://www.davidfrico.com/agile-vs-trad-coq.pdf
DevOps Return on Investment (ROI): http://davidfrico.com/rico-devops-roi.pdf

Dave's NEW Business Agility Video: http://www.youtube.com/watch?v=hTvtsAkL8xU
Dave's NEWER Scaled Agile Framework SAFe 4.5 Video: http://youtu.be/1TAuCRq5a34
Dave's NEWEST Development Operations Security Video: http://youtu.be/qrWRoXSS9bs
Dave's BRAND-NEW ROI of Lean Thinking Principles Video: http://youtu.be/wkMfaPAxO6E
Dave's REALLY-NEW ROI of Evolutionary Design Principles Video: http://youtu.be/TcXI26ClRb0

DoD Fighter Jets versus Amazon Web Services: http://davidfrico.com/dod-agile-principles.pdf
Principles of Collaborative Contracts: http://davidfrico.com/collaborative-contract-principles.pdf
Principles of Lean Organizational Leadership: http://davidfrico.com/lean-leadership-principles.pdf
Principles of Evolutionary Architecture: http://davidfrico.com/evolutionary-architecture-principles.pdf
Principles of CI, CD, & DevOps - Development Operations: http://davidfrico.com/devops-principles.pdf
Principles of SAFe Transformations - Scaled Agile Framework: http://davidfrico.com/safe-principles.pdf

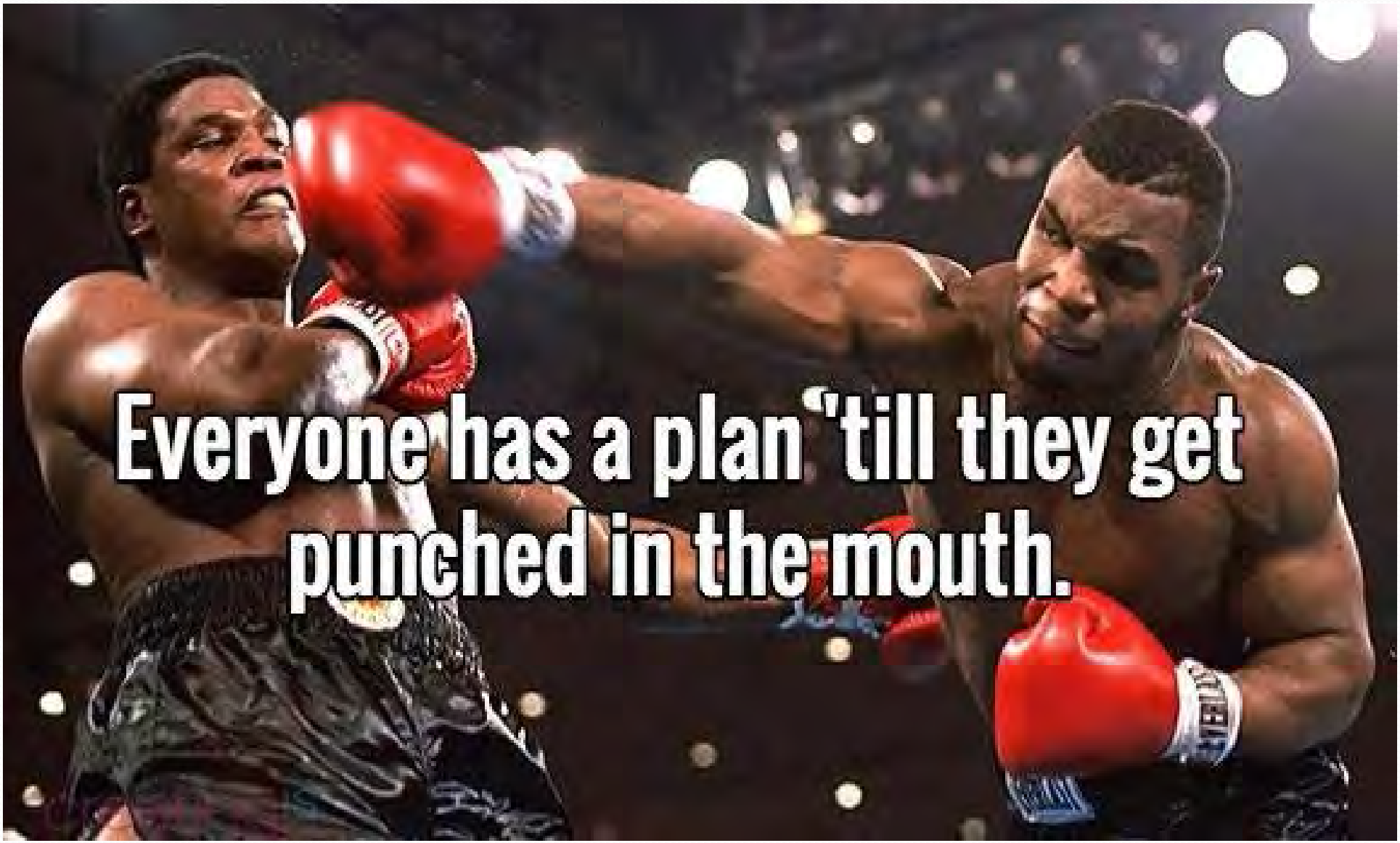
Author Background

- Gov't contractor with 38+ years of IT experience
- B.S. Comp. Sci., M.S. Soft. Eng., & D.M. Info. Sys.
- Large gov't projects in U.S., Far/Mid-East, & Europe



→ *Career systems & software engineering methodologist*
→ *Lean-Agile, Six Sigma, CMMI, ISO 9001, DoD 5000*
→ *NASA, USAF, Navy, Army, DISA, & DARPA projects*
→ *Published seven books & numerous journal articles*
→ *Intn'l keynote speaker, 276 talks to 126,000 people*
→ *Specializes in metrics, models, & cost engineering*
→ *Cloud Computing, SOA, Web Services, FOSS, etc.*
→ *Professor at 7 Washington, DC-area universities*

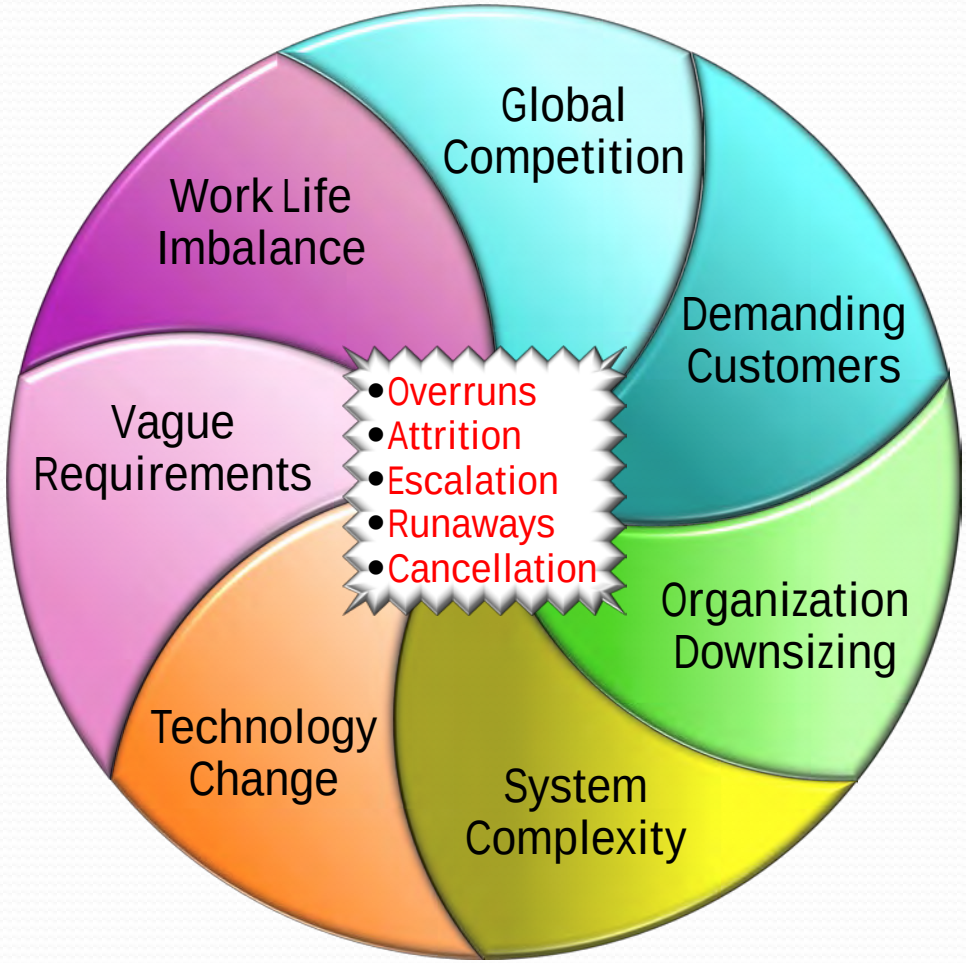
Business Agility—Mike Tyson

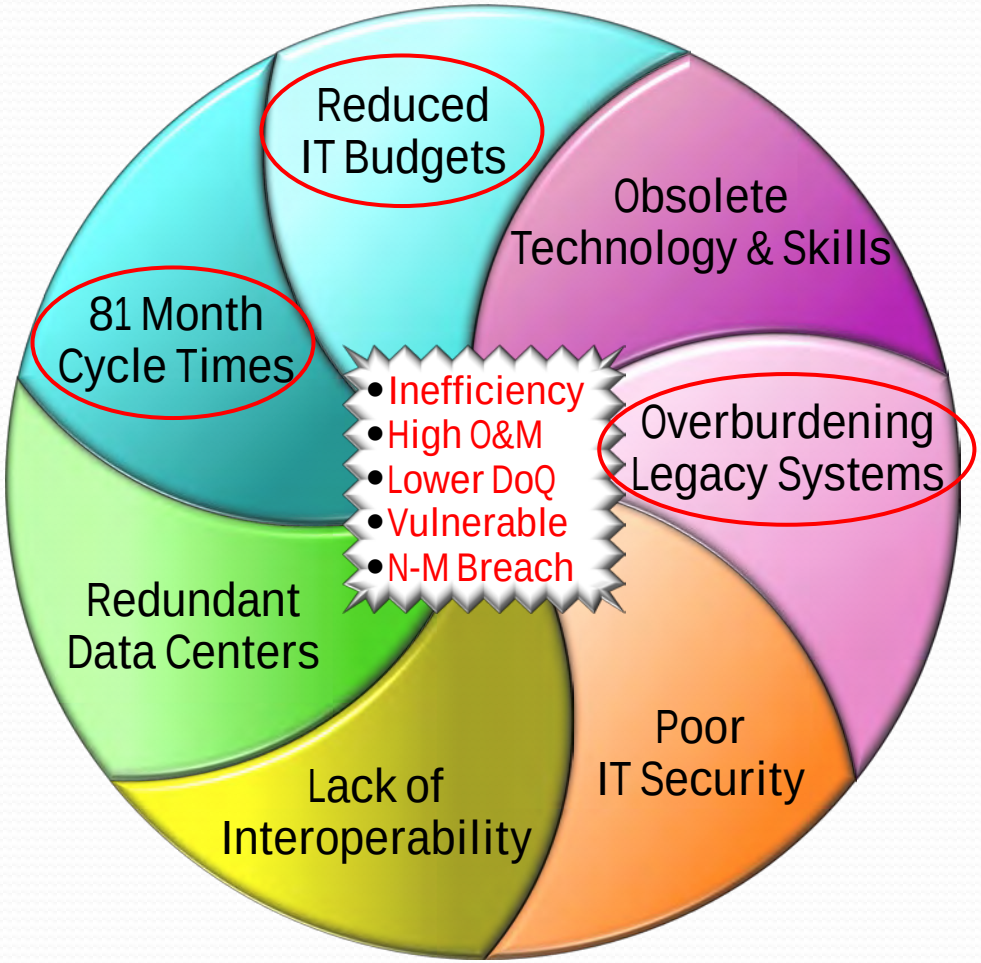


Business Agility—Related Quotes

- ***Everybody has a plan until I punch them in the mouth***
  -- Mike Tyson
- *It's tough to make predictions, especially about the future*
  -- Mark Twain
- ***A good plan violently executed today is better than a perfect plan tomorrow***
  -- George Patton
- *You can't predict the future, because it's becoming more unpredictable*
  -- William Fulmer
- ***Those who have knowledge don't predict, those who predict don't have knowledge***
  -- Lao Tzu
- *Some things are so unexpected that no one is prepared for them*
  -- Leo Roste
- ***Forecasters aren't smart, they merely have their ignorance better organized***
  -- Anonymous
- ***The herd instinct among forecasters makes sheep look like independent thinkers***
  -- Edgar Fiedler
- ***It's best to be bold instead of right, because most people are wrong anyway***
  -- Dave Rico

Business Agility Drivers





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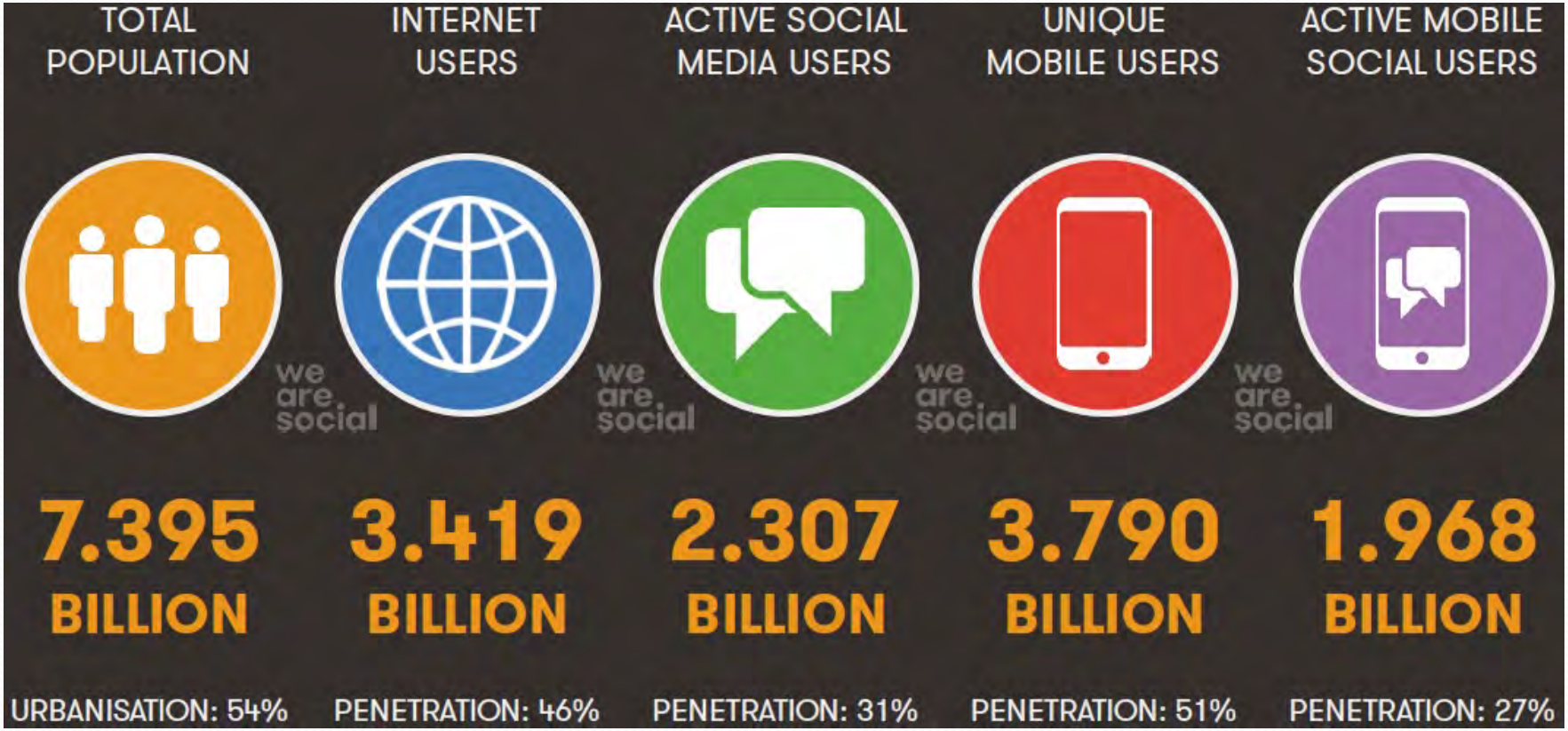
Today's Global Marketplace

- Most of world's population connected to Internet
- Systems must support billions of simultaneous users
- New approaches are needed to scale to global market



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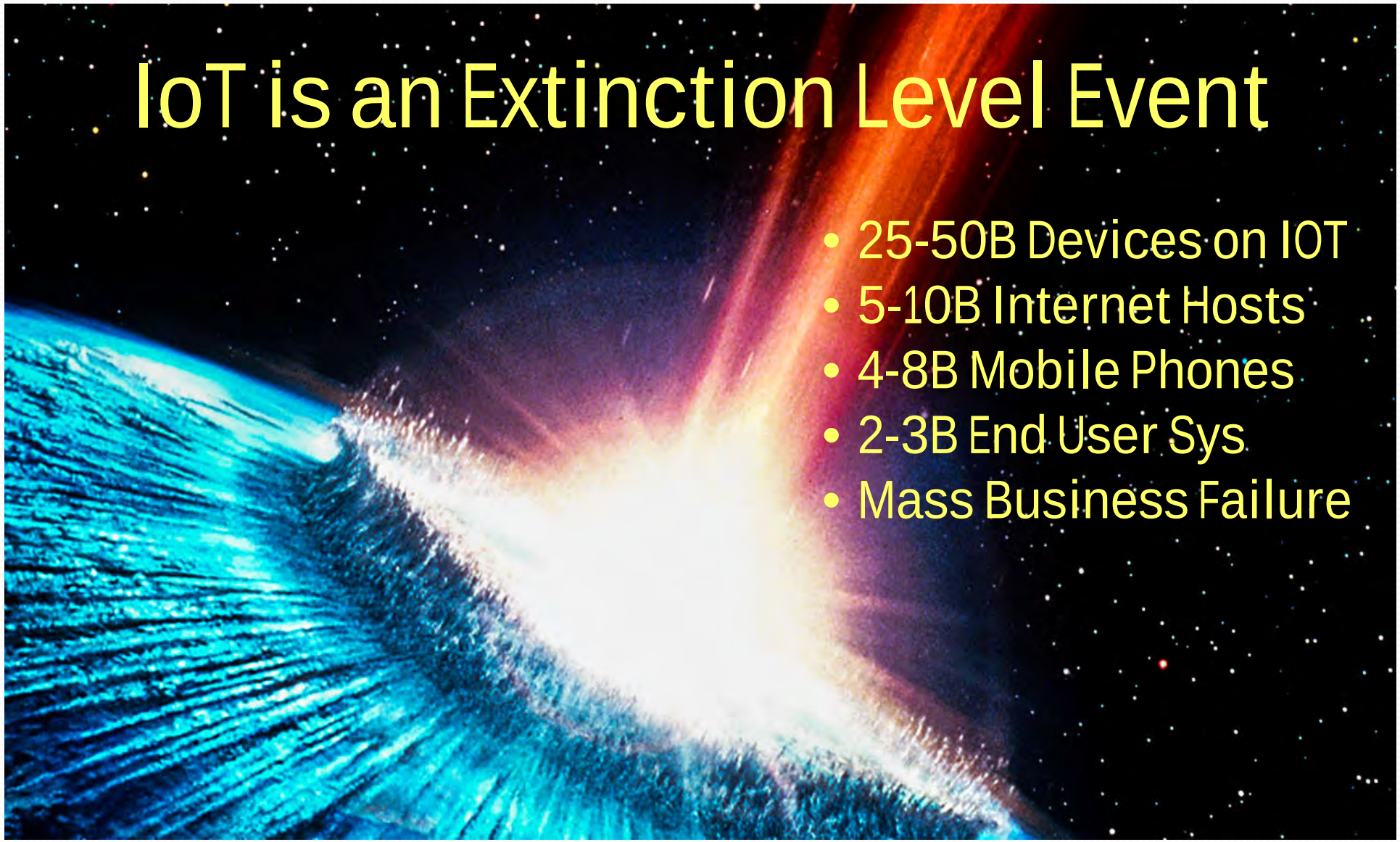
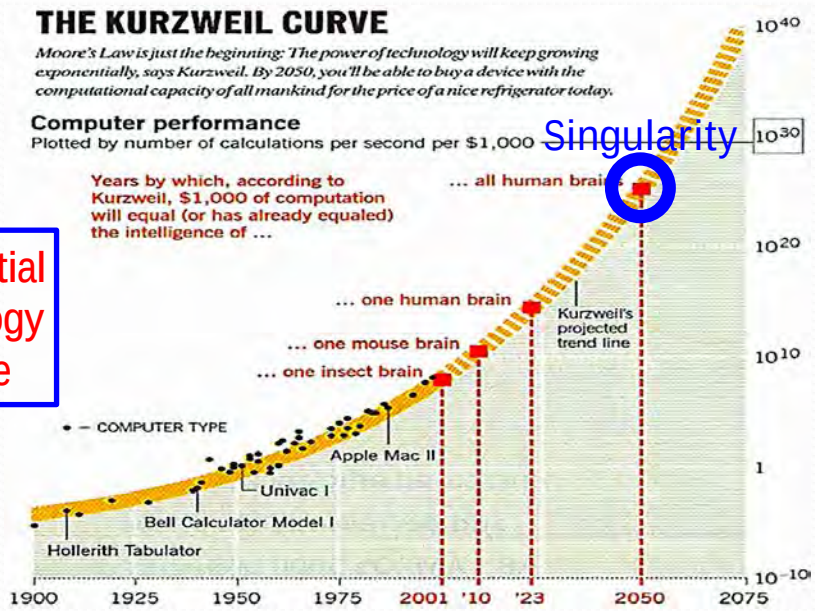
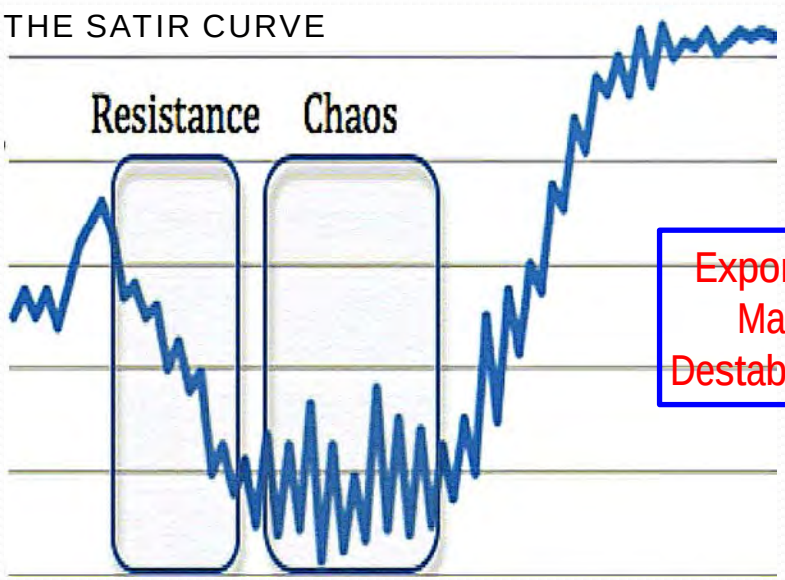
Internet of Things—Dinosaur Killer



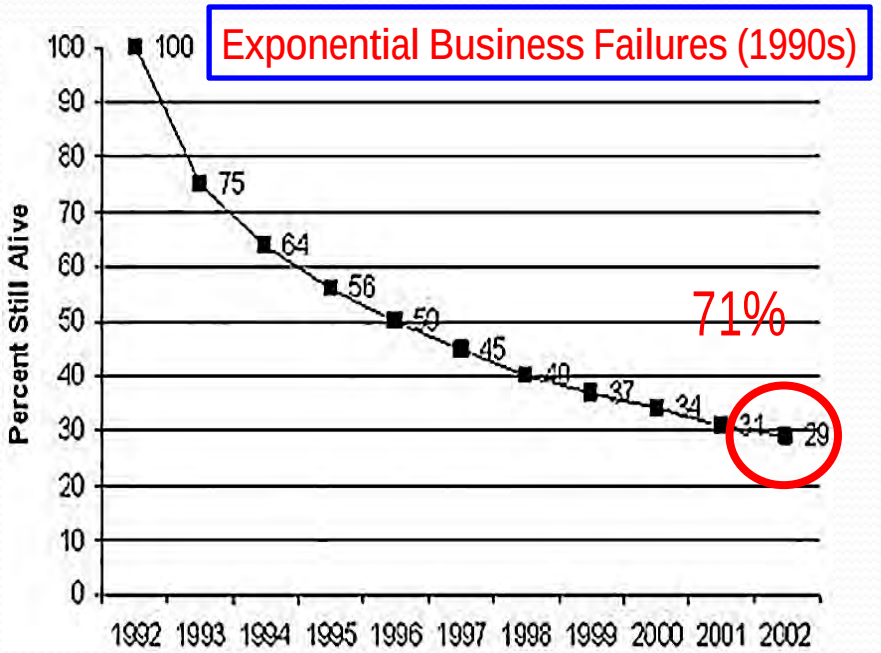
Business Agility—Newton's 3rd Law

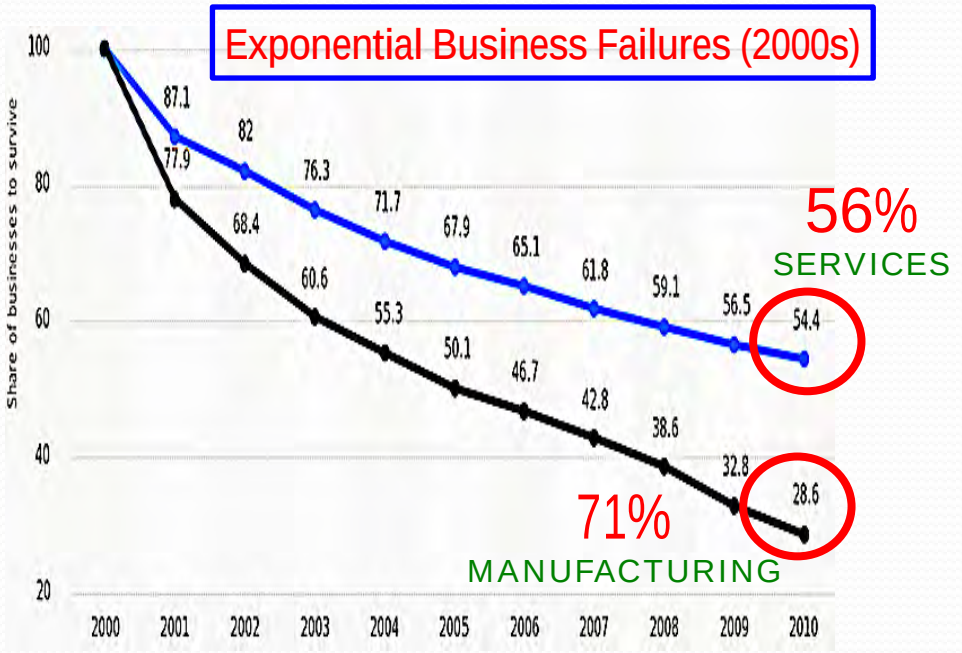


Exponential Technology Change

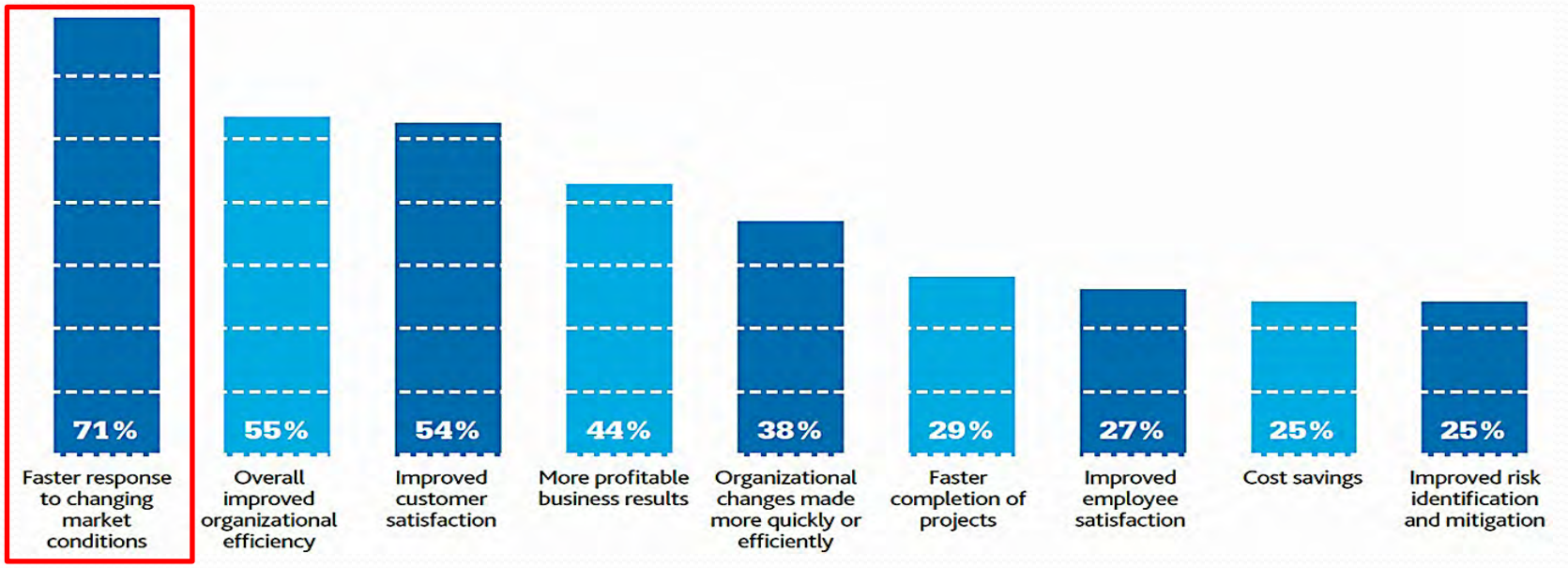


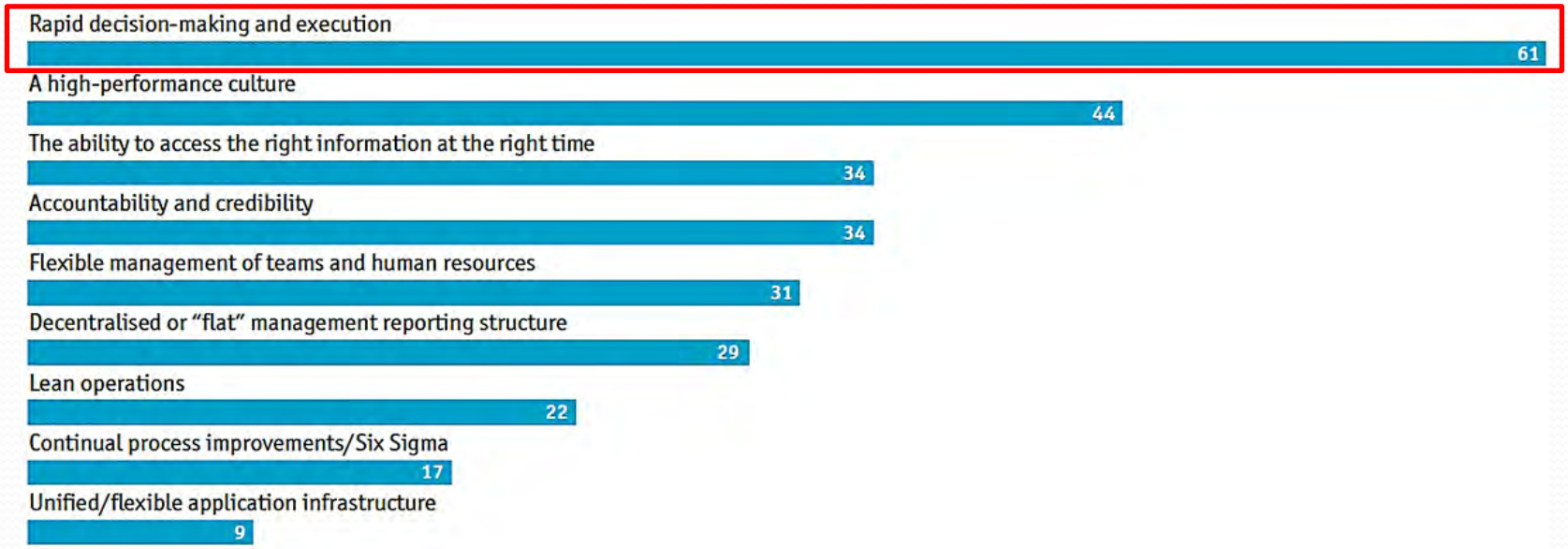
Exponential Market Destabilization





Business Agility Justification





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What is Business Agility?

- A-gil-i-ty (ə-'ji-lə-tē) Property consisting of quickness, lightness, and ease of movement; To be very nimble
  - *The ability to create and* **respond to change** *in order to profit in a turbulent global business environment*
  - *The ability to* **quickly reprioritize** *use of resources when requirements, technology, and knowledge shift*
  - *A very* **fast response** *to sudden market changes and emerging threats by intensive* **customer interaction**
  - *Use of* **evolutionary**, **incremental**, *and* **iterative** *delivery to converge on an optimal customer solution*
  - *Maximizing* **BUSINESS VALUE** *with right sized, just-enough, and just-in-time processes and documentation*

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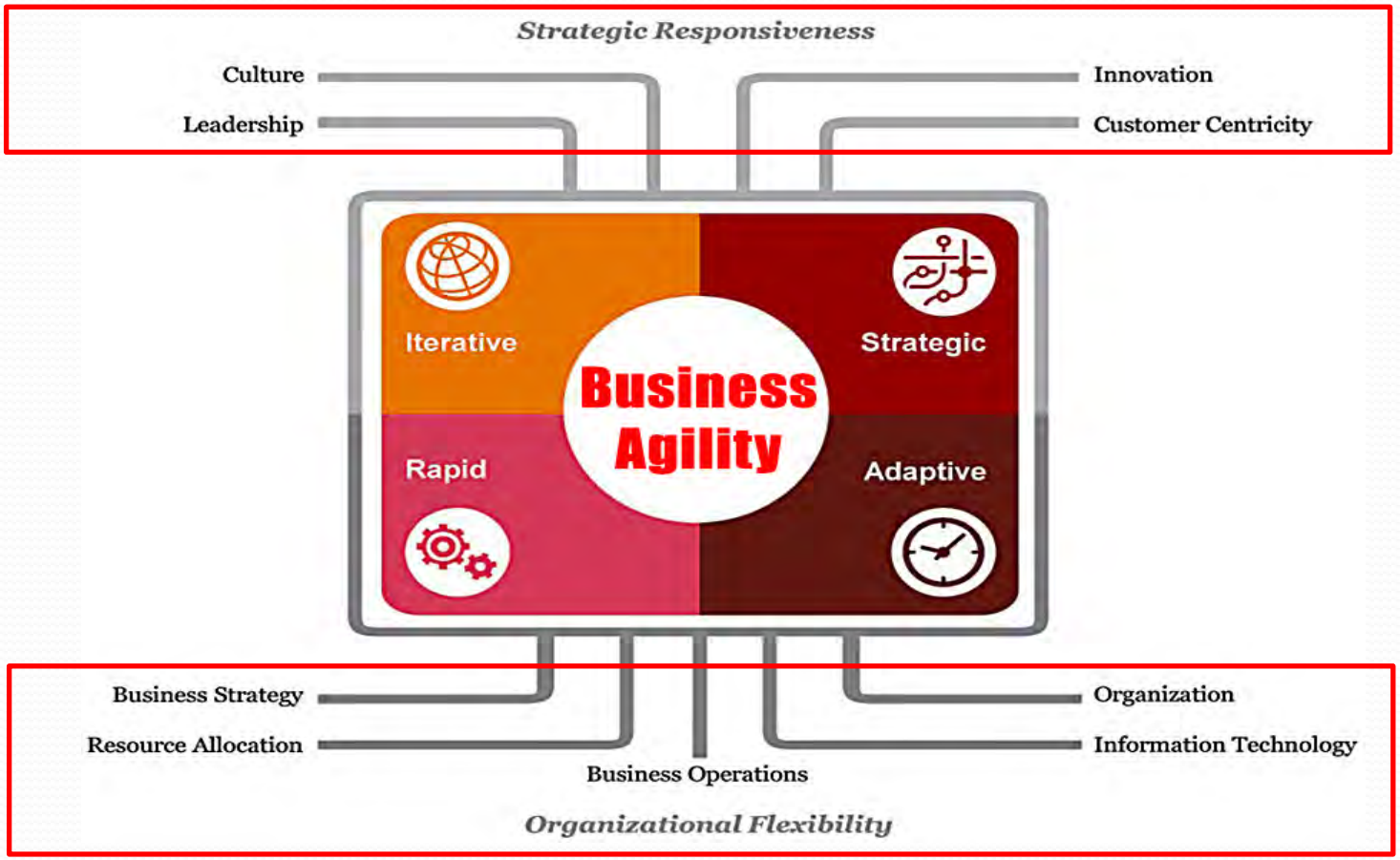
What is Business Agility?

- People-centric way to create innovative solutions
- Product-centric alternative to big work-in-process
- Market-centric model to maximize business value



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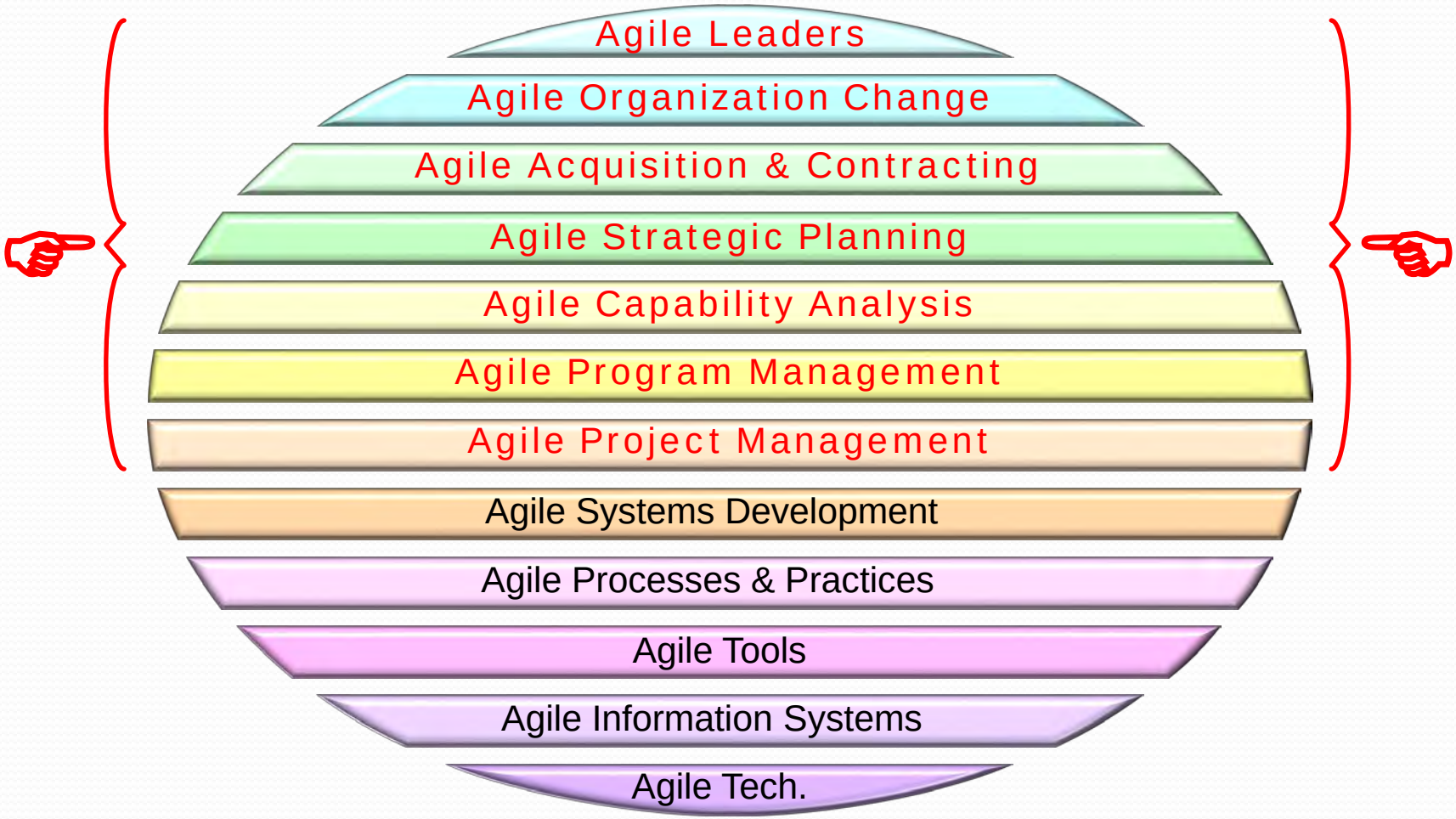
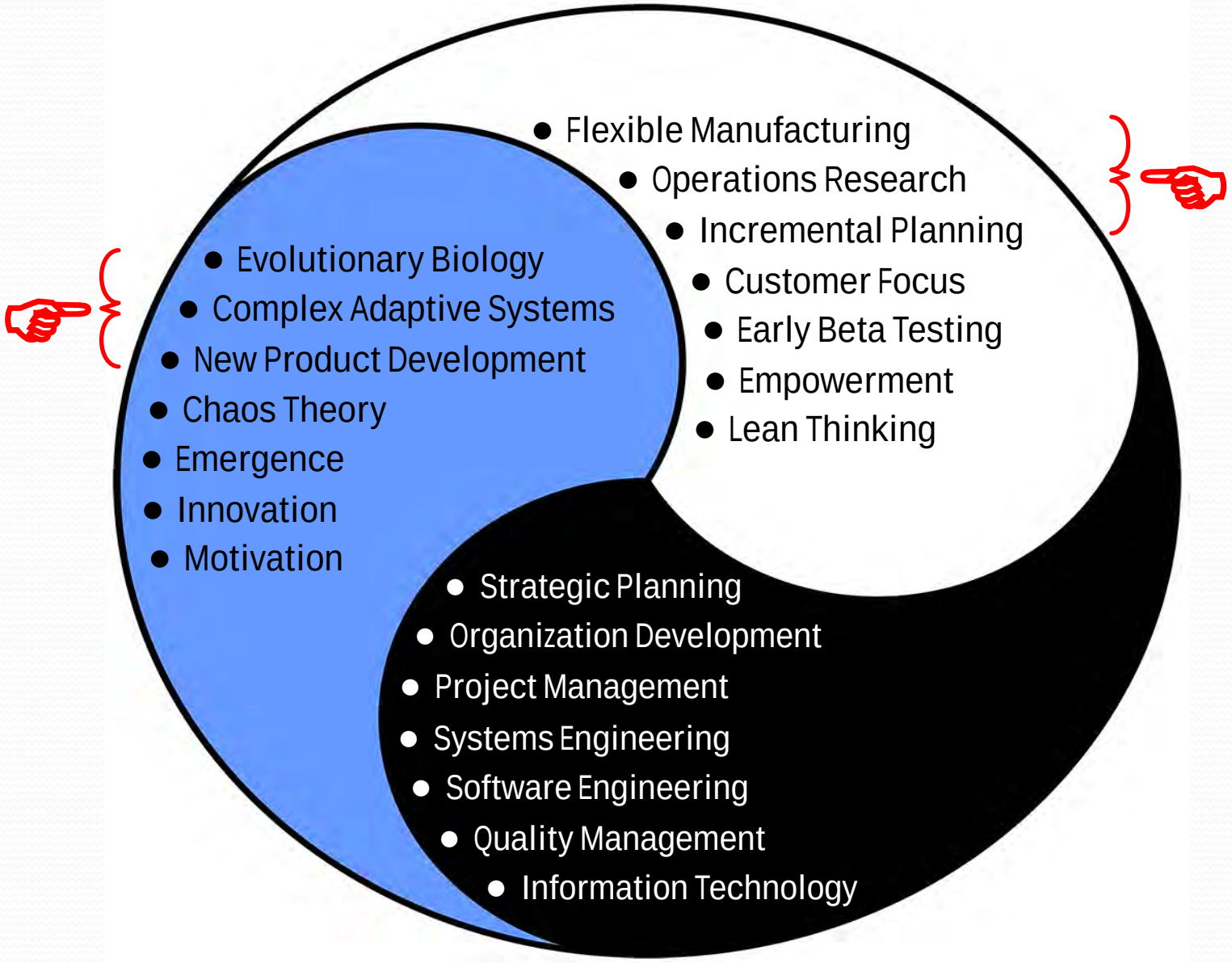
Business Agility Dimensions

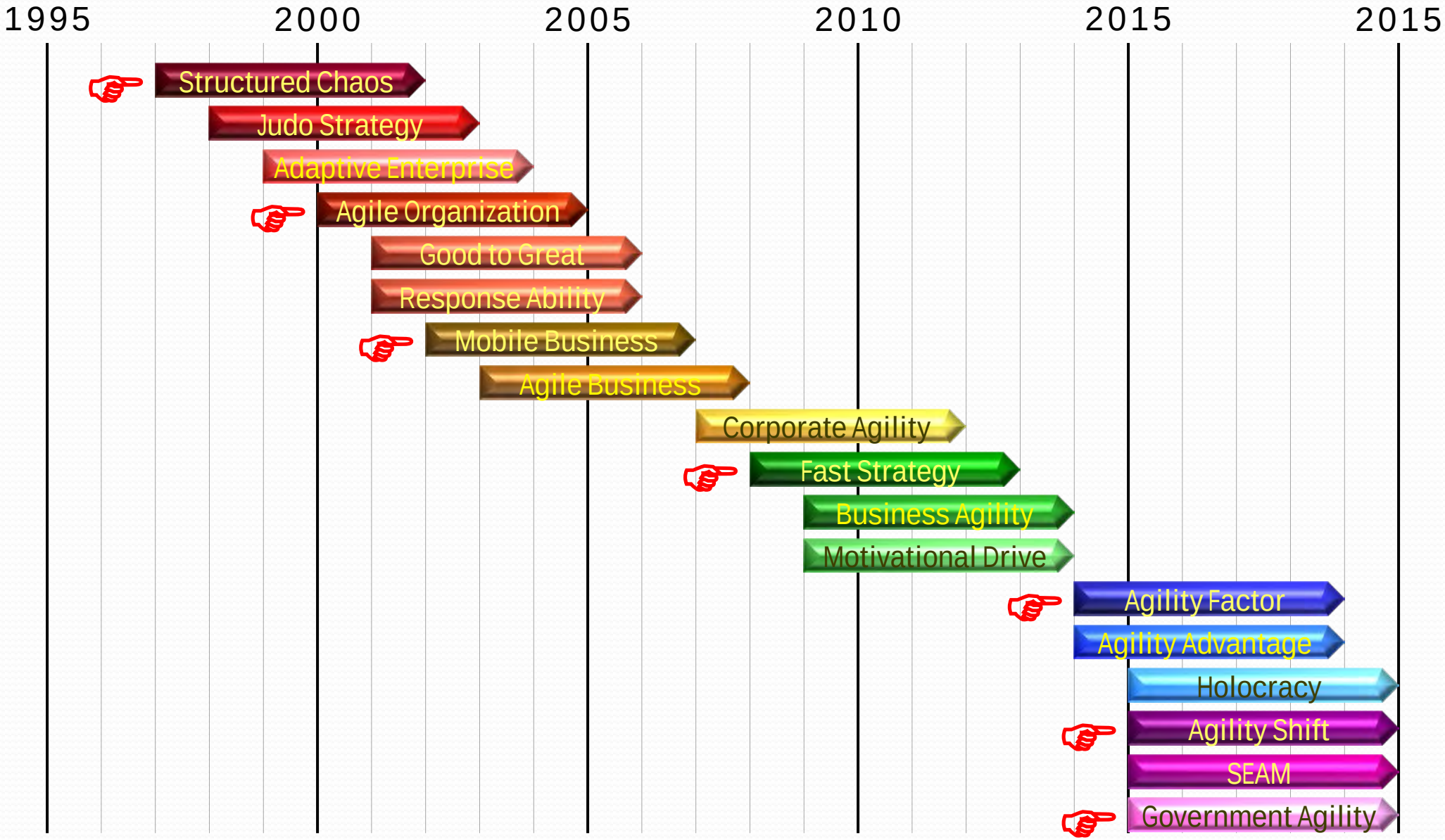
- "Agility" has many dimensions other than IT
- It ranges from leadership to technological agility
- Today's focus is on organizational & enterprise agility



Business Agility Antecedents



Business Agility Timeline



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Business Agility Definitions

No	Year	Model	Author	Definition
1	1997	Structured Chaos	Brown	Reacting responsibly to, **anticipating**, and dictating the pace of **change**
2	1998	Judo Strategy	Cusumano	Using speed and agility to mitigate effects of a company's **competitors**
3	1999	Adaptive Enterprise	Haeckel	Ability of large complex organization to systematically **adapt** to **change**
4	2000	Agile Organization	Fulmer	Sense making for **success** by understanding **landscape**, **learning**, & **leading**
5	2001	Good to Great	Collins	Increasing **performance** standing by disciplined **thought**, **people**, and **action**
6	2001	Response Ability	Dove	**Intellectual** and **physical** ability to **act** upon **knowledge** for business **success**
7	2002	Mobile Business	Evans	Confluence of business **processes**, **e-commerce**, and **wireless** communications
8	2003	Agile Business	McCarthy	Common ability to maintain a **steady** course in the face of economic **change**
9	2007	Corporate Agility	Grantham	Creating **new products** and **markets** faster than competitors by **reducing costs**
10	2008	Fast Strategy	Dos	Striking with **strength** and speed through **strategy**, **commitment**, and **fluidity**
11	2009	Business Agility	Hugos	Ability to respond and act quickly to capitalize on **new opportunities**
12	2009	Motivational Drive	Pink	**Strategy** of **empowering** people with **autonomy**, **mastery**, and **purpose**
13	2014	Agility Factor	Worley	Ability to make timely, **effective**, and **sustained** organizational **changes**
14	2014	Agility Advantage	Setili	**Seeing** and responding to market **changes capably** and quickly than others
15	2015	Holacracy	Robertson	Governance structure for **semi-autonomous teams** enabling rapid adaptation
16	2015	Agility Shift	Meyer	Competence, capacity, and confidence to learn, adapt, and innovate
17	2015	SEAM	Worley	Ability to make timely, effective, and sustainable organizational **changes**
18	2015	Government Agility	Rico	Adapting to change by reducing **scope**, **outsourcing**, and **collaboration**

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Business Agility Attributes

Category	Attribute	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Strategic Agility	Objective			✓	✓	✓	✓	✓	✓	✓		✓		✓	✓		✓	✓	✓
	Experiments	✓	✓	✓	✓				✓					✓	✓		✓		✓
	Vision-Strategy		✓	✓			✓	✓		✓	✓	✓		✓	✓	✓		✓	✓
	Time Based	✓										✓						✓	✓
	Change-Adapt	✓		✓	✓		✓		✓		✓	✓		✓			✓	✓	✓
	Customer Focus				✓			✓							✓				✓
	Relationships		✓					✓	✓			✓			✓		✓	✓	✓
Cultural Agility	Leadership				✓	✓					✓	✓				✓			✓
	Talent		✓		✓	✓			✓						✓			✓	✓
	Purpose			✓	✓					✓			✓	✓	✓	✓		✓	✓
	Collaborative				✓										✓				✓
	Communication				✓				✓		✓			✓	✓		✓		✓
	Empowerment				✓	✓	✓		✓	✓	✓		✓		✓				✓
	Improvement											✓	✓	✓	✓		✓		✓
Process Agility	Continuous																		✓
	Iterative	✓	✓	✓				✓	✓					✓	✓				✓
	Operational	✓	✓	✓				✓						✓	✓				✓
	Lightweight																		✓
	Disciplined								✓										✓
	Improving		✓	✓				✓	✓			✓		✓	✓				✓
	Automation		✓																✓
Product & Service Agility	Fewer						✓	✓											✓
	Smaller						✓	✓											✓
	Modular		✓				✓	✓											✓
	Flexible		✓				✓	✓											✓
	Reconfigurable		✓				✓	✓											✓
	Inexpensive						✓	✓											✓
	Throwaway						✓	✓											✓
Technology Agility	Software					✓		✓											✓
	Open Source					✓		✓											✓
	Microservices					✓		✓											✓
	Commercial					✓		✓											✓
	Reusable					✓		✓											✓
	Cloud Computing					✓		✓											✓
	Mobile					✓		✓											✓
IT Infrastructure Agility	Intranet			✓		✓		✓		✓							✓		✓
	Internet			✓		✓		✓		✓							✓		✓
	Text			✓		✓		✓		✓							✓		✓
	Email			✓		✓		✓		✓							✓		✓
	Cellphone			✓		✓		✓		✓							✓		✓
	Video			✓		✓		✓		✓							✓		✓
	Workflow			✓		✓		✓		✓							✓		✓
Organization Design Agility	Narrow		✓												✓	✓			✓
	Flatter														✓	✓			✓
	Networked											✓				✓			✓
	Organic	✓														✓			✓
	Self Organizing						✓									✓			✓
	Cross Functional			✓											✓	✓			✓
	Light Governance	✓		✓		✓	✓				✓					✓		✓	✓
Capital Infrastructure Agility	Virtual						✓			✓	✓								✓
	Telepresence						✓			✓	✓								✓
	Outsourced						✓			✓	✓								✓
	Offshoring						✓			✓	✓								✓
	Global						✓			✓	✓								✓
	Public						✓			✓	✓								✓
	Leased						✓			✓	✓								✓

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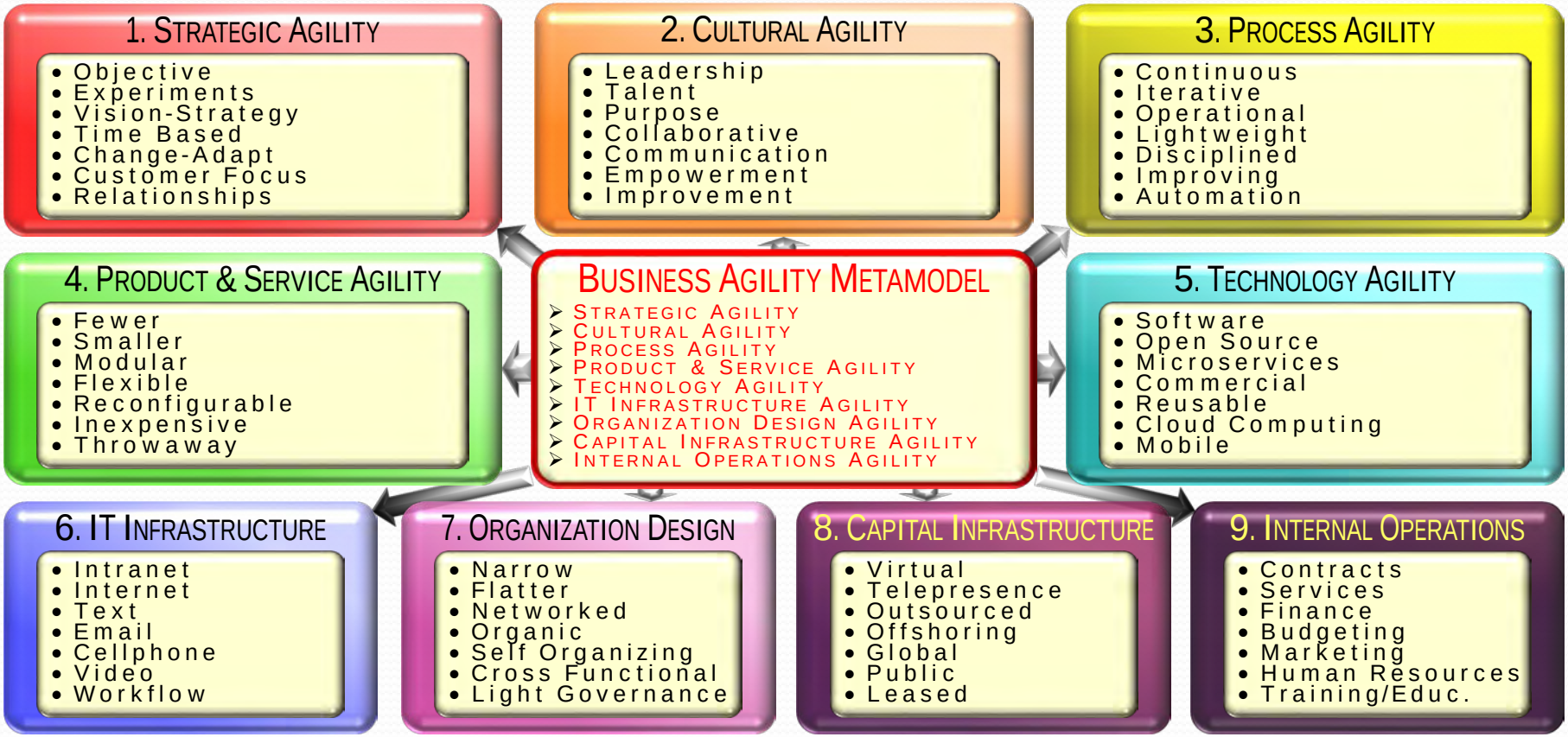
Business Agility Metamodel

- Created by Dave Rico in 2015-16
- Metamodel analysis of 18 major approaches
- Product, technology, & infrastructure major themes



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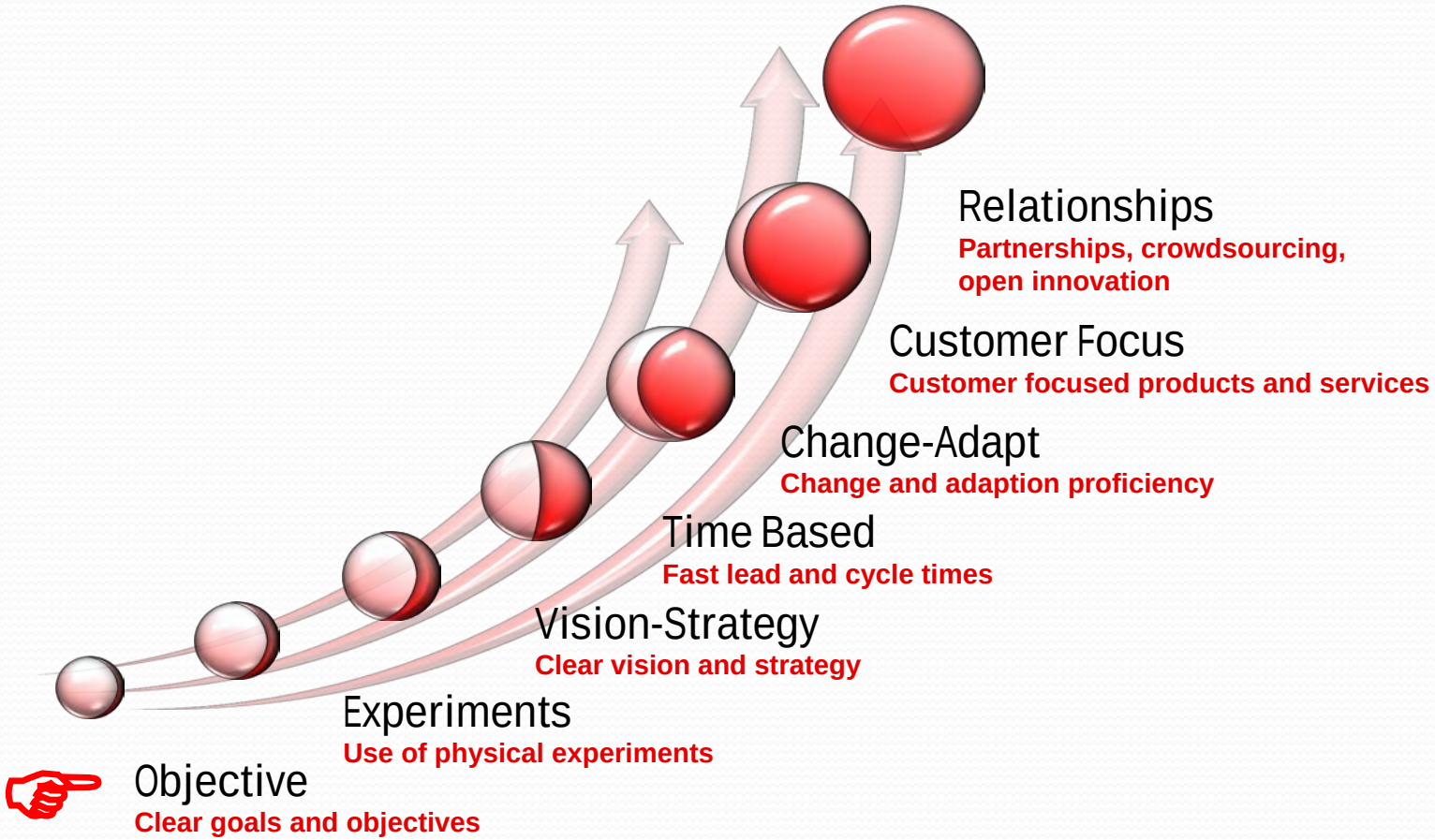
1. Strategic Agility

- Top-level plan to achieve enterprise-wide objectives
- Objective, experimental, temporary, & evolutionary
- Customer-focused, bottoms-up, & adaptable



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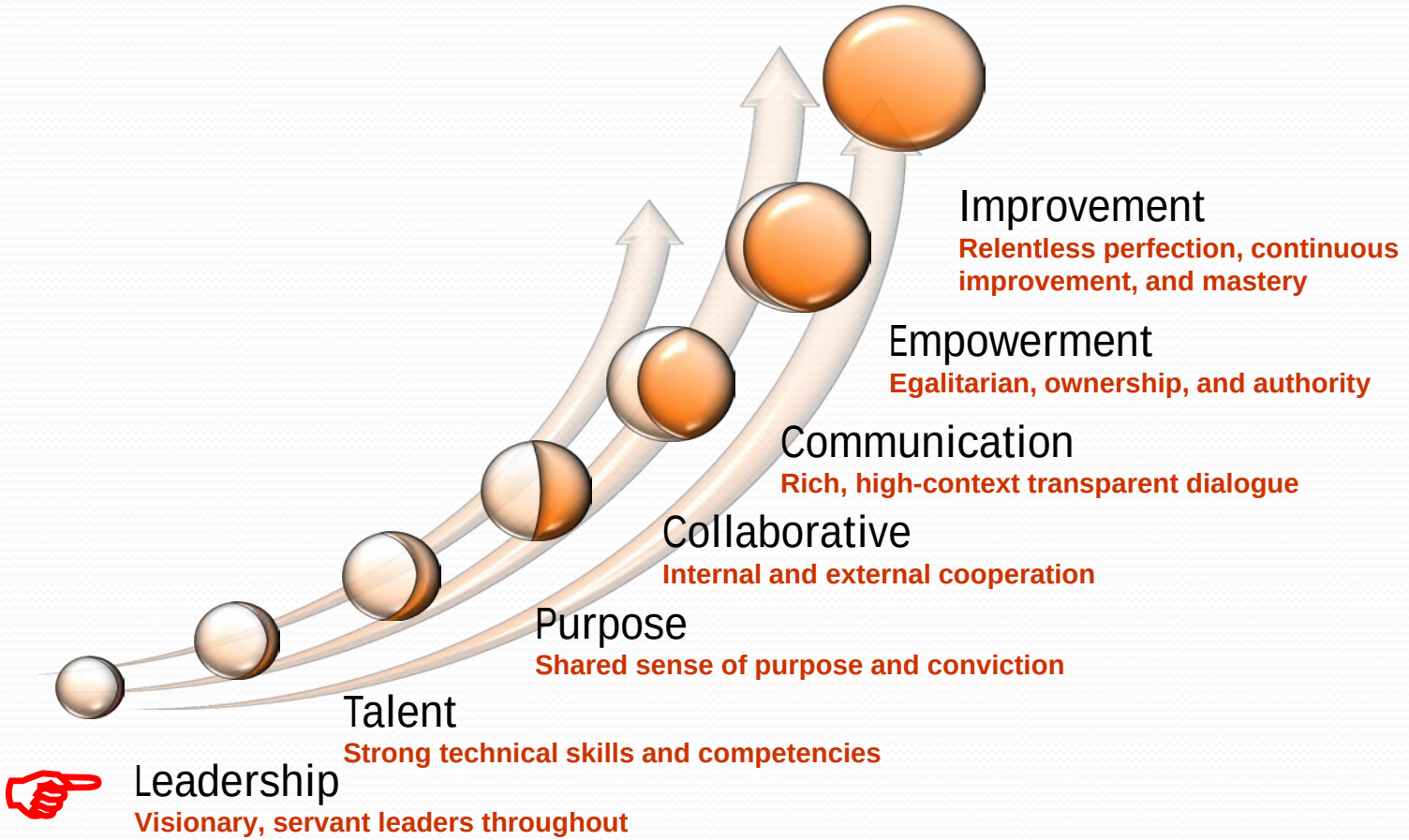
2. Cultural Agility

- Organizational values, ideas, beliefs, & knowledge
- Visionary leaders, talented workforce, & purposeful
- Collaborate, empower, & continuous improvement



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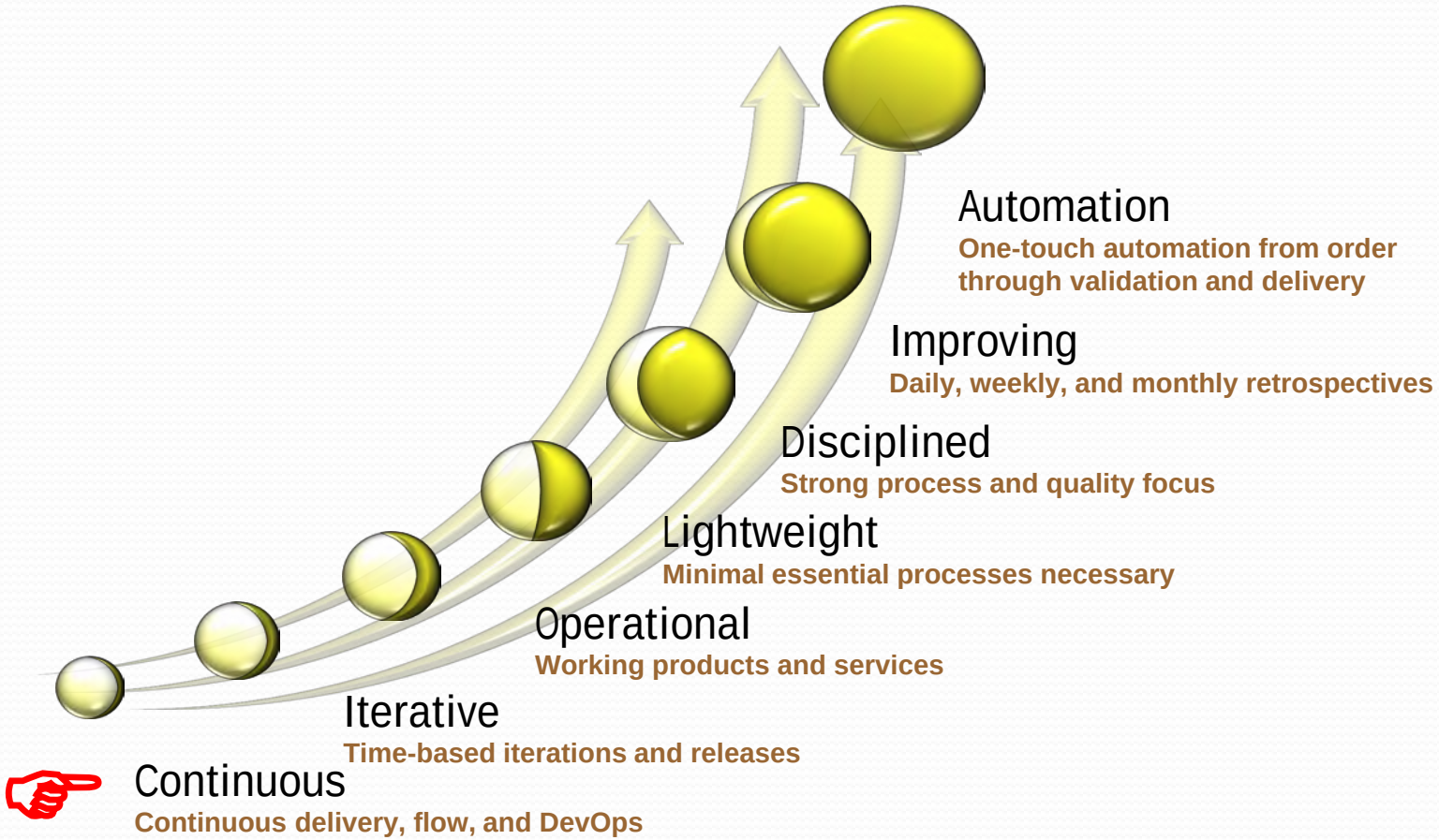
3. Process Agility

- Operational steps to generate product & service
- Lean-agile discipline, quality-focused, lightweight
- Continuous flow, time-based, & highly-automated



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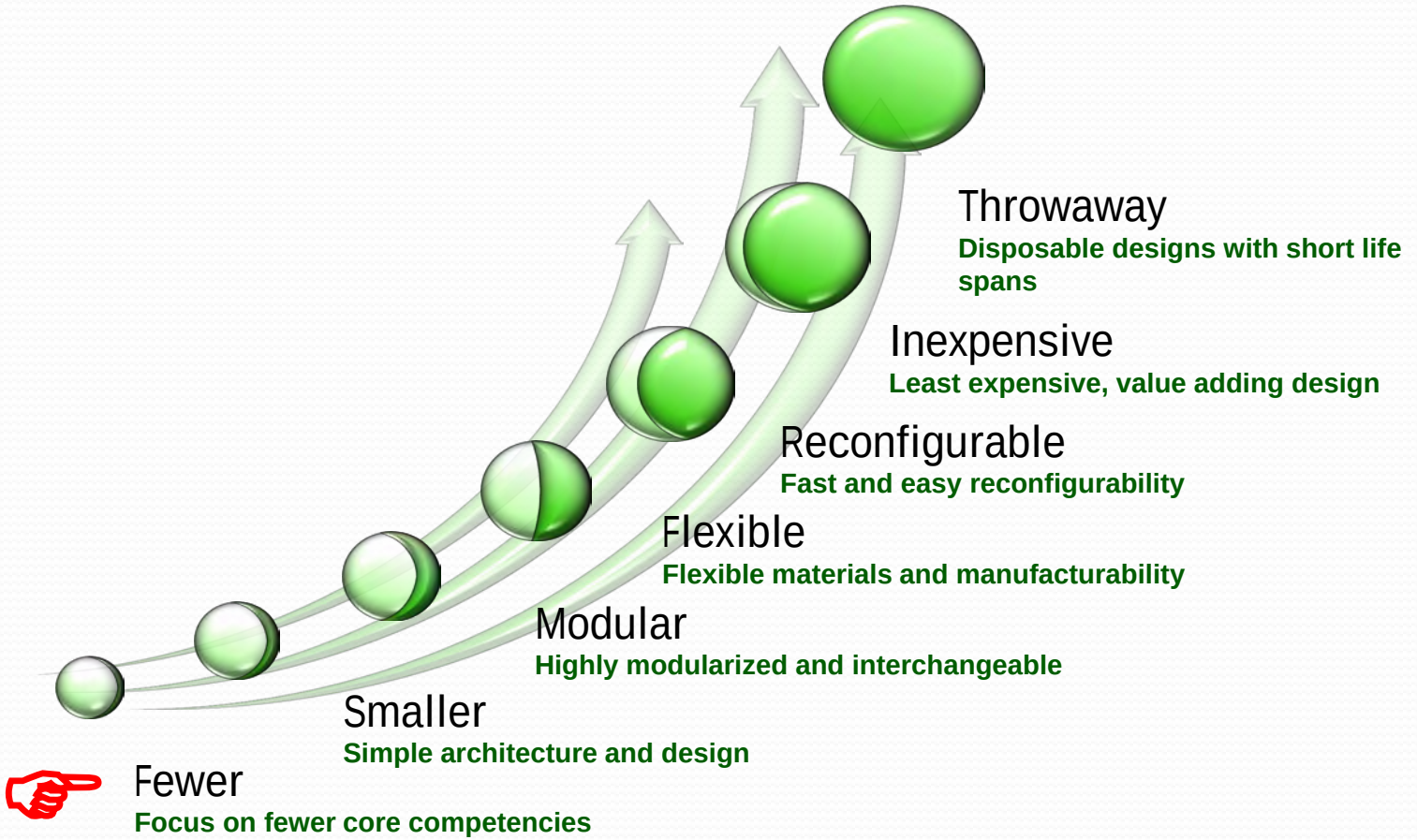
4. Product & Service Agility

- Goods or services with value organizations produce
- Simplest design, rapid & inexpensive producibility
- Core competencies, small-simple, & temporary



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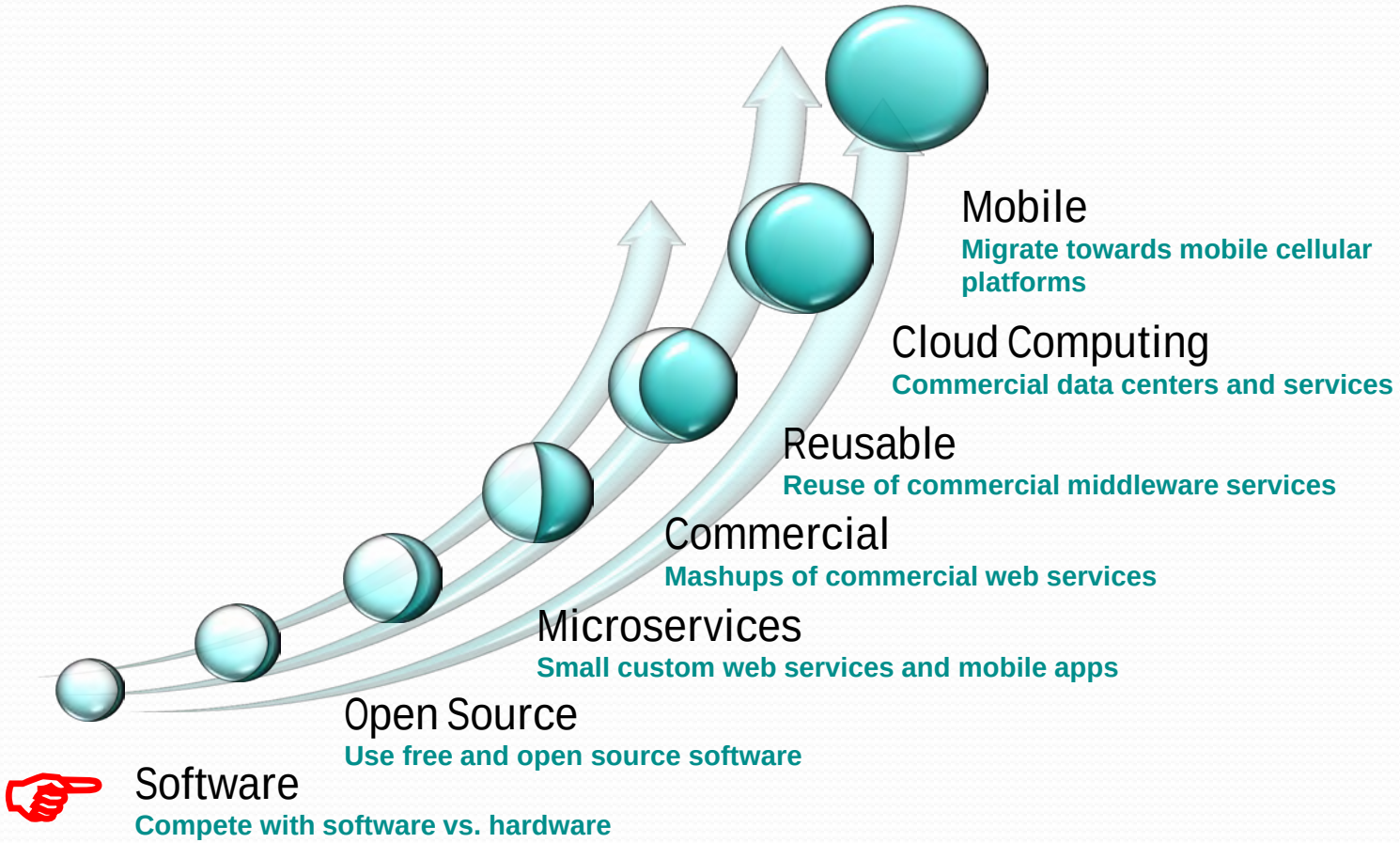
5. Technology Agility

- Underlying science, engineering, & materials used
- Fast, inexpensive, flexible, malleable, & evolutionary
- Software, free open source, & commercial IT services



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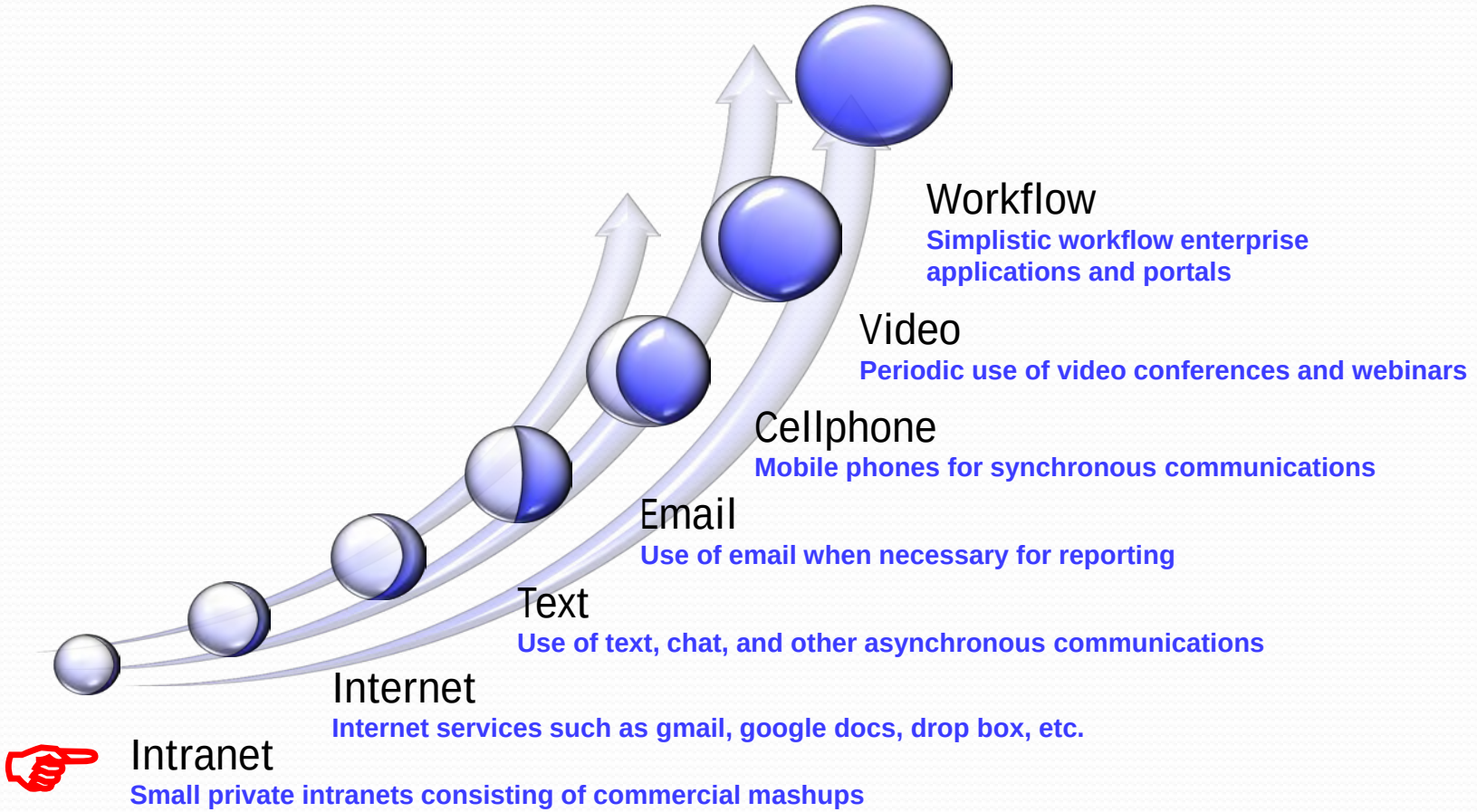
6. IT Infrastructure Agility

- Public or private network for business operations
- Web services, communications, & collaboration
- Internet, asynchronous, & personally-owned



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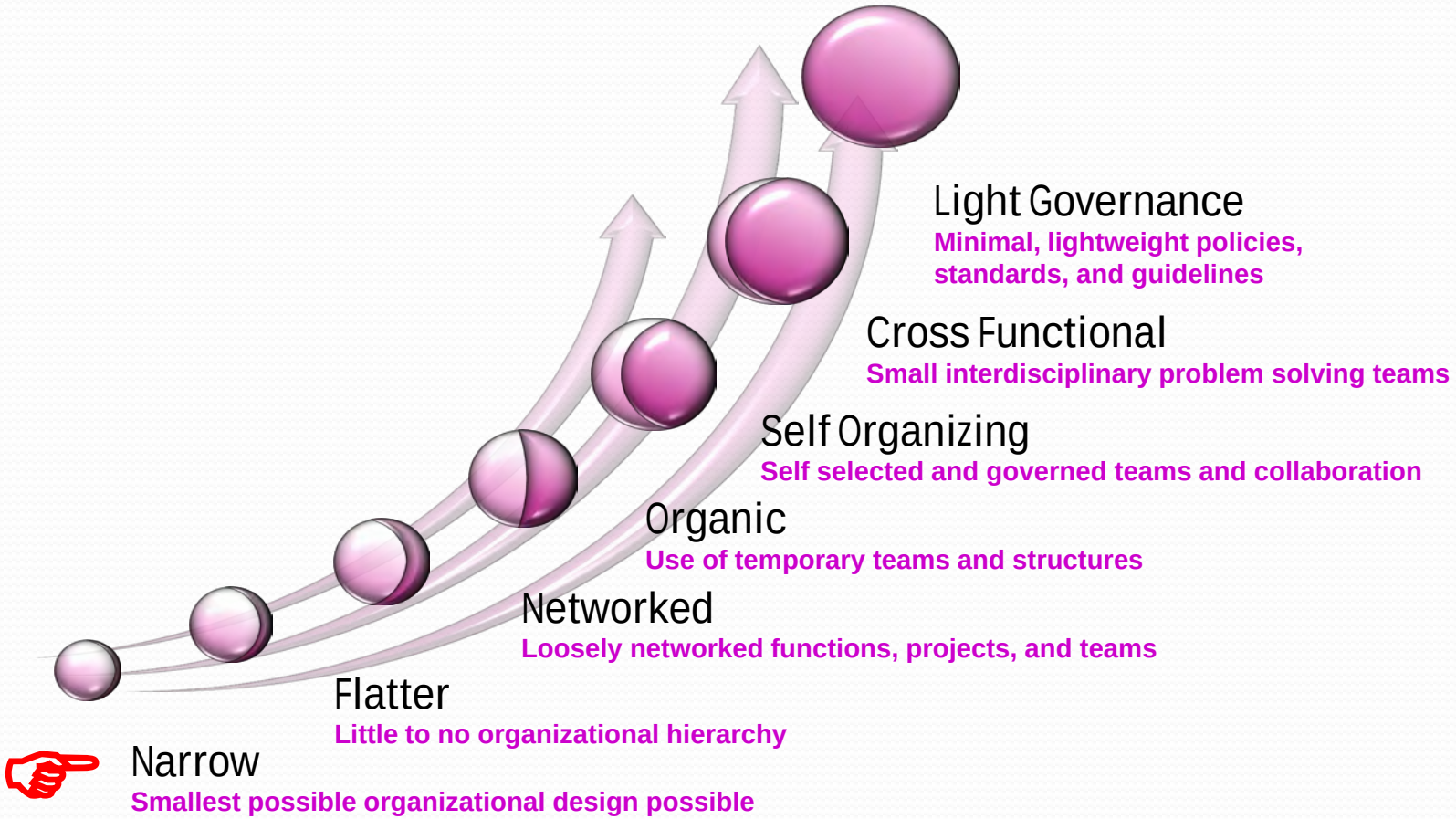
7. Organization Design Agility

- Internal management hierarchy of organization
- Flat, small, narrow, networked, & technical focus
- Extremely flat, self-organizing, & light governance



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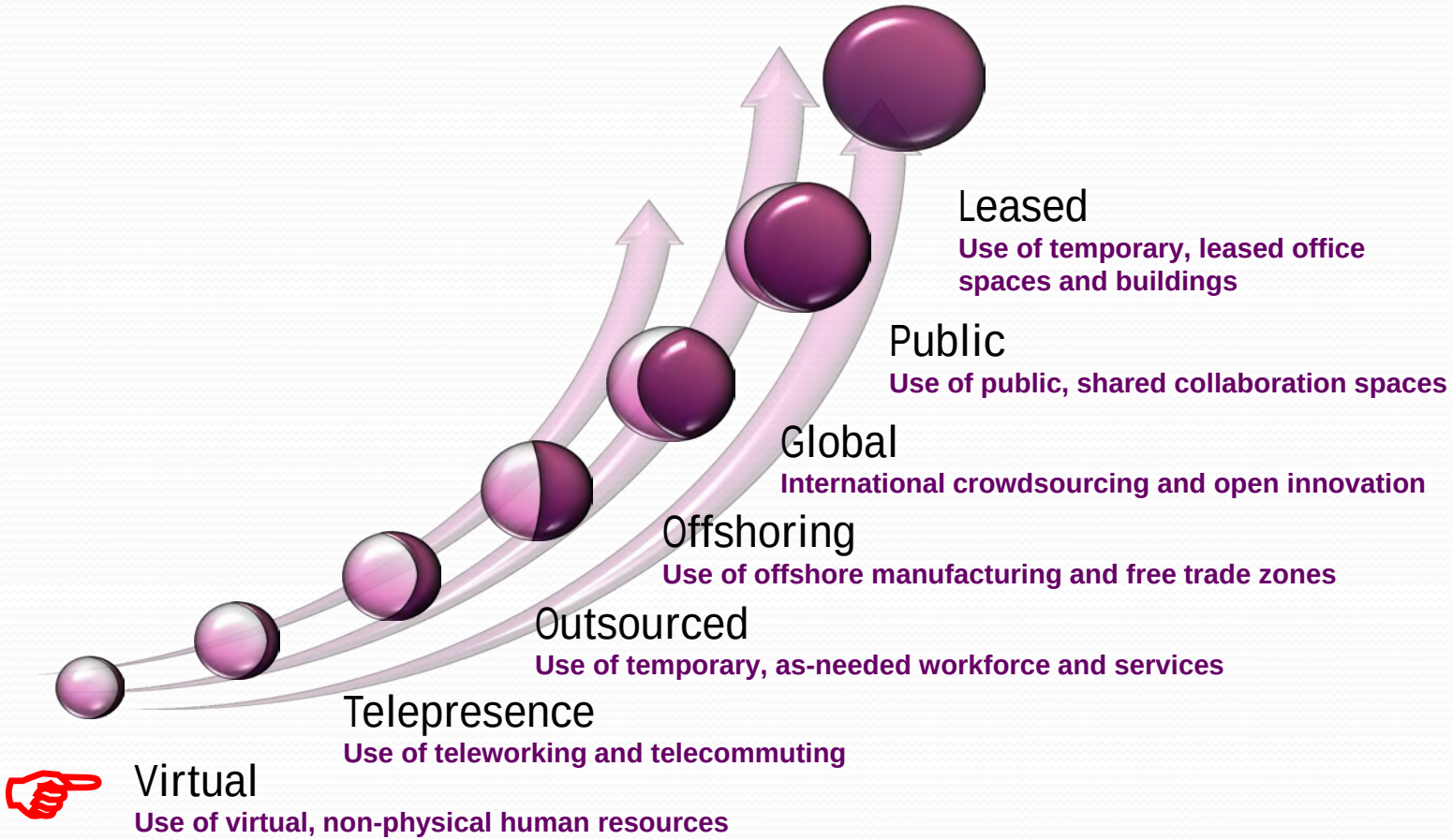
8. Capital Infrastructure Agility

- Capital infrastructure used to house business (CAPEX)
- Smallest possible, outsourced, and personally owned
- Virtual, Internet-based, & commercially-outsourced



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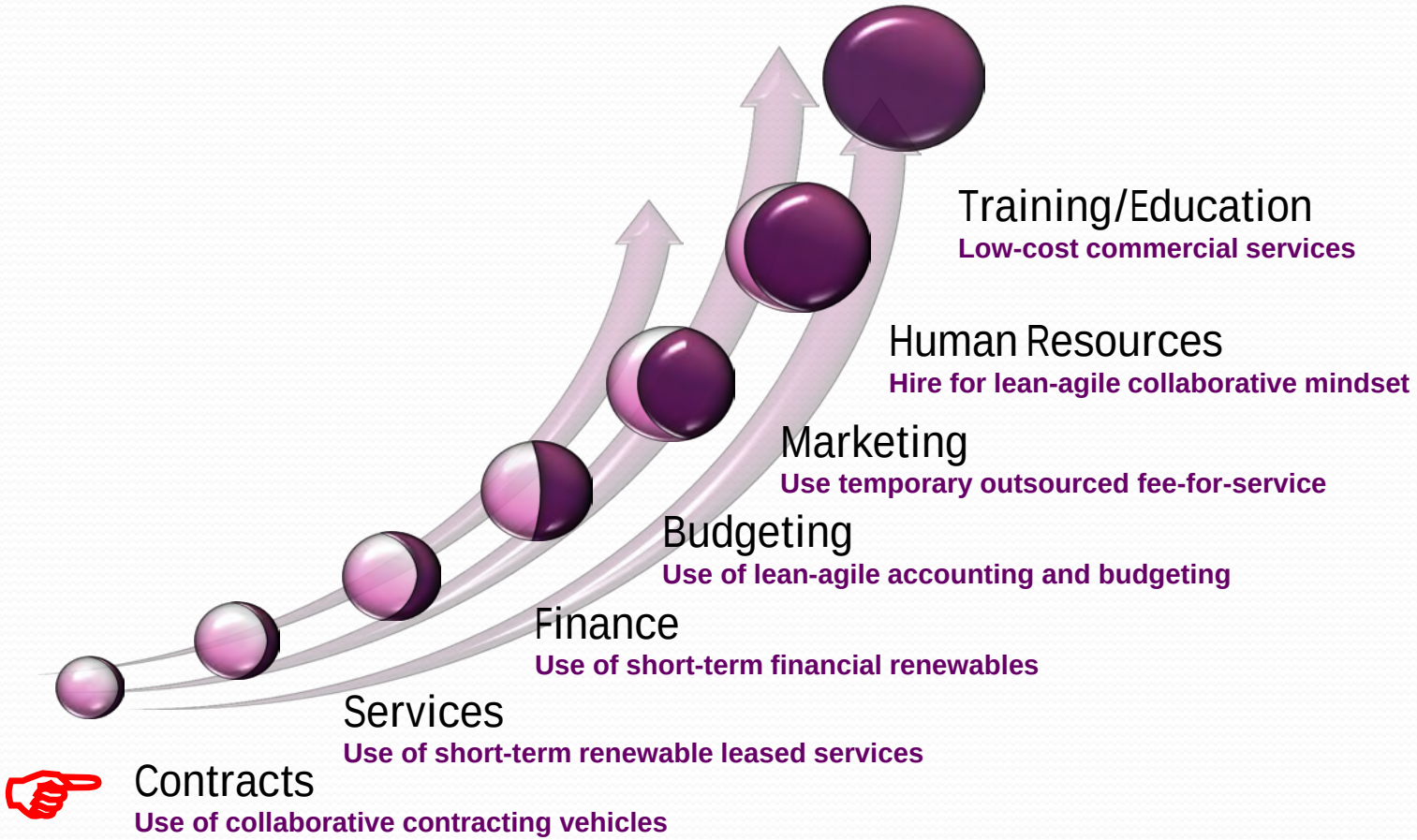
9. Internal Operations Agility

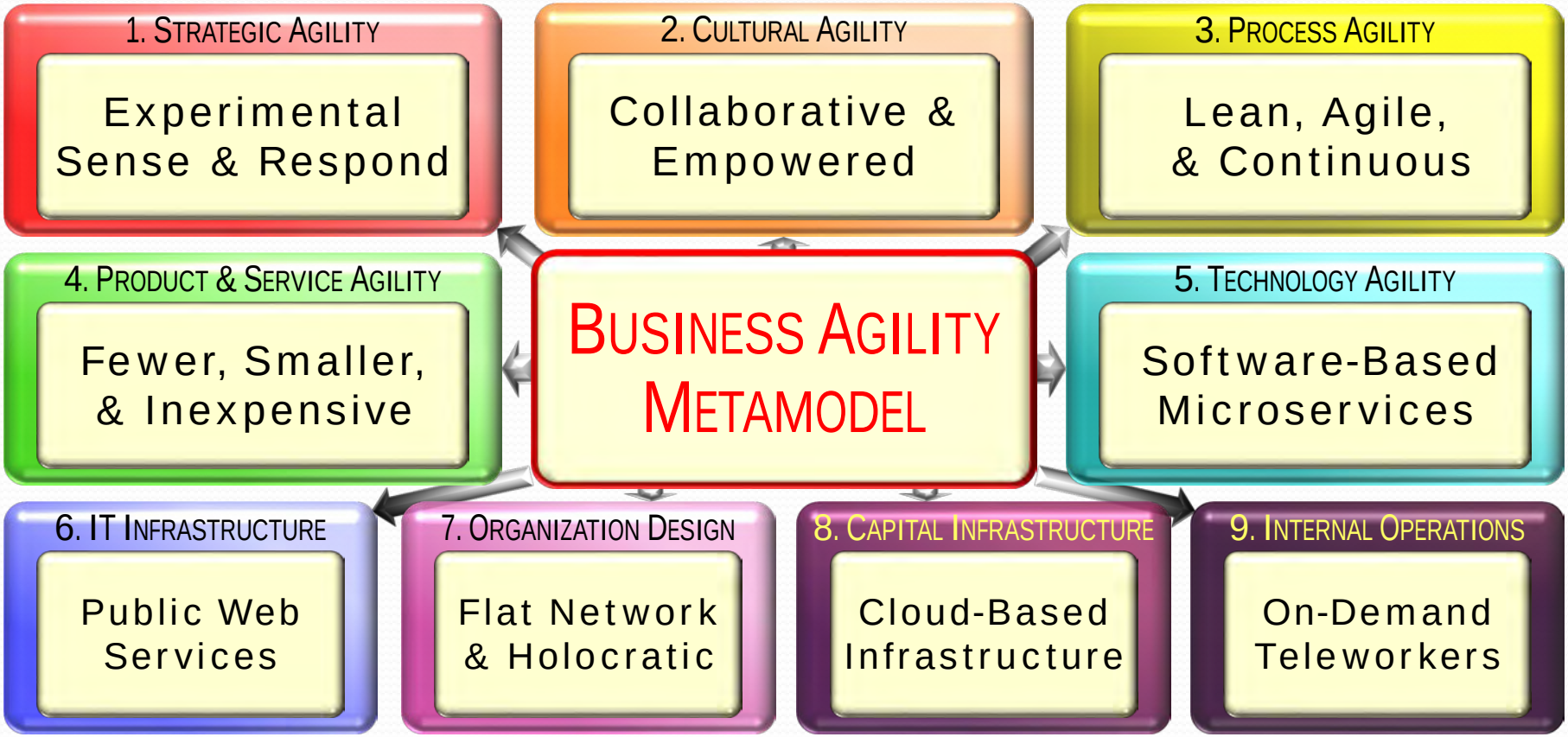
- Internal operations used to operate business (OPEX)
- Smallest possible, outsourced, & fee-for-service
- Outsourced, collaborative, & lean-budgeting



Rico, D. F. (2016). *Agile businesses*: *A metamodel of lean and agile organizational strategies*. Retrieved March 1, 2016, from http://davidfrico.com

Business Agility Metamodel Recap

- Early models based on strategies & operations
- Evolved into an experimental sense & response
- Products, organization, & facilities important too



Rico, D. F. (2016). *Agile businesses*: *A metamodel of lean and agile organizational strategies*. Retrieved March 1, 2016, from http://davidfrico.com

Business Agility Metamodel Kiviat

8. Capital Infrastructure Agility

1. Strategic Agility

7. Organization Design Agility

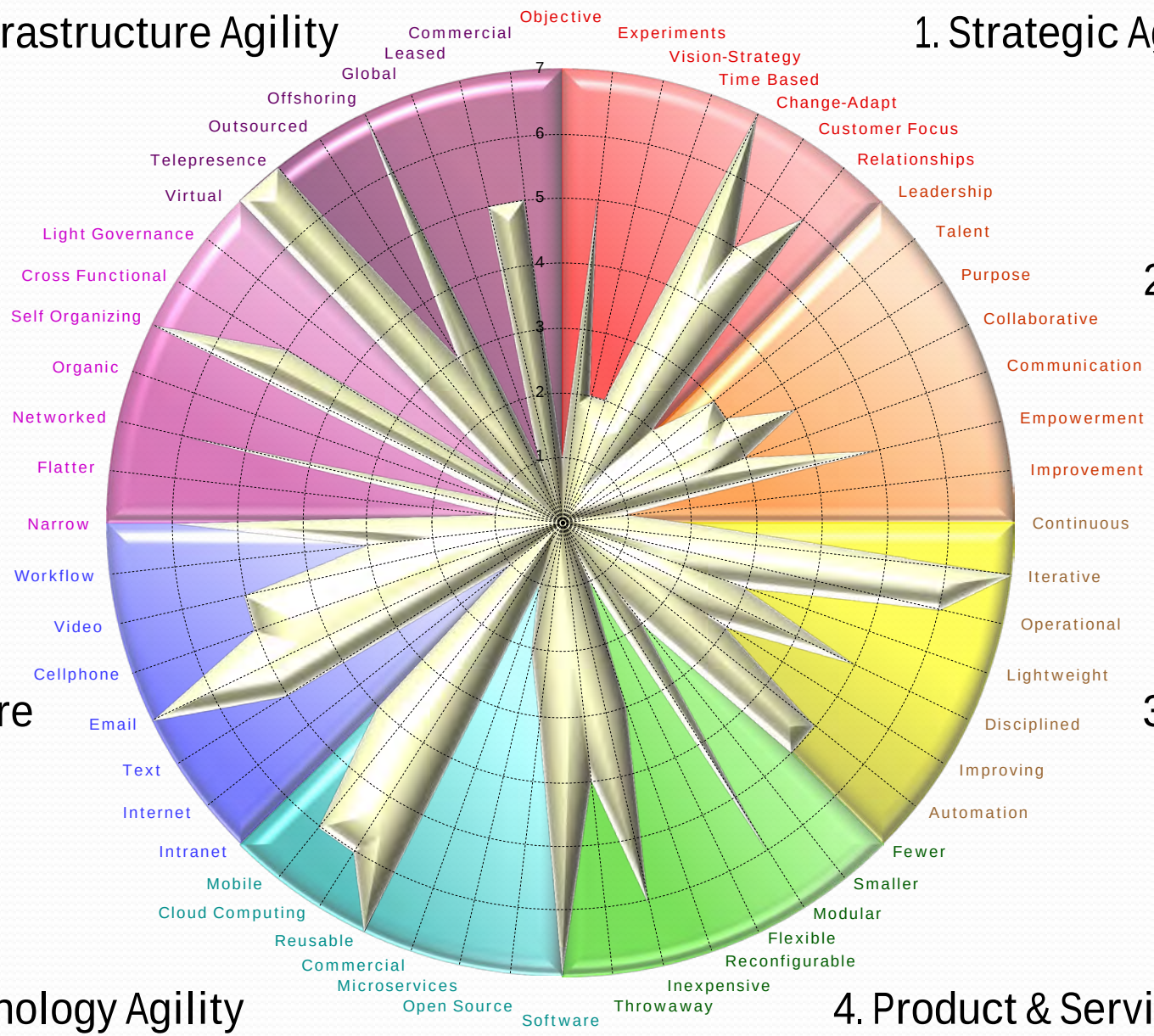
2. Cultural Agility

6. IT Infrastructure Agility

3. Process Agility

5. Technology Agility

4. Product & Service Agility

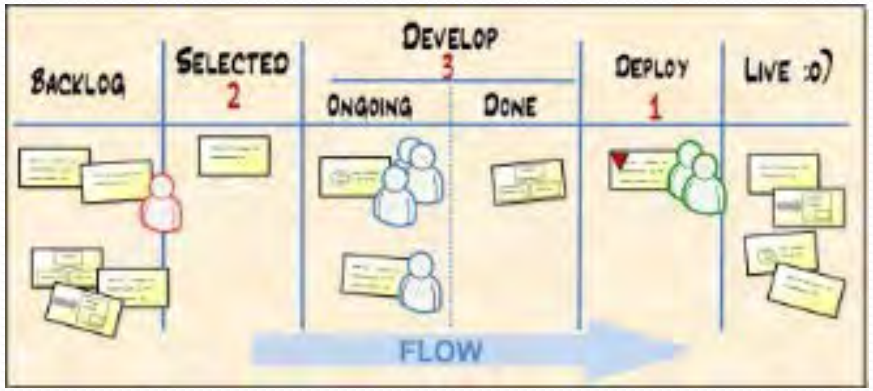


Rico, D. F. (2016). *Agile businesses*: *A metamodel of lean and agile organizational strategies*. Retrieved March 1, 2016, from http://davidfrico.com

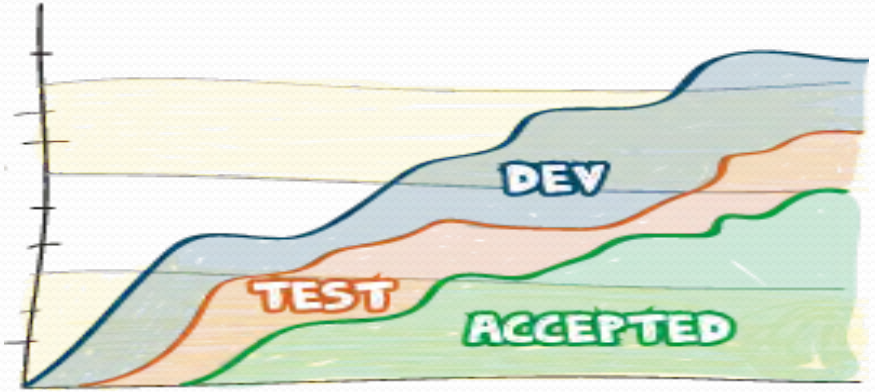
Business Agility Measures I

- Late big bang integration increases WIP backlog
- Agile testing early and often reduces WIP backlog
- CI/CD/DevOps lower WIP, Cycle Time, & Lead Time

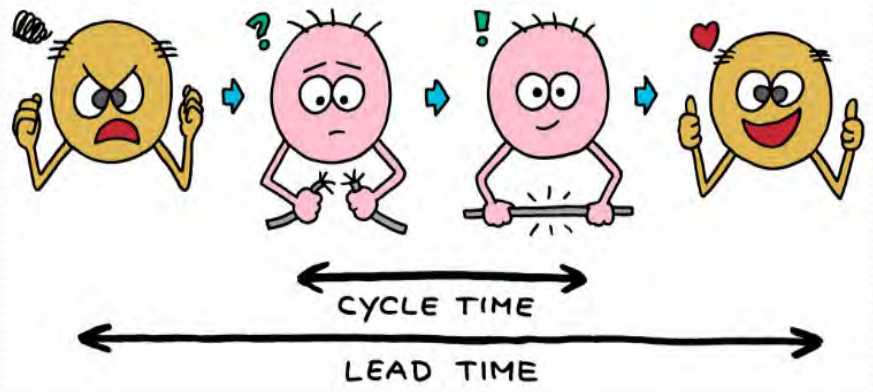
Kanban Board



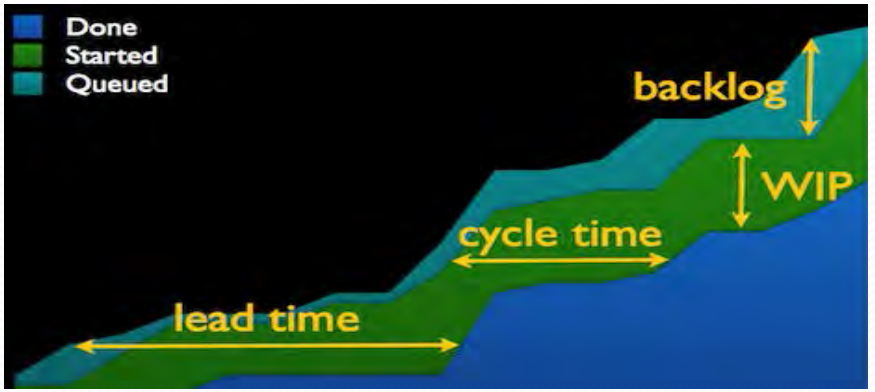
Cumulative Flow Diagram



Lead Time & Cycle Time



Putting it All Together



Nightingale, C. (2015). *Seven lean metrics to improve flow*. Franklin, TN: LeanKit.

Business Agility Measures II

Strategic

Increase (Commercial)

- Products & Services
- Product Safety & Reliability
- Reputation, Image, & Brand Equity
- Customers
- Marketshare
- Sales
- Revenues
- Profits
- Return on Investment

Increase (Government)

- Mission Efficiency & Effectiveness
- National Security & Safety Posture
- Identification of High-Value Targets
- Actionable Intelligence
- Intelligence Value Estimate
- Exploit Multiple Signal Sources
- Exploit Emerging Signal Sources
- Exploit Emerging Missions & Threats
- Strategic & Tactical Military Readiness

Operational

Reduce (Commercial & Gov't)

- Technical Complexity, Scale, & Size
- Development, Test, & Evaluation Costs
- Cycle Time & Delivery Speed
- Rework, Defects, Faults, & Failures
- Cost, Schedule, & Budget Overruns
- Turnover, Attrition, & Knowledge Loss
- Programmatic & Technical Risks
- Tech Obsolescence & Legacy Sys. Cost
- Hardware & Software Purchasing Time
- Integration & Interoperability Costs

Increase (Commercial & Gov't)

- Efficiency & Effectiveness
- Delivery Order Quantity (DoQ)
- Speed, Productivity, & Competitiveness
- Innovation, New Ideas, & Technology
- Morale, Retention, & Emp. Satisfaction
- Communication & Knowledge Sharing
- Cust. Satisfaction, Loyalty, & Retention
- Faster Tech. & Infrastructure Refresh
- Decisionmaking & Governance Speed
- Certification & Accreditation Speed

Business Agility Case Studies

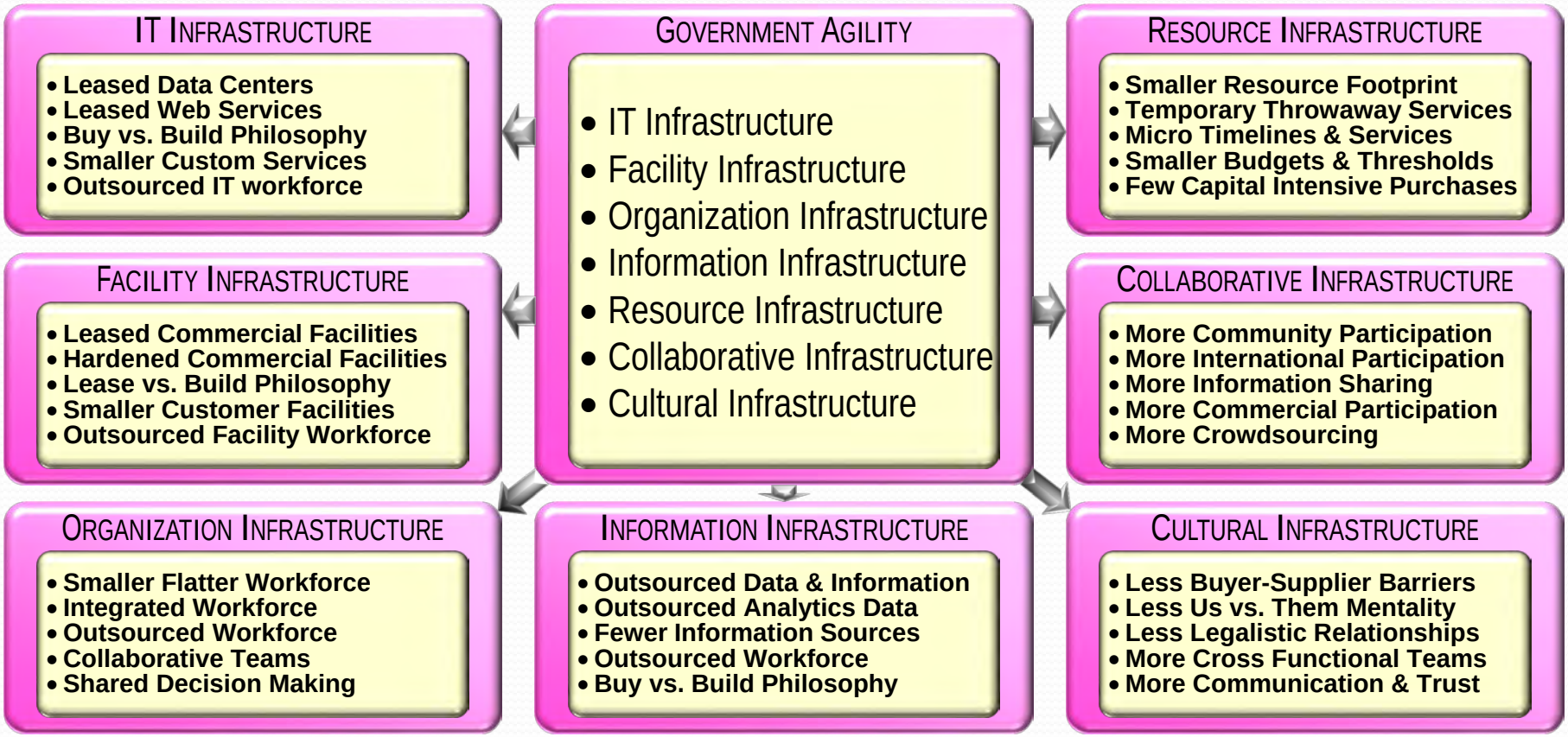
- Virtual enterprises have reached tipping point
- Many U.S. civilian agencies use virtual workforce
- Online, large, & have a very small capital footprint

Open Source Software	Univ. of Maryland Univ. College
• 95% of IT firms use open source tools • Over 10 million open source projects • At least 10 million contributors to open source • Most contributors don't have full-time day jobs • Most contributors work from home without pay • ~ 100 billion lines of software source code • 50% are "live" projects with active commits • Live projects average 6.5 million lines of code • 50% of Projects are Java, C, and C++ • Dozens of open source repositories worldwide • Most repositories offer static source code analysis • Automatic code security analysis typically done • Development process follows lean-agile paradigm • Surpasses commercial code quality • Commercial code has more severe defects • Linux is benchmark for open source quality	• Open, Affordable, Quality Education • One of 11 major schools in USM • 82,555 Total Students • 248,104 Course Enrollments • 31,378 Full-Time Students (38,140 UMCP) • 11,550 Annual Degrees Granted (9,700 UMCP) • 237,343 Degrees Since 1948 • Offers more than 90 types of degrees • 45% of Students are Minorities (11% UMCP) • 28% of Degrees go to Minorities • 75% of Students Work Full-Time • 54% of Students Have Children • 63% of Students Active Duty Military • 140 Worldwide Locations on Four Continents • 535,480 Square Feet (13.5m UMCP) • MTCO2e/Student < 0.72 (6.5 UMCP)

Nadasen, D. (2015). *Fiscal year 2015 fact book*. Largo, MD. UMUC.
DeGruttola, M. (2015). *The future of open source*. Waltham, MA: North Bridge.
Sands, R. (2012). *Open source by the numbers*. Burlington, MA: Black Duck Software.

Business Agility Gov't Example

- Created by Dave Rico in 2015
- Inspired by U.S. DoD 3rd offset strategy
- Lean, collaboration, & outsourcing major themes



Rico, D. F. (2015). *Dave's notes*: *U.S. government agile business model*. Retrieved March 1, 2016, from http://davidfrico.com

Business Agility Performance

76 Percent *vs* **38** Percent

High performers have twice as many successful strategic initiatives vs. low performers

31 Percent *vs* **9** Percent

High performers are three times as likely to have high organizational agility

57 Percent *vs* **28** Percent

High performers are twice as likely to have high alignment of projects to organizational strategy

Three Strategic Focuses That Drive Organizational Success

PEOPLE

Managing Talent and Change

High performers achieve significantly more successful strategic initiatives by effectively managing their project management talent. Furthermore, they demonstrate successful organizational change management, which is more effective with actively engaged sponsors.

2 times

Twice as many high performers have actively engaged sponsors compared to low performers.

PROCESSES

Project, Program and Portfolio Management Maturity

High-performing organizations fully understand the value of project management, have a project management office (PMO) and use standardized project management practices throughout the organization.

4 times

Four times more high performers have project, program and portfolio management that is highly mature compared to low performers.

OUTCOMES

Benefits Realization

Organizations need to focus on effectively establishing, measuring and communicating the intended benefits of projects and programs.

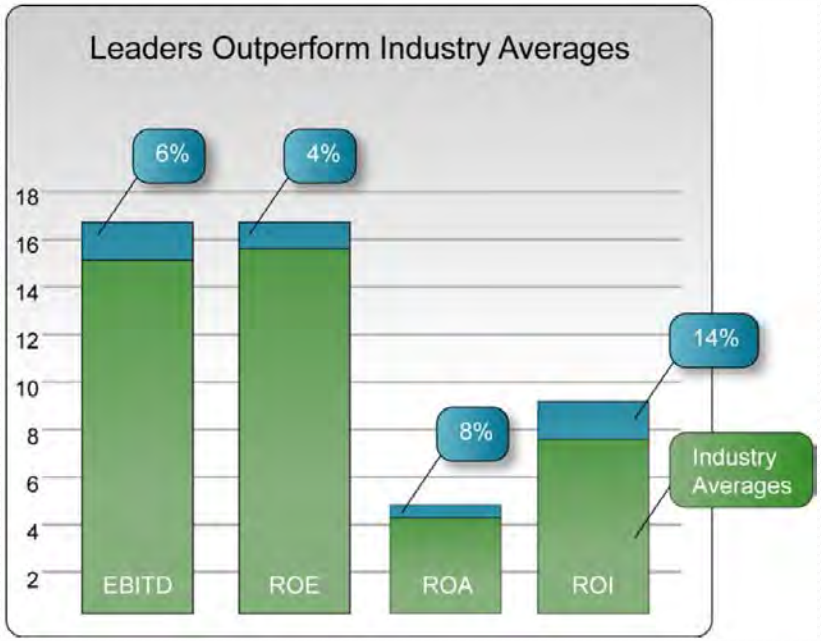
5 times

Five times more high-performing organizations have highly mature benefits realization compared to low-performing organizations.

Langley, M. A. (2014). *High-cost of low performance*: *Pulse of the profession* (*a snapshot*). Newtown Square, PA: Project Management Institute.

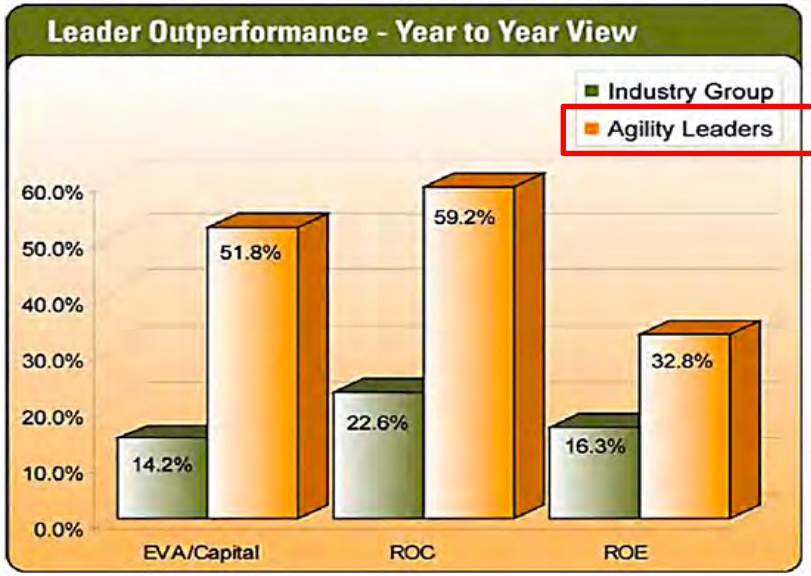
Business Agility Benefits I

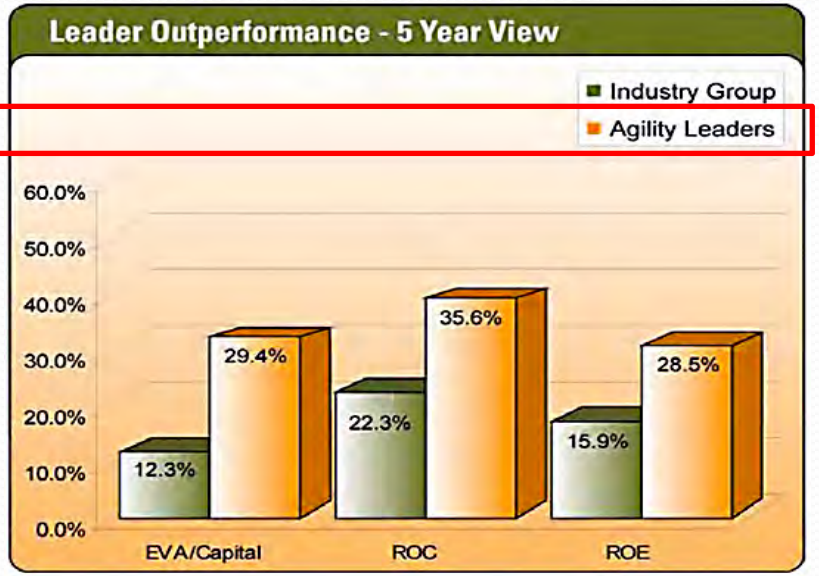
- Study of 15 agile vs. non-agile Fortune 500 firms
- Based on models to measure organizational agility
- Agile firms out perform non agile firms by up to 36%

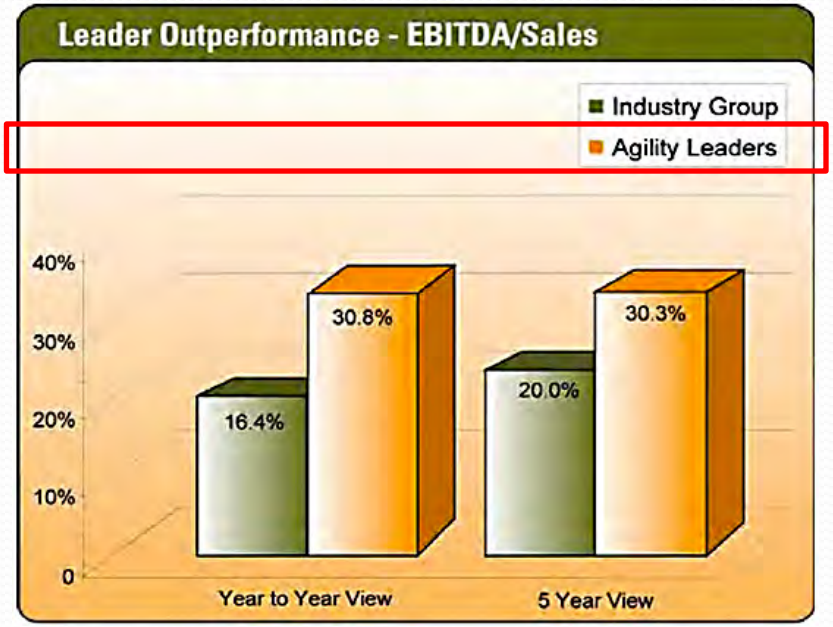


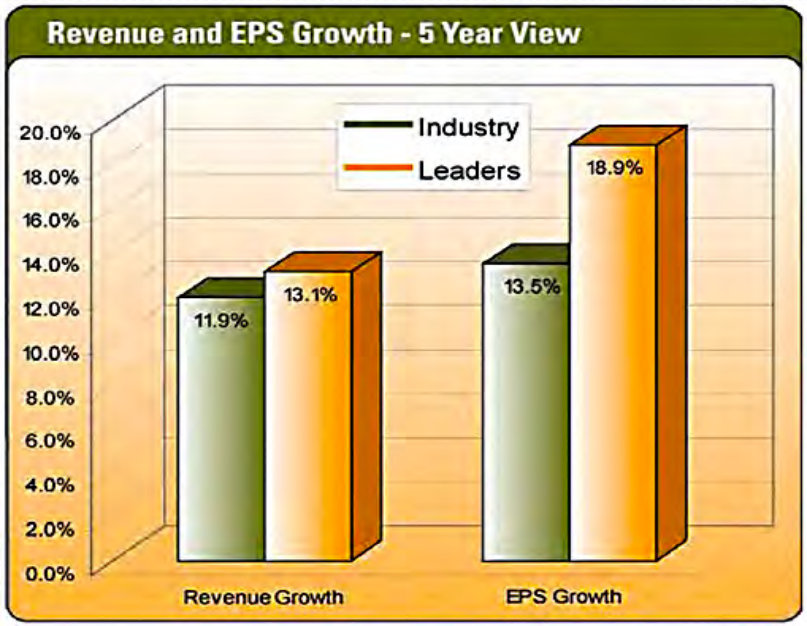
Hoque, F., et al. (2007). *Business technology convergence. The role of business technology convergence in innovation and adaptability and its effect on financial performance*. Stamford, CT: BTM Corporation.

Business Agility Benefits II





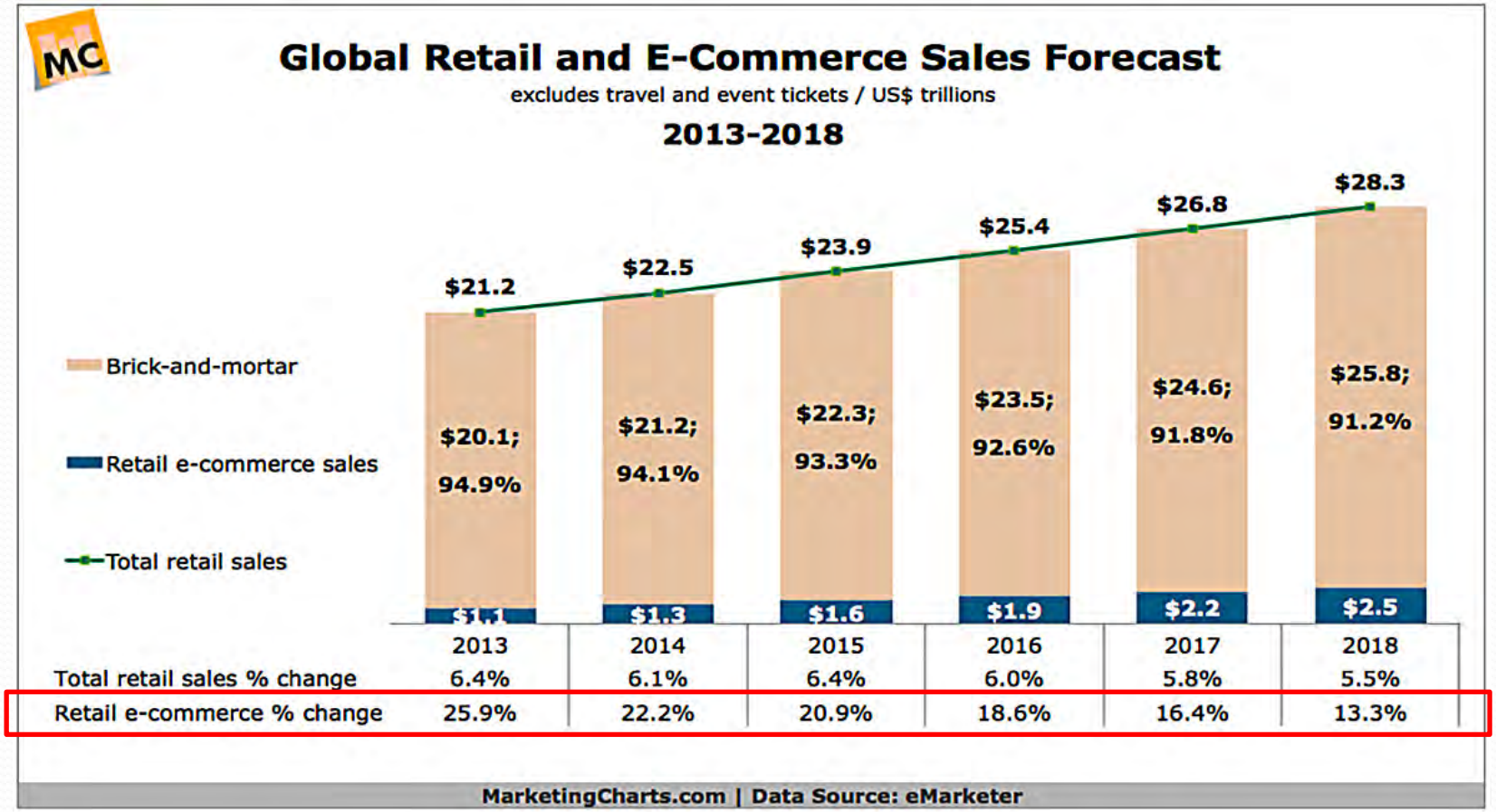




Alva, H. et al. (2010). *Business agility index*: *The characteristics of an agile enterprise and how they drive superior financial performance by converging business and technology management*. Stamford, CT: BTM Corporation.

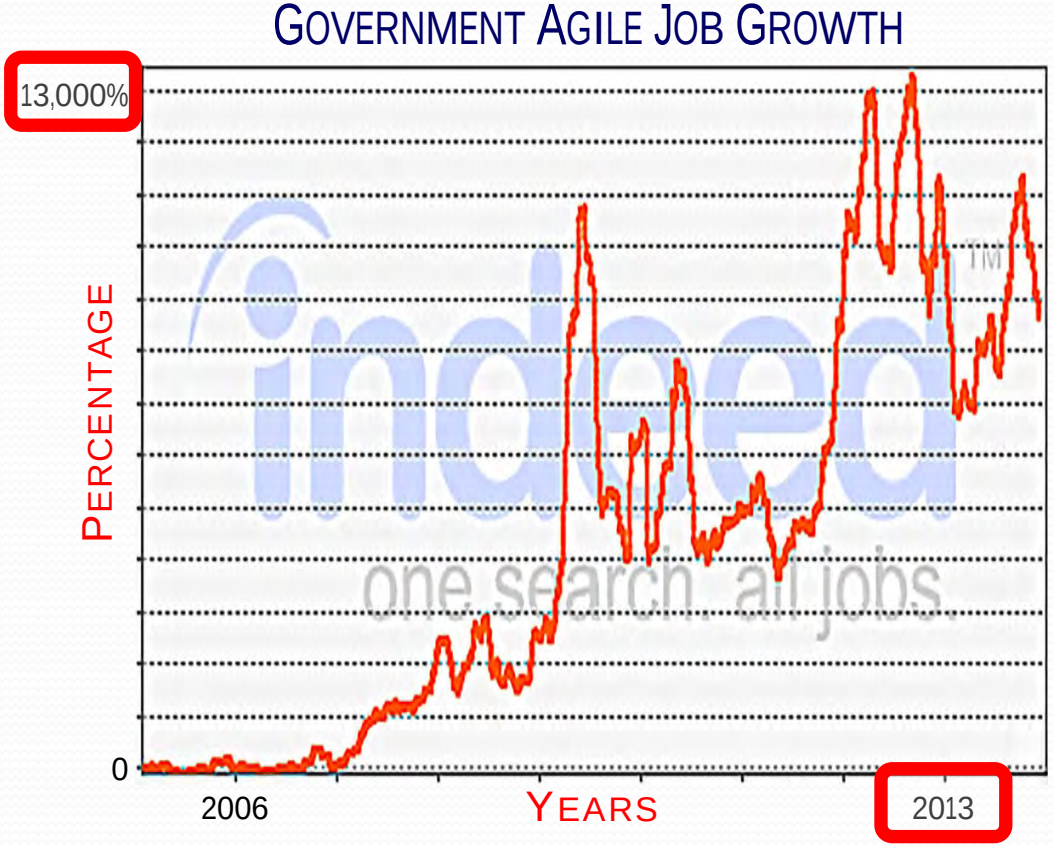
Business Agility Benefits III

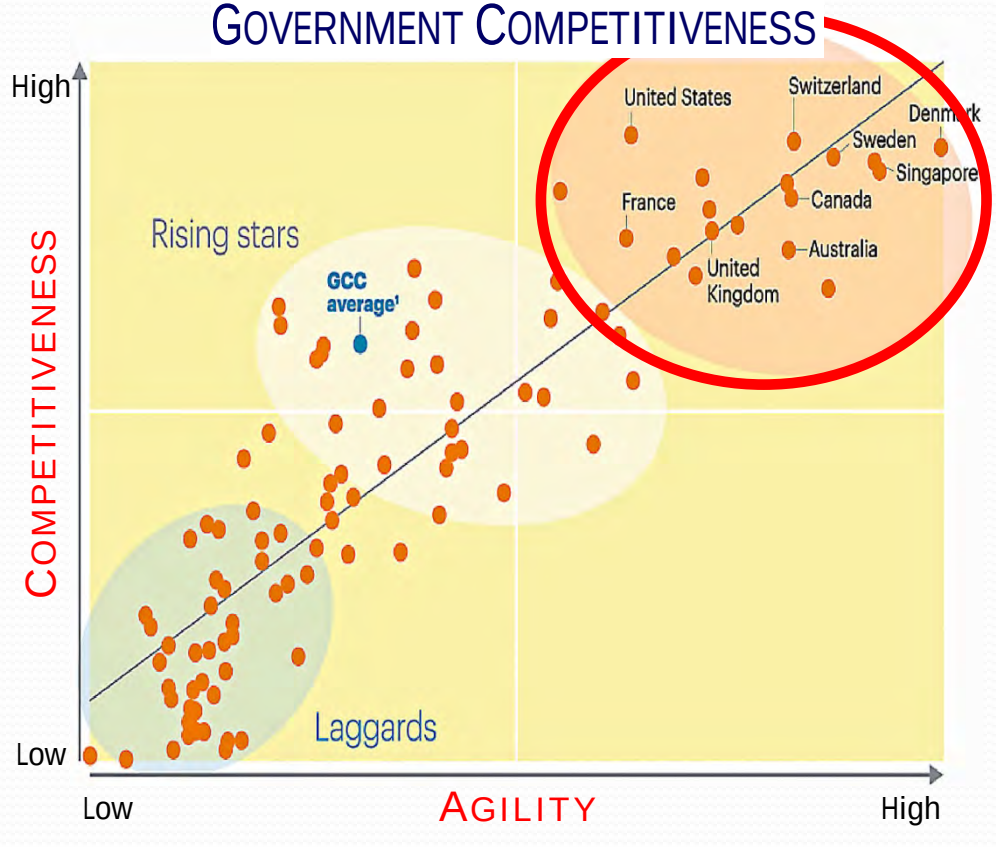
- E-commerce market is model of business agility
- Small footprint combined with flexible technologies
- Outpaces brick-and-mortar retailing by 2 to 8 times



Business Agility—National Level

- U.S. gov't agile jobs grew by 13,000% from 2006-2013
- Adoption is higher in U.S. DoD than Civilian Agencies
- GDP of countries with high adoption rates is greater





Suhy, S. (2014). *Has the U.S. government moved to agile without telling anyone*? Retrieved April 24, 2015, from http://agileingov.com

Porter, M. E., & Schwab, K. (2008). *The global competitiveness report*: *2008 to 2009*. Geneva, Switzerland: World Economic Forum.

Business Agility Adoption I

- More focus on operational efficiency & effectiveness
- Project lean-agile initiatives spreading business wide
- Business agility hindered by leadership, scale, & belief

Business agility is inconsistent across the organization, which means there is an opportunity to improve.

ONLY

report their whole organization is on the path to agility

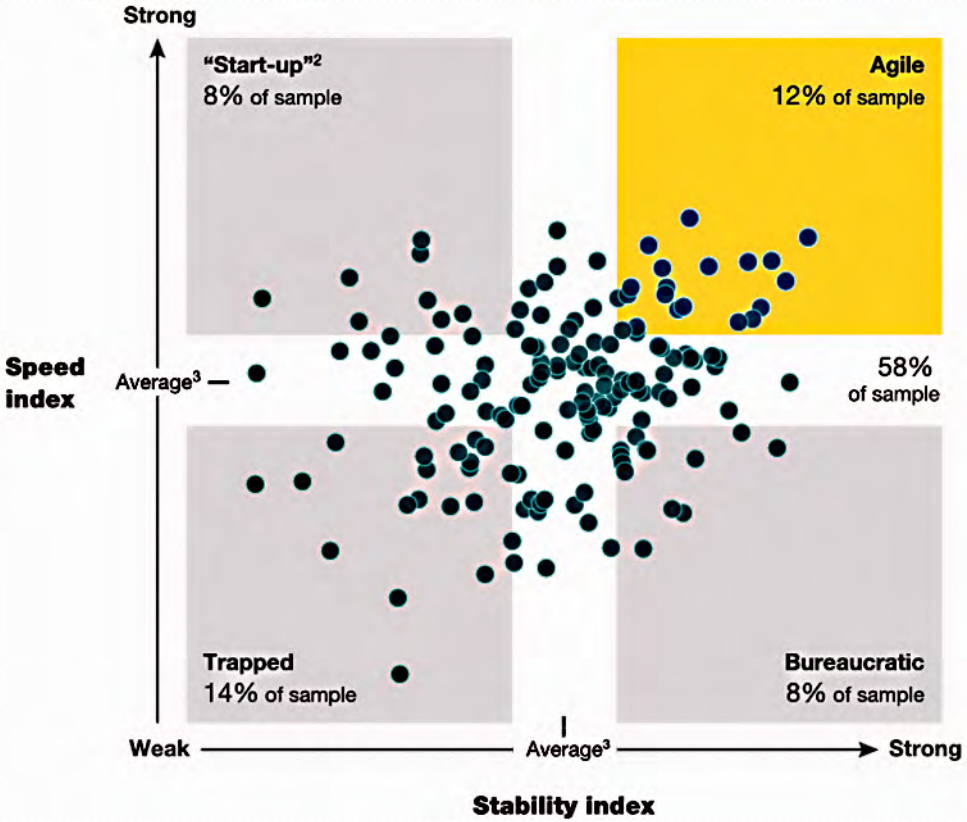
indicate challenges in some departments

say practices are inconsistent and siloed

Marcotte, L. (2017). *The state of business agility in 2017*. New York, NY. CA Technologies.

Business Agility Adoption II

- Overwhelming economic benefits to business agility
- Apple, Google, Amazon, & Facebook benefit the most
- SMEs slowed by infrastructure, operations & lead time



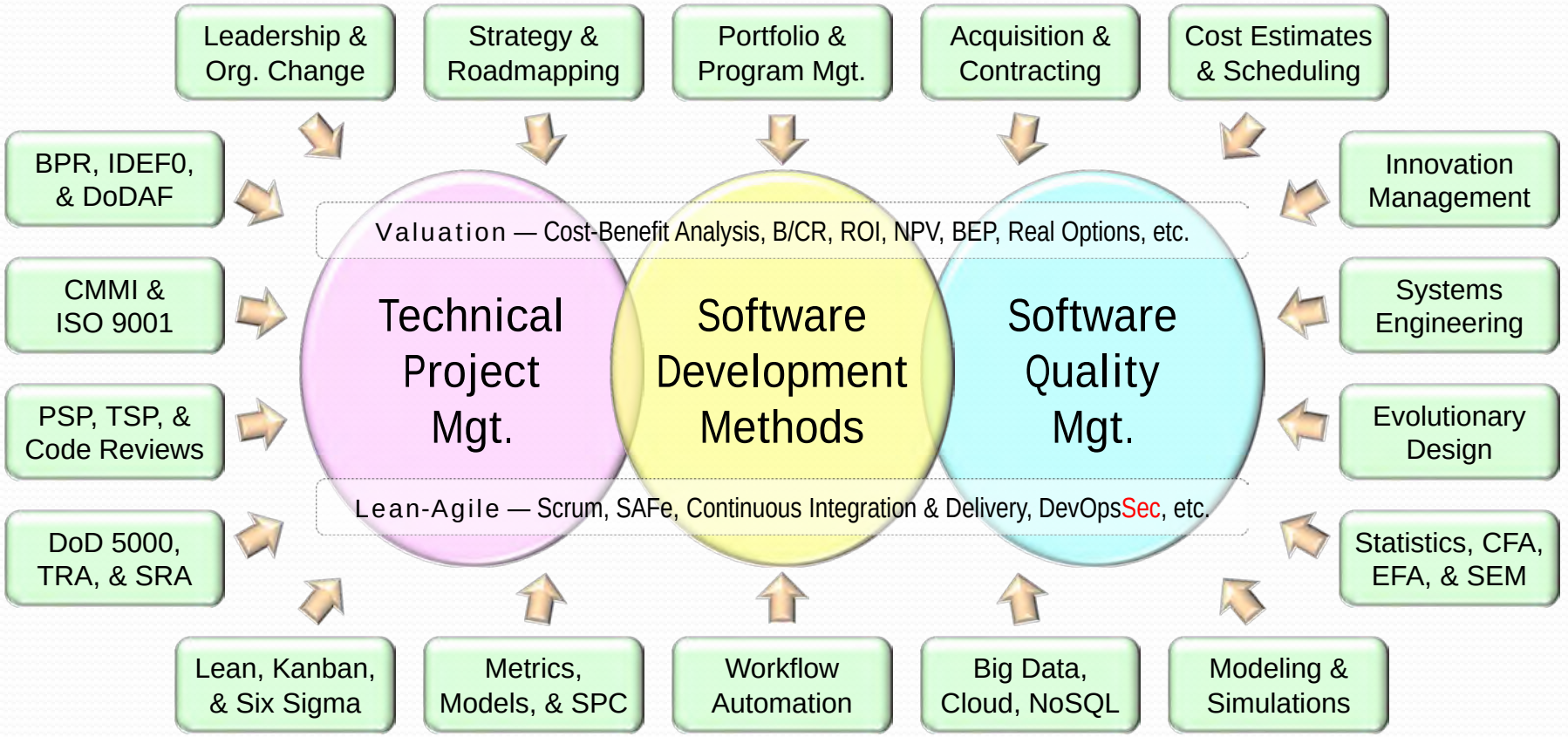
Bazigos, M., De Smet, A., & Gagnon, C. (2015). *Why agility pays*. New York, NY: McKinsey & Company.

Business Agility Summary

- Early approaches focused on strategy & culture
- Hard to make big administrative bureaucracy agile
- Need to focus on products, org. structure, & facilities

- ✓ *Agility isn't just for* [*software*] *coding cowboys*
- ✓ [*Business*] *agility has been around for a long time*
- ✓ *Agility is rooted in a lot of rich theoretical traditions*
- ✓ *Lean and agile paradigms are at root of business agility*
- ✓ *Business agility is NOT a means of putting lipstick on a pig*
- ✓ *The KEY to agility is to make the ENTIRE organization agile*
- ✓ *Applies to strategy, culture, products, technologies, & facilities*
- ✓ *True business agility is by competing with software vs. hardware*

Dave's Professional Capabilities



STRENGTHS – Lean & Agile Thinking • 360 Leadership Assessments • Executive & Agile Coaching • Enterprise Business Agility • Agile Acquisition Contracts • Scaled Agile Framework (SAFe) • DevOps + Security (DevOpsSec) • Cloud Computing/Amazon Web Svcs. • Portfolio, Program, & Project Mgt. • 5x5x5 Innovation & Marketing Sprints • Strategic Planning & Technology Roadmaps • Program Increment & Big Room Planning • Emergent & Evolutionary Microservices • Exploratory MVP, MVA, & MMF Experiments • Lean Startup Product-Focused Value Streams • Performance Metrics, Measures & Dashboards

38+ Years in IT Industry

- Data mining. Metrics, benchmarks, & performance.
- Simplification. Refactoring, refinement, & streamlining.
- Assessments. Audits, reviews, appraisals, & risk analysis.
- Coaching. Diagnosing, debugging, & restarting stalled projects.
- Business cases. Cost, benefit, & return-on-investment (ROI) analysis.
- Communications. Executive summaries, white papers, & lightning talks.
- Strategy & tactics. Program, project, task, & activity scoping, charters, & plans.

PMP, CSEP, EBAS, BAF, FCP, FCT, ACP, CSM, DevOps, AWS & SAFe