American Enterprise Institute for Public Policy Research

Disruptive Innovation in Education and Health Care

With a Keynote Presentation by Clayton M. Christensen

Monday, October 27, 2008 | 2:00 p.m. – 5:30 p.m.

Wohlstetter Conference Center, Twelfth Floor, AEI 1150 Seventeenth Street, N.W., Washington, D.C. 20036

About This Event

The ability of technology to "disrupt" long-established business practices--dramatically changing the landscape of industries by increasing access, cutting costs, and revolutionizing delivery--has been a subject discussed for decades and is the topic of Harvard Business School professor Clayton M. Christensen's iconic volumes, The Innovator's Dilemma and The Innovator's Solution*. Yet as Christensen has observed, these radical, innovation-driven transformations have been largely absent in the education and health industries--perhaps the two most important arenas of everyday life.*

In two new books, Disrupting Class *and* The Innovator's Prescription*, Christensen and coauthors address how new technology might upend familiar institutions and fundamentally alter the way schooling and health care are delivered. Participating in the discussion with Christensen will be coauthors Michael B. Horn and Jason Hwang of Innosight Institute; education expert Chester E. Finn Jr., president of the Thomas B. Fordham Institute; and Mark McClellan, a former administrator of the Centers for Medicare & Medicaid Services and former commissioner of the Food and Drug Administration who is now director of the Engelberg Center for Health Care Reform at the Brookings Institution.*

Agenda

11:45 a.m.	Registration and Luncheon	
12:00 p.m.	*Welcome:*	Frederick M. Hess, AEI
12:05	*Keynote Speaker:*	Clayton M. Christensen, Harvard Business School
1:30	**Panel I:**	**Disruptive Innovation in the Education Sector**

	Presenter:	Michael B. Horn, Innosight Institute
	Discussant:	Chester E. Finn Jr., Thomas B. Fordham Institute
	Moderator:	Frederick M. Hess, AEI
2:30	**Panel II:**	**Disruptive Innovation in the Health Care Sector**
	Presenter:	Jason Hwang, Innosight Institute
	Discussant:	Mark McClellan, Brookings Institution
	Moderator:	Joseph Antos, AEI
3:30	Adjournment	

Event Summary

How "Disruptive Innovation" Might Transform Health and Education Services--and Why Today's Establishment Needs to Watch Out

WASHINGTON, NOVEMBER 4, 2008--Breakthrough technologies--from personal computers to transistor radios to cell phones--have drastically altered the way we work, live, and communicate. Why, then, have some of these same technologies failed to transform the most consequential arenas of our lives--education and health care?

For fifteen years, Harvard Business School professor Clayton Christensen has studied how dramatic innovations have reshaped hundreds of private-sector industries. His two new books, Disrupting Class and The Innovator's Prescription, apply his theories to improving accessibility and quality in education and healthcare. On October 27, Christensen and two of his coauthors, Michael Horn and Jason Hwang, both of the Innosight Institute, discussed their latest work at an .

The cornerstone of Christensen's theories is the concept of "disruptive innovation," the process by which a company "comes into the bottom of the market with a technology that greatly simplifies the industry's technological problem," incorporates that technology into a profitable business model at market's bottom, and then, almost invariably, becomes the new industry leader, toppling established companies that seemingly had all the initial advantages to compete.

Christensen's work has sought to explain why established industry leaders almost always fail to maintain their edge when faced with disruptive innovation. When a dramatically new technology emerges, he says, the tendency for industry leaders is to "cram the technology into the existing market [and] the existing business models." But this strategy will always be much more difficult to carry out than the new entrants' most viable option: to compete against nonconsumption by making a product "so much more affordable and simple that a whole new population of people can now own and use the products." Nonconsumers are the easiest customers to satisfy because "all you've got to do is make a product that's better than nothing."

Horn explained how this model can be applied to public education: "computers have failed to make the difference that they might have--and that they have in many other industries--because we have crammed them into conventional classrooms." Even though we know "we learn differently" and that "computer-based learning is inherently modular," he explained, our schools still "standardize and create monolithic experience for students." In order to spur disruptive innovation in this arena, the key would be to use computers to compete against nonconsumers: for instance, students seeking credit recovery or advanced courses and homebound or home-schooled students.

The market in education and health care is different from the private-sector market, as any critic is quick to point out. Christensen has tweaked his model accordingly: whereas private-sector business managers build strategies in response to quality and profitability of products, public-sector leaders are oriented toward "what is politically important or financially important at the high end and what's a drag on our finances on the low end."

One complicating factor in the public sector is that individual customers rarely pay directly for services, and they consequently have nebulous measurements of price and quality. This is a particularly intransigent problem in health care. Panelist Mark McClellan, a former commissioner of the Food and Drug Administration and administrator of the Centers for Medicare and Medicaid Services, said that "you need to be able to measure quality and cost effectively in order to pay for value." A significant hurdle to our ability to measure costs more precisely is the traditional general hospital model itself. Hospitals are unviable business models, Christensen explained, for they conflate three very different business models, offering consulting services (diagnoses), value-adding processing services (medical procedures), and networking services at the same time, and thus cannot price their services appropriately. "Were it not for the complex system of cross-subsidization, of competitive regulations, and philanthropic life support," Hwang explained, hospitals would disappear. The potential technological enabler that would greatly advance the quality and value of health care and give us more concrete measurements, Christensen suggested, would be "the ability to diagnose precisely" through such advancements as molecular diagnostics and imaging technologies. As long as we rely on our bodies' "limited vocabulary" of physical symptoms, which tell us little about root causes, we will continue to be dependent on the "skill and the training and the intuition of the best physicians money can buy."

Other barriers in the public arena are government regulations and the interest groups that support them. Both McClellan and education panelist Chester E. Finn Jr., president of the Thomas B. Fordham Institute, emphasized that these barriers should not be underestimated. While he agreed with the "basic logic and power of disruptive innovation" and "the immense potential of technology," Finn said, the political and regulatory forces in education may be insurmountable: "I predict that . . . the usual forces of resistance and pushback and inertia and habit and ineptitude . . . will continue to dampen and discourage the use of technology in brick-and-mortar schools by public schools systems as we know them."

McClellan commented that while there may be a positive "policy role to promote more disruptive innovation," it may take an arduously long time. Christensen and his colleagues may talk "about health IT serving as the connective tissue between these different elements of a reformed health care system," McClellan added, but "we don't seem to be getting there very quickly. These variations and clear inefficiencies in delivering care seem to persist." Even more a reason, Hwang and Christensen emphasized, to embed new technology in business models that initially target nonconsumers. If you first "play where the regulators are not," Hwang explained, you can put down "some roots before you can start to disrupt the incumbents," allowing technology to develop and prove its clout in areas in which the stakes and public scrutiny are relatively low and products are simple.

The path of disruptive innovation is counterintuitive, Christensen said. This is why longstanding industry leaders often miscalculate. It directly counters an age-old business axiom of listening to one's best customers, giving them more of what they need, and investing where profit margins are most attractive. The paradigm that enables a company to advance can paralyze the best managers amid disruptive innovations, making it "impossible for them to pursue less profitable products that aren't used by their best customers." Similarly, in the public sector, leaders are "confronting head-on, every day, the most complicated problems" in the industry, Christensen added, and it is tempting, when a disruptive solution arises, "to stack the solution against the hardest

problems." But again, he cautioned, "the disruptive solutions start with the simplest problems first."

Ultimately, Christensen intends for his theories to instruct people how to think rather than what to think within the confines and context of a given sector. He underlined the importance of thinking in terms of entire interdependent systems instead of individual entities, calling upon the lessons gleaned from evolution: "individual organisms simply do not evolve. They were born, they die. But little by little, the mutants gain market share so that the population can evolve even though the individuals within it don't." Each business unit within a corporation "was designed to deliver a particular value proposition--it was not designed to evolve." The same can be said for schools and hospitals, but perhaps, he hopes, with "a common language and a common way to frame the problem," the systems writ large can evolve.

--ROSEMARY KENDRICK

Speaker biographies

Joseph Antos is the Wilson H. Taylor Scholar in Health Care and Retirement Policy at AEI. He is also a Commissioner of the Maryland Health Services Cost Review Commission, and an adjunct professor at the School of Public Health of the University of North Carolina at Chapel Hill. Mr. Antos's research focuses on the economics of health policy, including Medicare reform, health insurance regulation, and the uninsured. He is the editor, with Alice Rivlin, of *Restoring Fiscal Sanity 2007: The Health Spending Challenge* (Brookings Institution Press, 2007). Before joining AEI, Antos was assistant director for health and human resources at the Congressional Budget Office, and he held senior positions in the U.S. Department of Health and Human Services, the Office of Management and Budget, and the President's Council of Economic Advisers.

Clayton M. Christensen is the Robert and Jane Cizik Professor of Business Administration at the Harvard Business School, with a joint appointment in the technology and operations management and the general management faculty groups. His research and teaching interests focus on the management issues related to the development and commercialization of technological and business model innovation. Mr. Christensen is a board member at Tata Consulting Services, Franklin Covey, W.R. Hambrecht, and Vanu, and serves on Singapore's Research, Innovation and Enterprise Council (RIEC). In 2000, Mr. Christensen founded the consulting firm Innosight. He is also the founder of Rose Park Advisors, an investment firm, and Innosight Institute, a nonprofit think tank applying disruptive innovation theories to the social sector. Prior to joining Harvard in 1992, Mr. Christensen was chairman and president of Ceramics Process Systems Corporation (CPS), a firm he cofounded. Mr. Christensen's books include his seminal work, *The Innovator's Dilemma* (Harvard Business School Press, 1997), which received the Global Business Book Award for the best business book of the year, The *Innovator's Prescription* (McGraw-Hill, 2009), *Disrupting Class* (McGraw-Hill, 2008), *Seeing What's Next* (Harvard Business School Press, 2004), and *The Innovator's Solution* (Harvard Business School Press, 2003).

Chester E. Finn Jr. is president of the Thomas B. Fordham Foundation and Thomas B. Fordham Institute, senior fellow at Stanford University's Hoover Institution, and senior editor of *Education Next*. Previously, Mr. Finn served as assistant secretary for research and improvement at the U.S. Department of Education, senior fellow at the Hudson Institute, and founding partner and senior scholar with the Edison Project. The author of fourteen books and over 350 articles, his work has appeared in the *Wall Street Journal*, the *Washington Post*, the *Public Interest, Harvard Business Review*, the *New York Times*, and many other major publications, journals, and newspapers.

Frederick M. Hess is a resident scholar and director of education policy studies at AEI and executive editor of Education Next. His many books include *The Future of Educational Entrepreneurship* (Harvard Education Press, 2008), *No Remedy Left Behind* (AEI Press, 2007), *No Child Left Behind: A Primer* (Peter Lang, 2006), *Common Sense School Reform* (Palgrave Macmillan, 2004), and *Spinning Wheels* (Brookings Institution Press, 1998). His work has appeared in both popular and scholarly outlets, including *Harvard Educational Review, Social Science Quarterly, American Politics Quarterly, Education Week, Phi Delta Kappan*, the *Washington Post*, and *National Review*. Mr. Hess serves on the review board for the Broad Prize in Urban Education, as a research associate with the Harvard University Program on Education Policy and

Governance, and as a member of the advisory board for the National Association of Charter School Authorizers. He is a former high school social studies teacher and has taught at Georgetown University, Harvard University, the University of Virginia, and the University of Pennsylvania.

Michael B. Horn is the cofounder and executive director of education of Innosight Institute, a nonprofit think tank. Previously, Mr. Horn worked at America Online during its AOL.com relaunch, and also served as David Gergen's research assistant. He is the coauthor of a book on disruptive innovation in education, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (McGraw-Hill, 2008) with Clayton M. Christensen and Curtis W. Johnson. Mr. Horn has written articles for numerous publications, including *Education Week, Forbes*, the *Boston Globe*, and *U.S. News & World Report*.

Jason Hwang, M.D., is cofounder and executive director of health care at Innosight Institute, a nonprofit think tank in Watertown, Massachusetts. Dr. Hwang is an internal medicine physician and has received multiple recognitions for his clinical work. Previously, he was a Harvard Business School fellow at Innosight. He has also worked with the Health Horizons Program at the Institute for the Future, a forecasting think tank in Palo Alto, California. Dr. Hwang taught as chief resident and clinical instructor at the University of California, Irvine, until 2004 and has also served as a clinician with the Southern California Kaiser Permanente Medical Group and the Department of Veterans Affairs Medical Center in Long Beach, California. He is coauthor of a book on disruptive innovation in healthcare, The *Innovator's Prescription: A Disruptive Solution for Healthcare* (McGraw-Hill, 2009), with Clayton Christensen and Jerome Grossman.

Mark B. McClellan, M.D., is a senior fellow and director of the Engelberg Center for Healthcare Reform and Leonard D. Schaeffer Director's Chair in Health Policy at the Brookings Institution. A doctor and economist by training, Dr. McClellan's focus is developing and implementing ideas to drive improvements in high-quality, innovative, and affordable health care. Dr. McClellan is also an associate professor of economics and of medicine at Stanford University and a research associate at the National Bureau of Economic Research. Previously, Dr. McClellan was commissioner of the Food and Drug Administration (FDA) from 2002 to 2004, and an administrator for the Centers for Medicare and Medicaid Services (CMS) from 2004 to 2006. From 2001 to 2002, Dr. McClellan served as a member of the President's Council of Economic Advisers and as senior director for health care for the White House. Dr. McClellan has also served as a national fellow at the Hoover Institution; the director of the program on health outcomes research at Stanford University's Center for Health Policy and Center for Primary Care and Outcomes Research; an associate editor at the Journal *of Health Economics*; and deputy assistant secretary for economic policy at the U.S. Department of the Treasury.

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American Enterprise Institute
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The Innovator's Prescription:
How Disruptive Innovation Can Transform Health Care

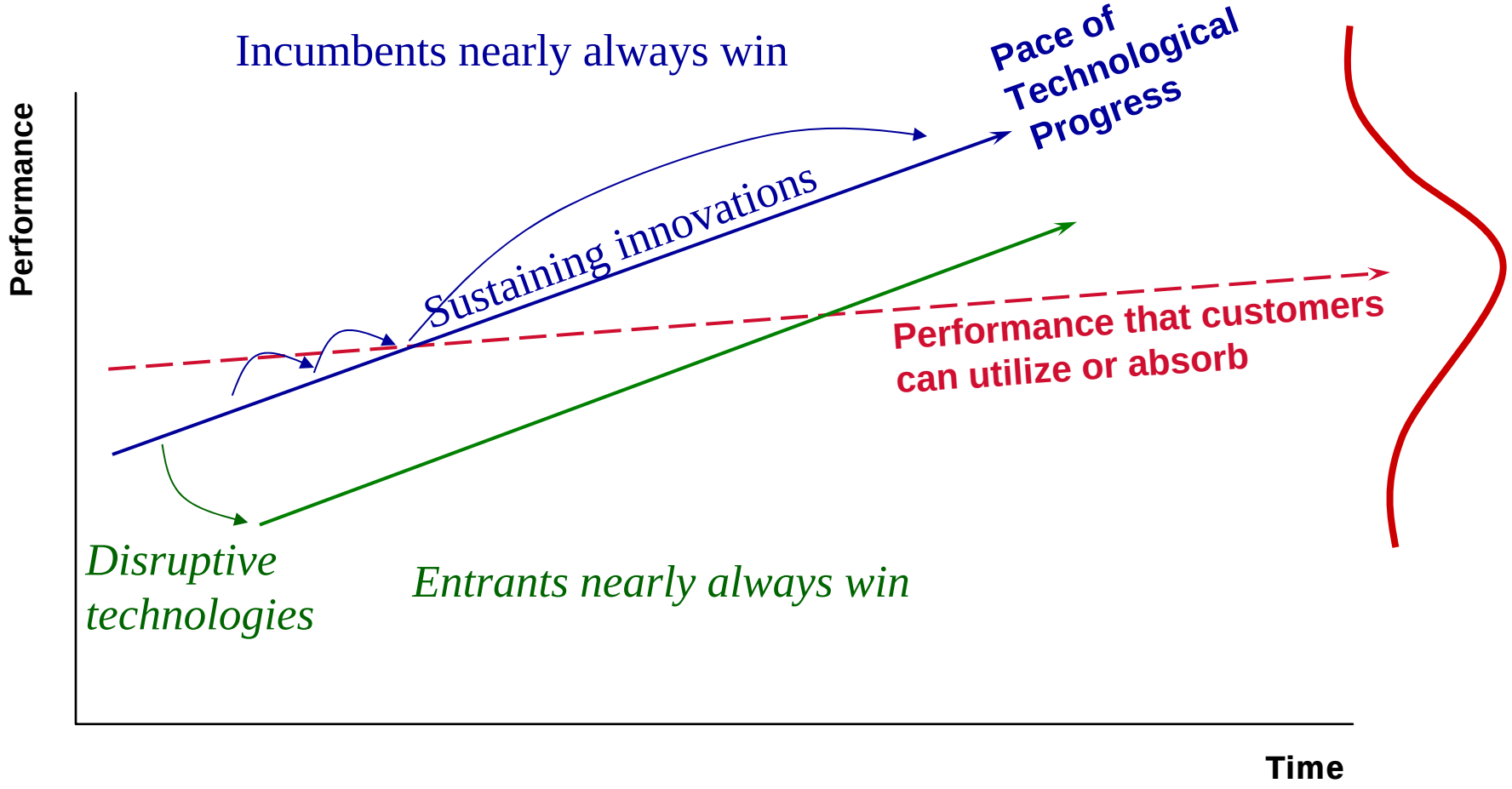
Clayton Christensen
Harvard Business School

cchristensen@hbs.edu

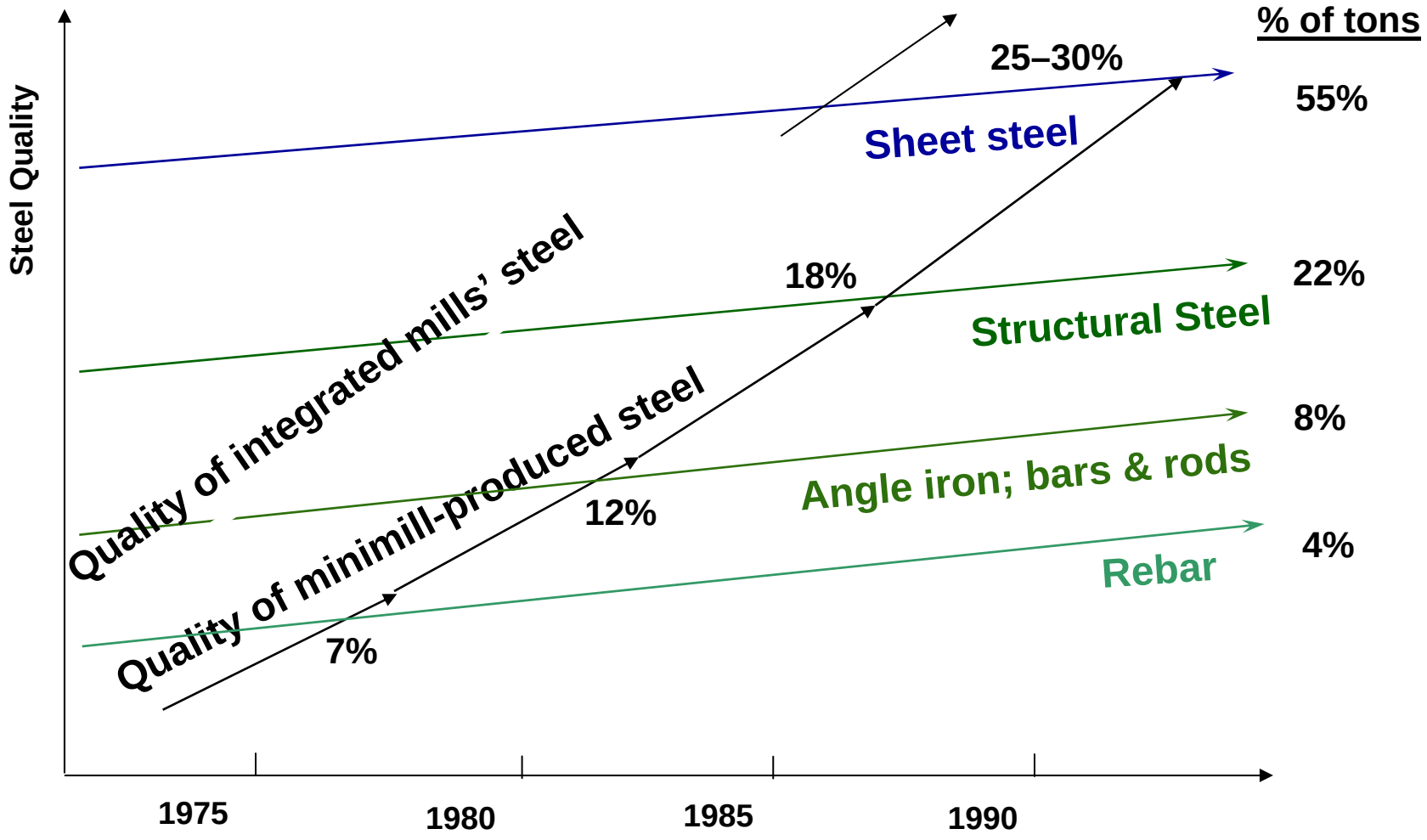
INNOSIGHT INSTITUTE

Disruptive Technologies:

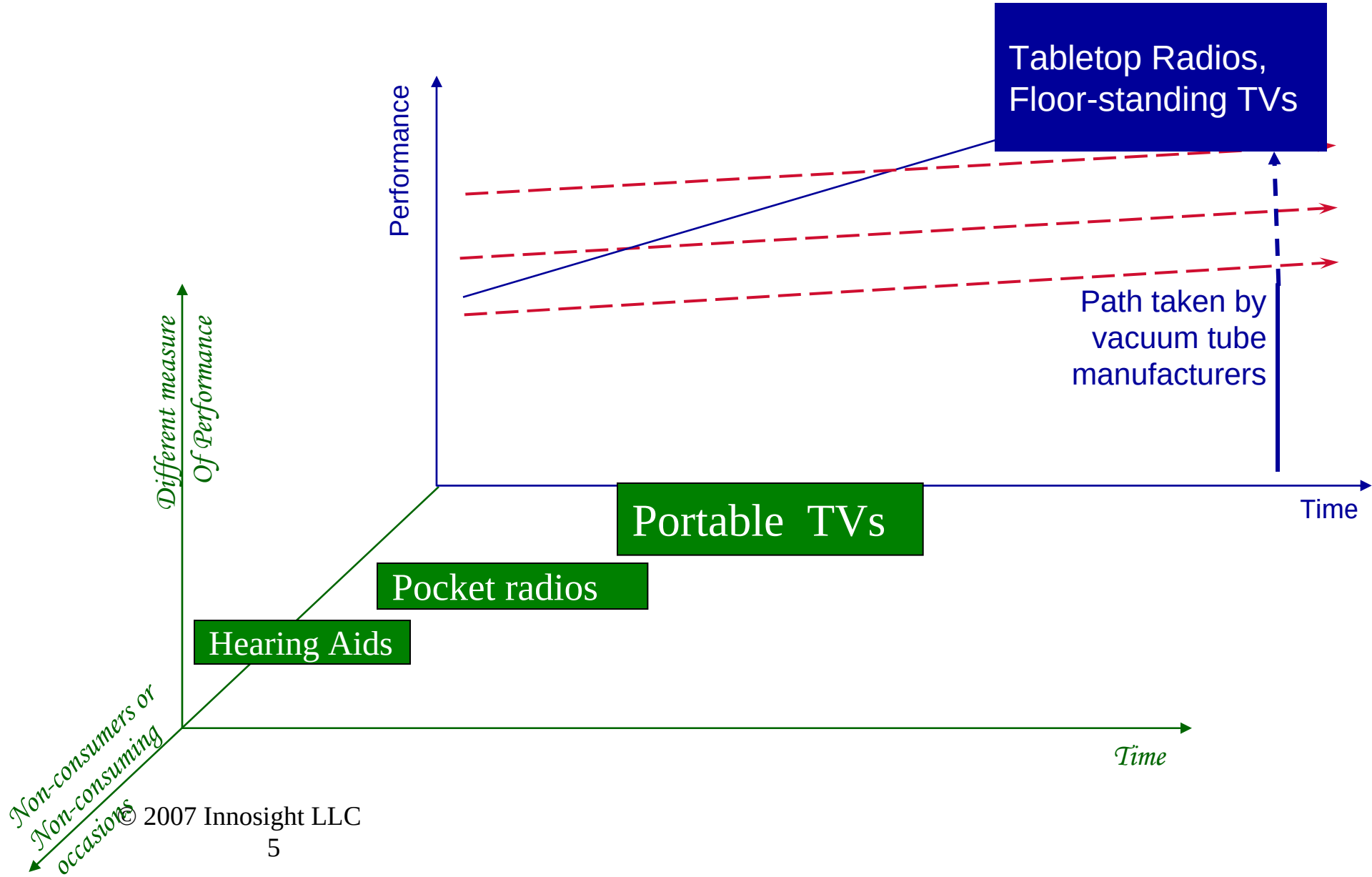
A driver of leadership failure and the source of new growth opportunities



Beat competitors with asymmetry of motivation



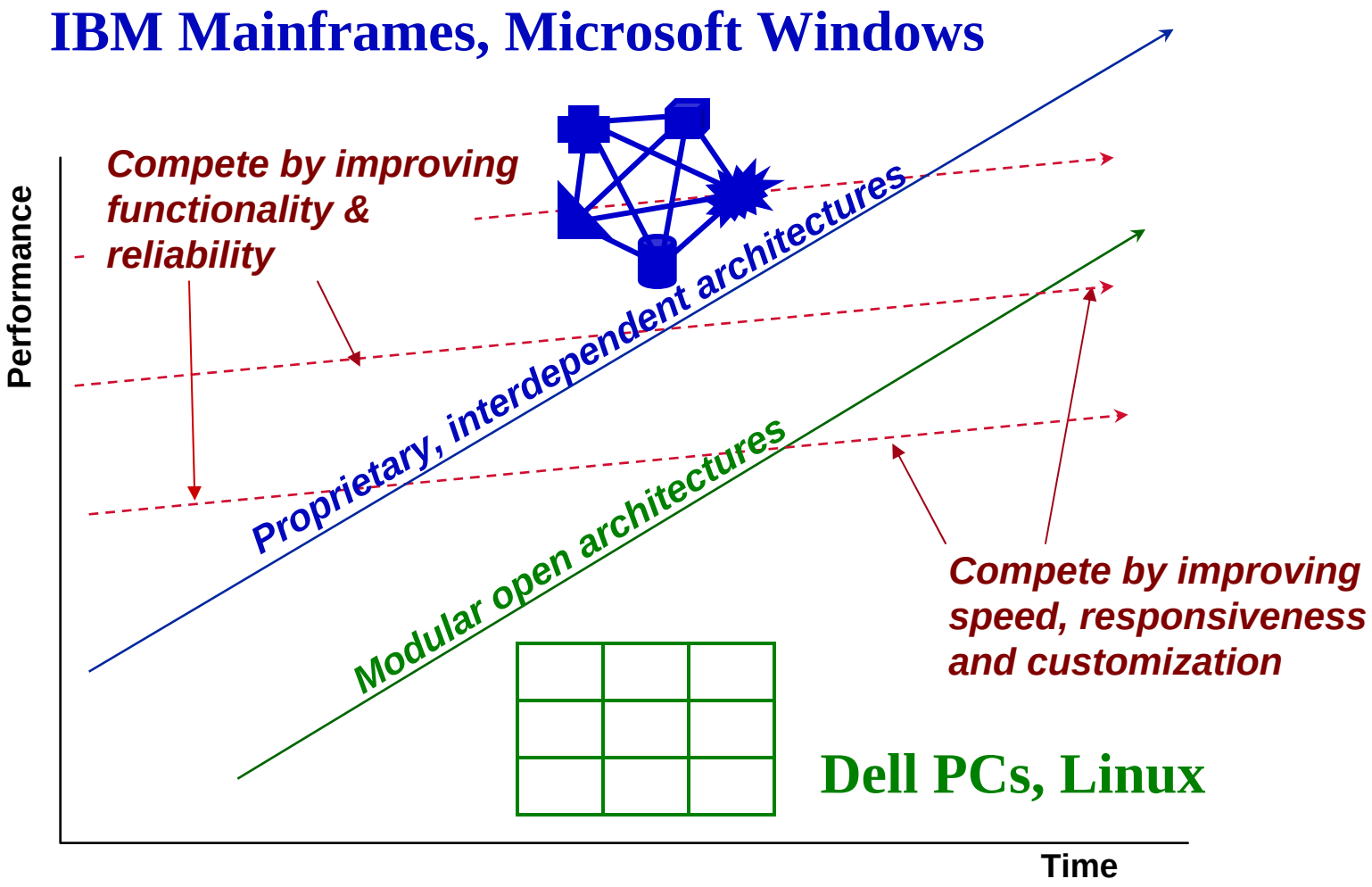
Expensive failure always results when disruption is framed in technological rather than business model terms.



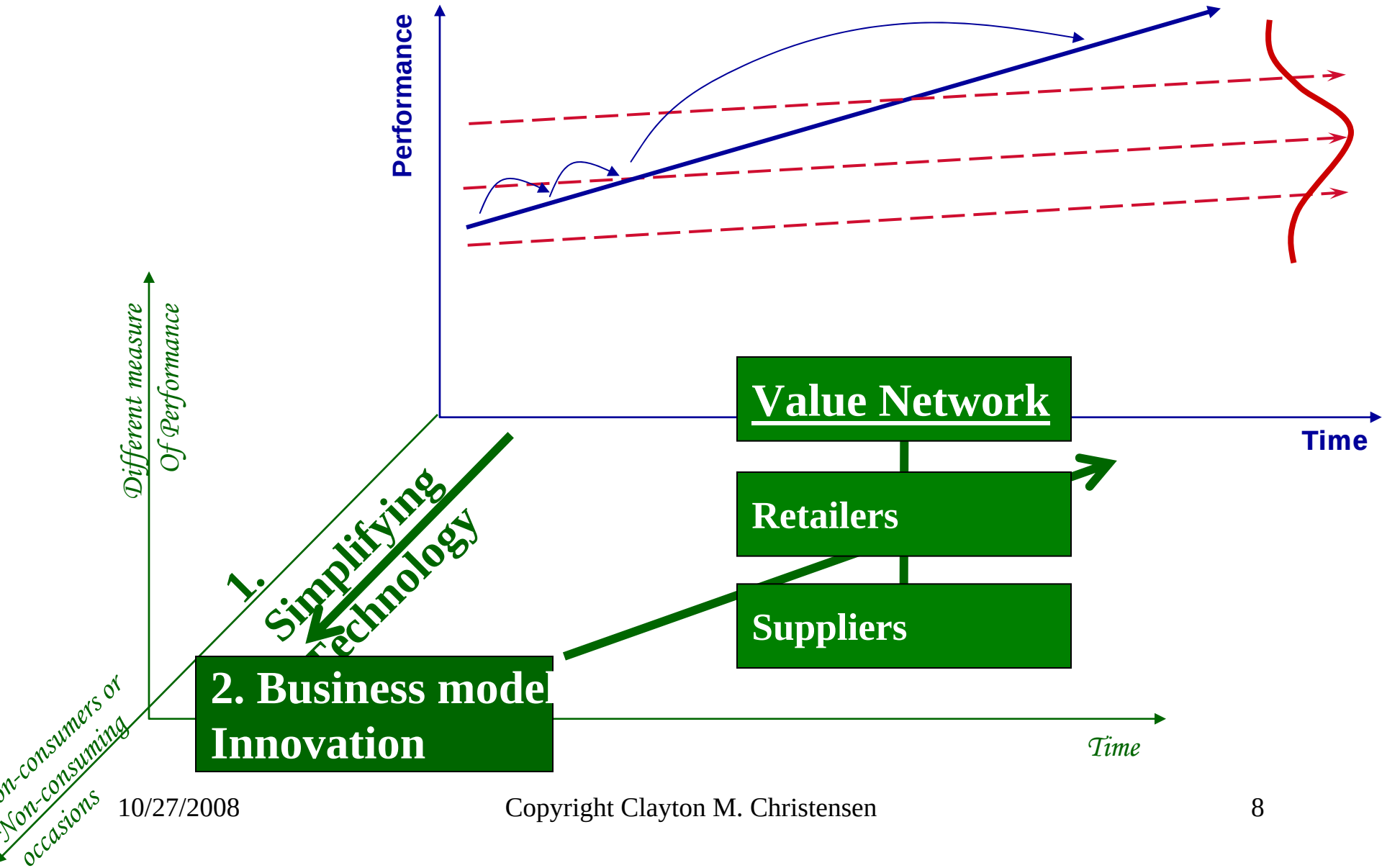
Disruption in business models has been the dominant historical mechanism for making things more affordable and accessible, and for generating corporate and economic growth

Yesterday	**Today**	Tomorrow:
• Ford	• Toyota	• Chery
• Dept. Stores	• Wal-Mart	• Internet retail
• Digital Eqpt.	• Dell	• RIM Blackberry
• Delta	• Southwest, RyanAir	• SkyWest, Air taxis
• JP Morgan	• Fidelity	• ETFs
• Xerox	• Canon	• Zink
• IBM	• Microsoft	• Linux
• Cullinet	• Oracle	• Salesforce.com
• AT&T	• Cingular	• Skype
• Sony DiskMan	• Apple iPod	• Cell Phones
• Japan	• Korea, Taiwan, HK	• China, India

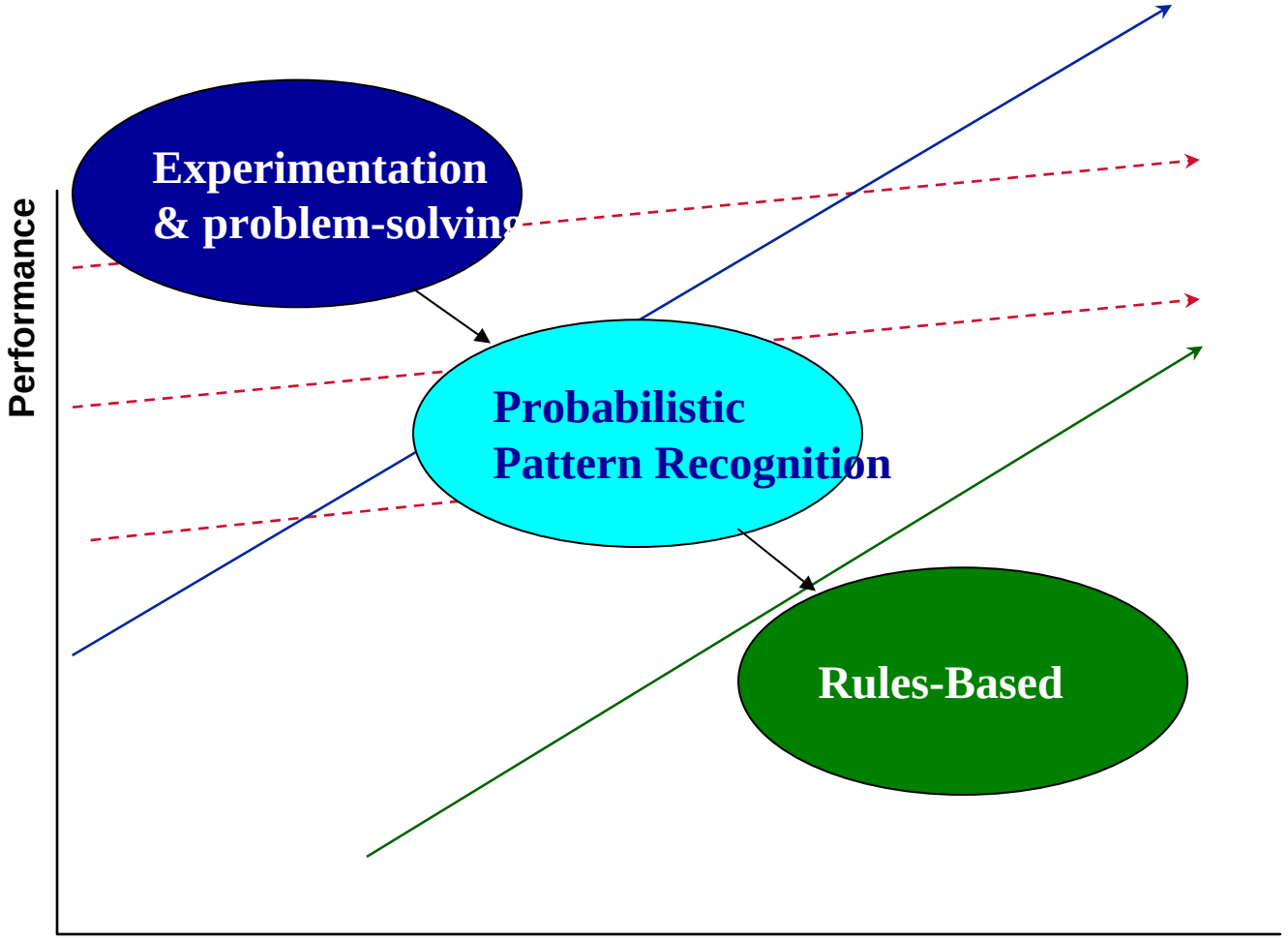
The right product architecture depends upon the basis of competition



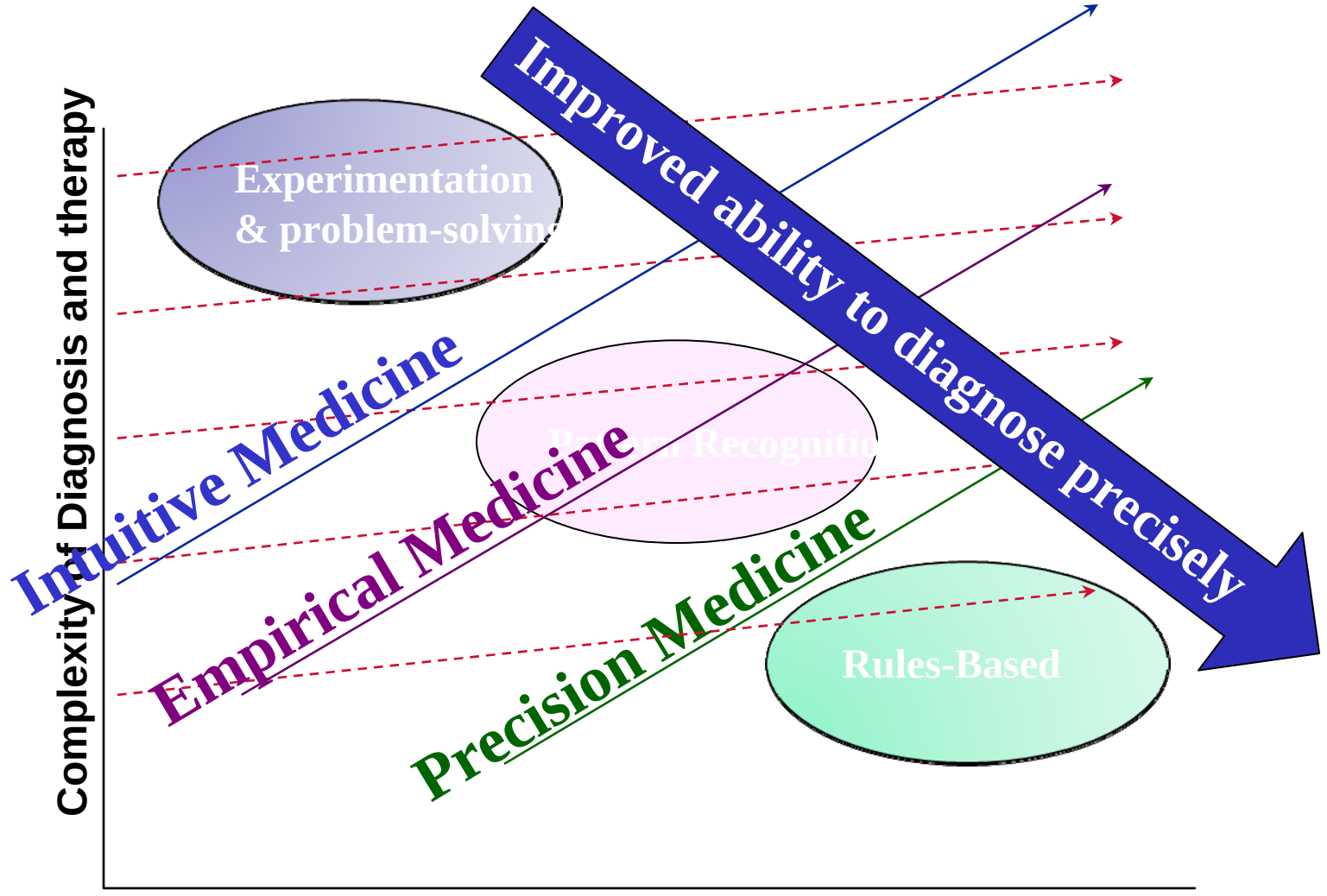
Three Enablers of Disruption



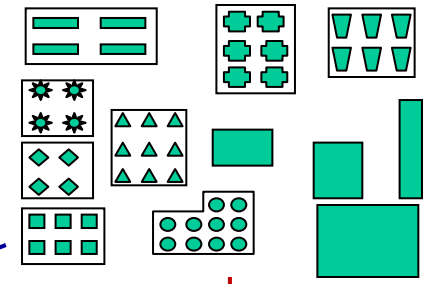
Disruption is facilitated when historically valuable (and expensive) expertise becomes commoditized



Molecular diagnostics, imaging technologies, and high-bandwidth telecommunications are important technological enablers for disruptive business models in health care



Hospitals are expensive conflations of three types of business models



SOLUTION SHOPS

- Consulting firms
- High-end law firms
- R&D organizations
- Diagnostic & intuitive activities of hospitals

FEE FOR SERVICE

VALUE-ADDING PROCESS BUSINESSES

- Manufacturing
- Education
- Food services
- Medical procedures

FEE FOR OUTCOME

FACILITATED NETWORKS

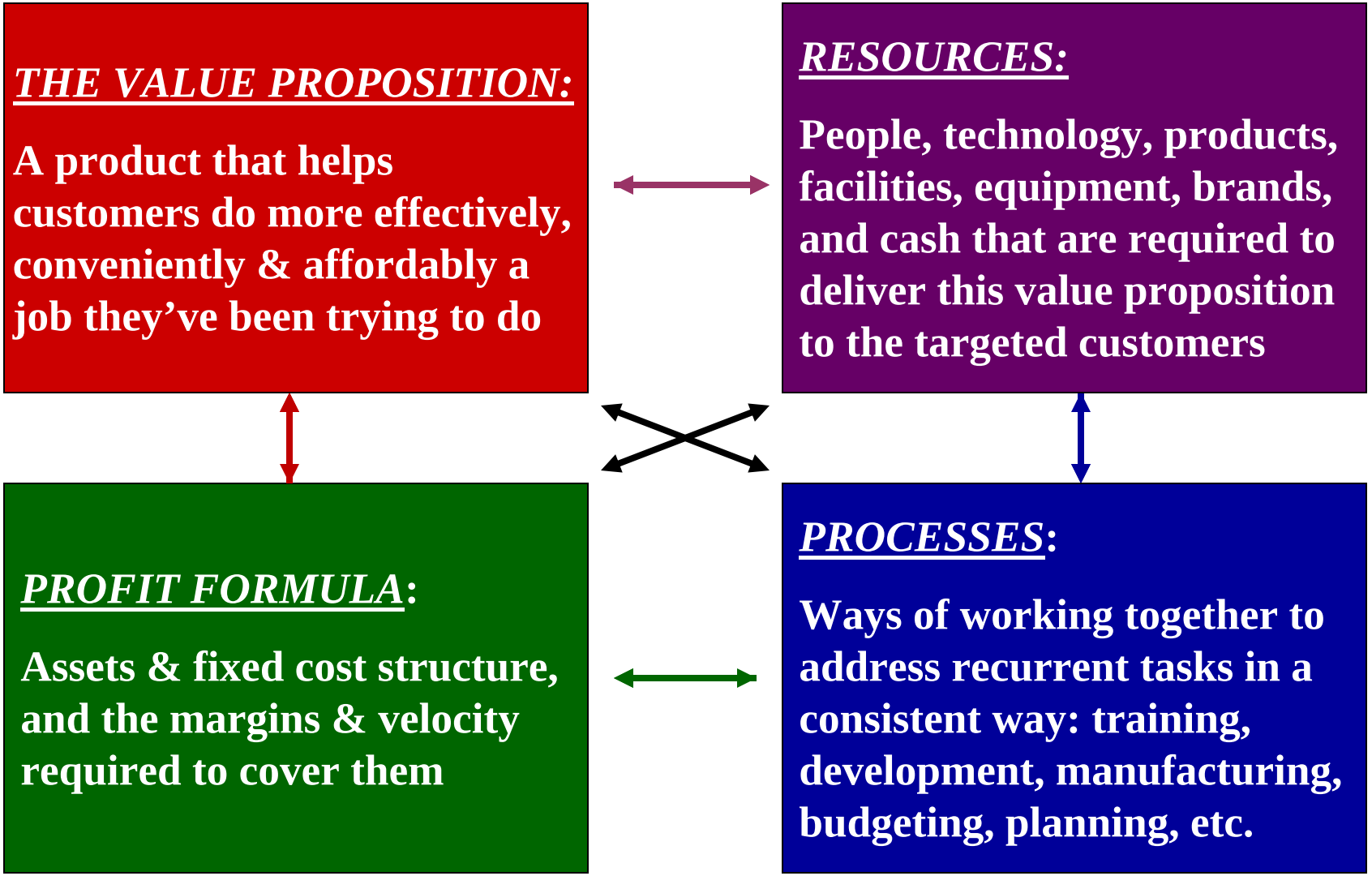
- Telecommunications
- Insurance
- EBay
- D-Life
- SimulConsult

FEE FOR MEMBERSHIP

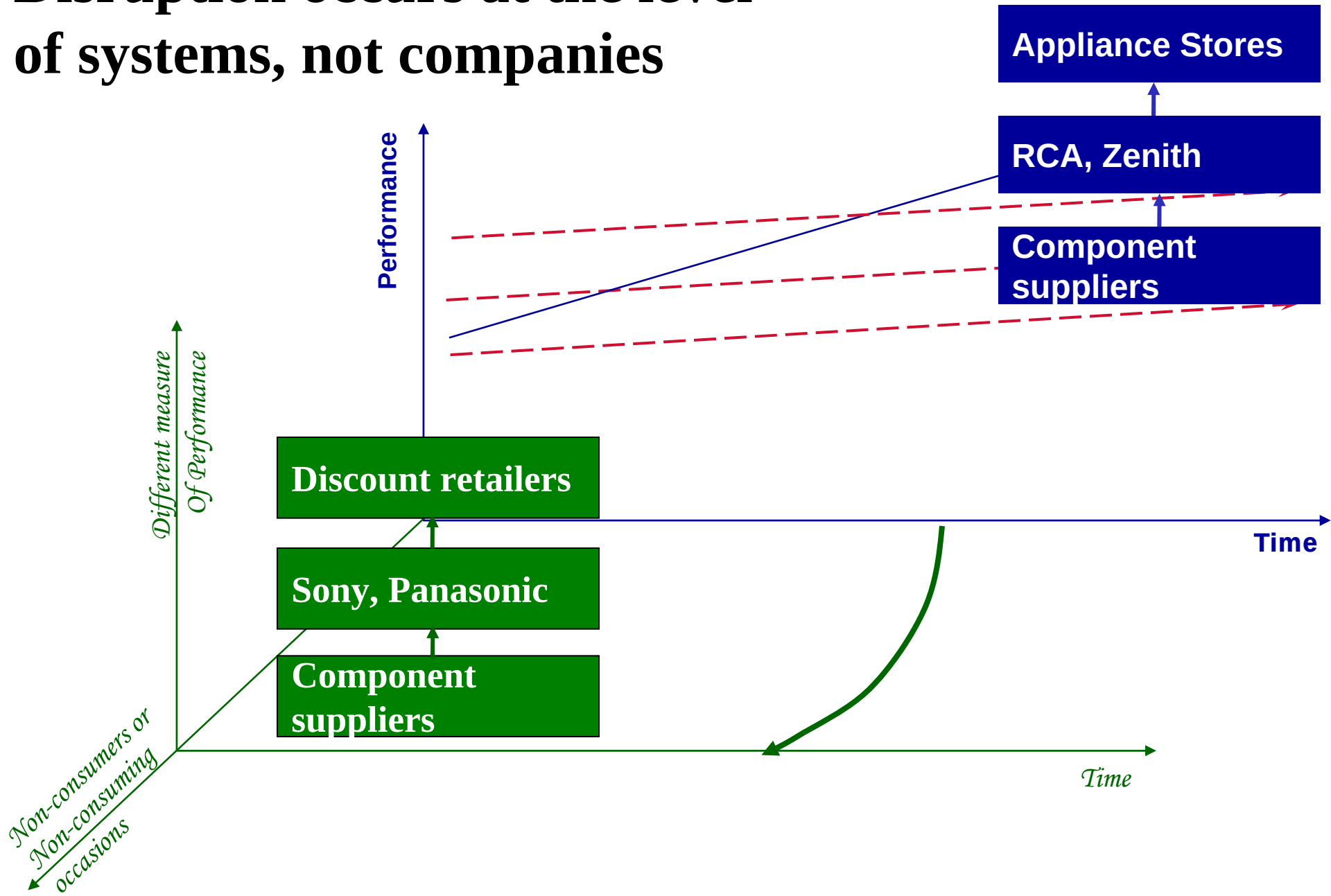
Market Understanding that Mirrors how Customers Experience Life

"The customer rarely buys what the company thinks it is selling him" - *Peter Drucker*

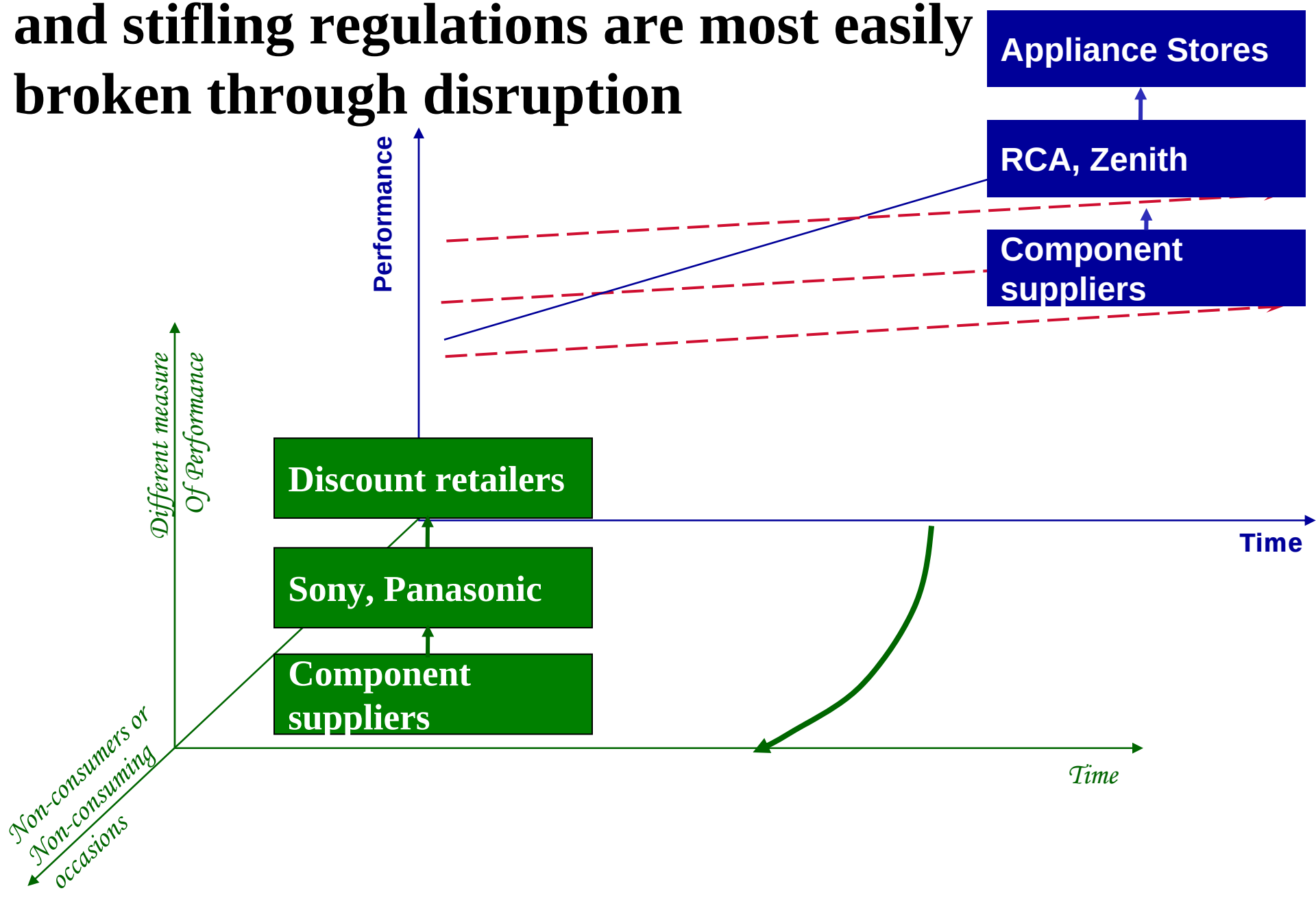
What is a business model, and how is it built?



Disruption occurs at the level of systems, not companies



Powerful monopolies, network effects and stifling regulations are most easily broken through disruption



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Disrupting Class:
How Disruptive Innovation Will Change the Way the World Learns

Michael Horn

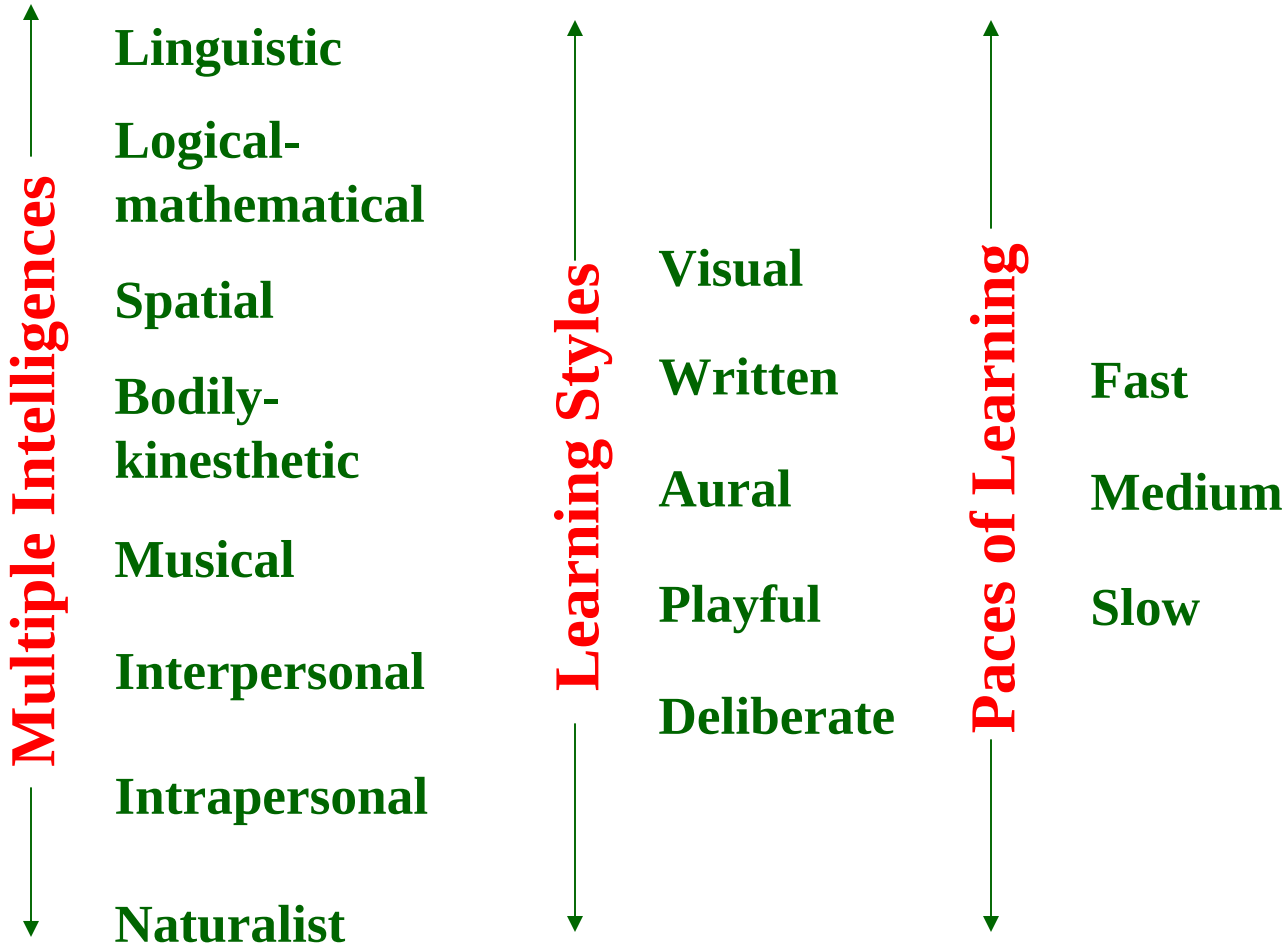
October 27, 2008

mhorn@innosightinstitute.org

Insights from examining education through the lenses of this research

1. Conflicting mandates in the way we teach vs. the way we learn
2. Computers have failed to make a difference because we have crammed them into conventional classrooms
   - They must initially be deployed against non-consumption
3. Individualized, computer-based instruction requires a disruptive distribution model
4. Separation is critical. Chartered schools should be seen as heavyweight teams, not disruptive competitors
5. We have imposed disruption on our schools three times in recent history by moving the goalposts – the metrics of improvement.
6. Education research has not shown the way forward

We all learn differently



Conflicting mandates in the way we must teach vs. The way students must learn

Interdependencies in the teaching infrastructure

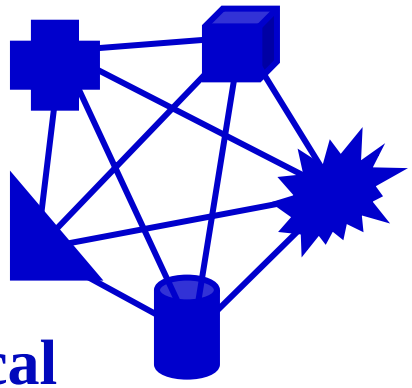
Need for customization for differences in how we learn

Temporal

Lateral

Physical

Hierarchical



Standardization !!

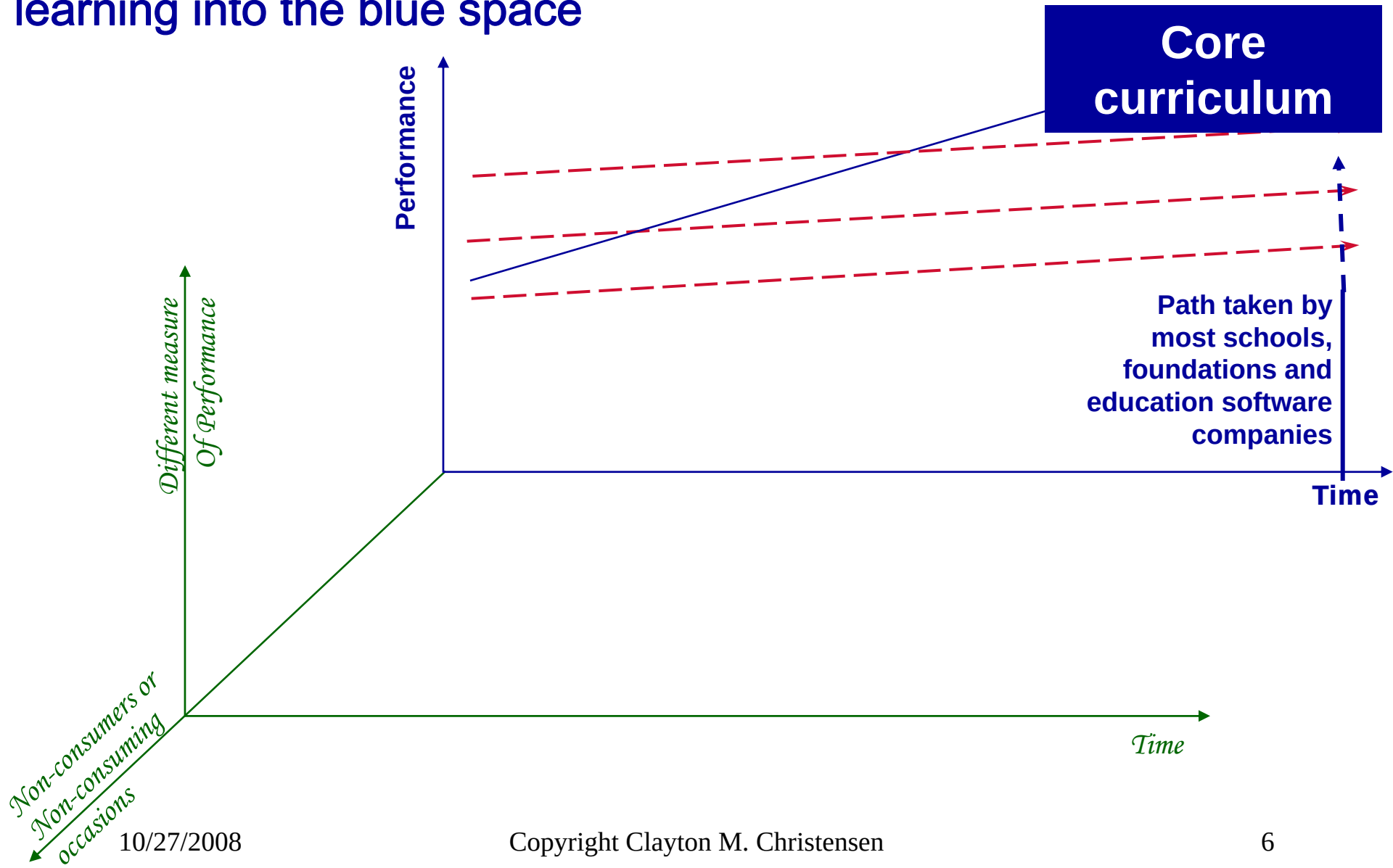
Customization !!

Multiple Intelligences

Learning Styles

Paces of Learning

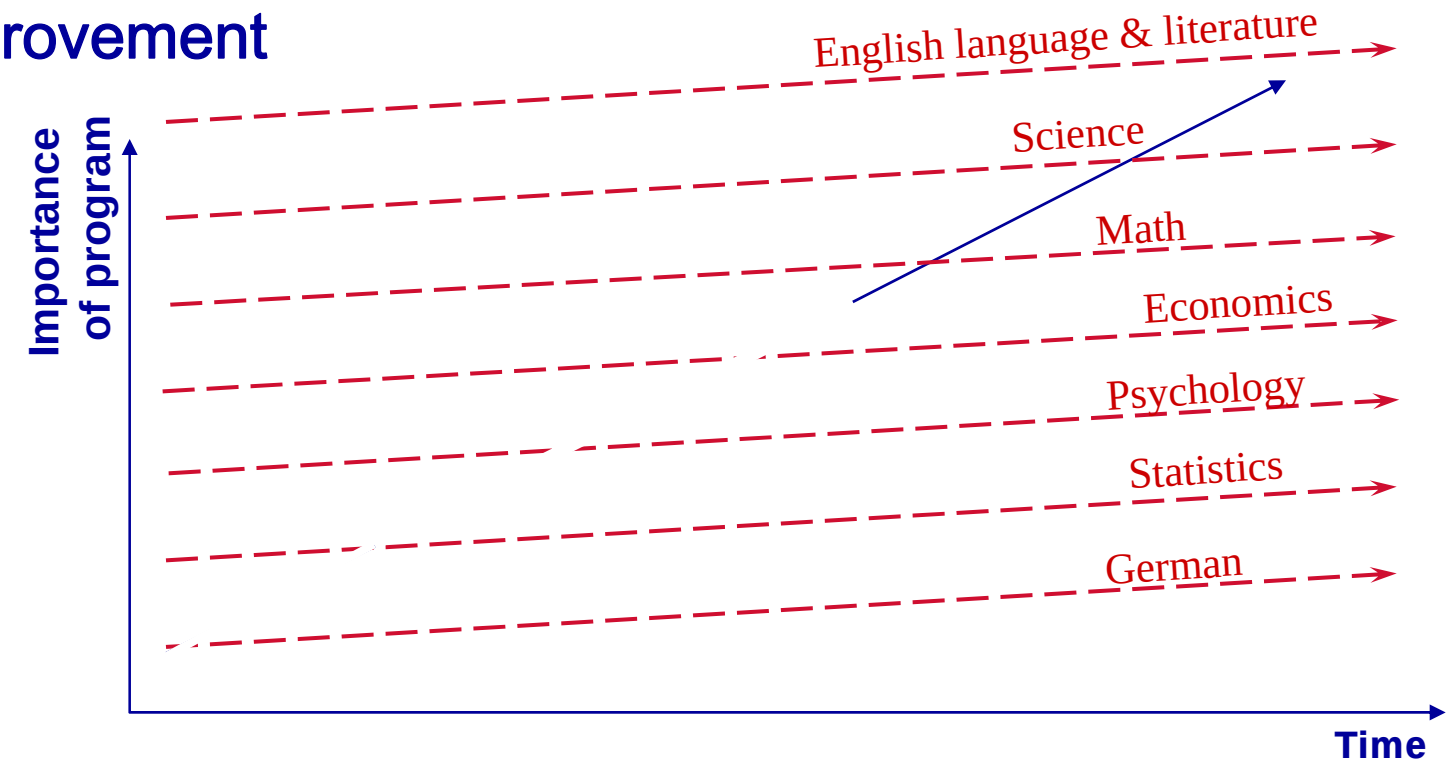
Historically, most schools have "crammed" computer-based learning into the blue space



Prime examples of non-consumption

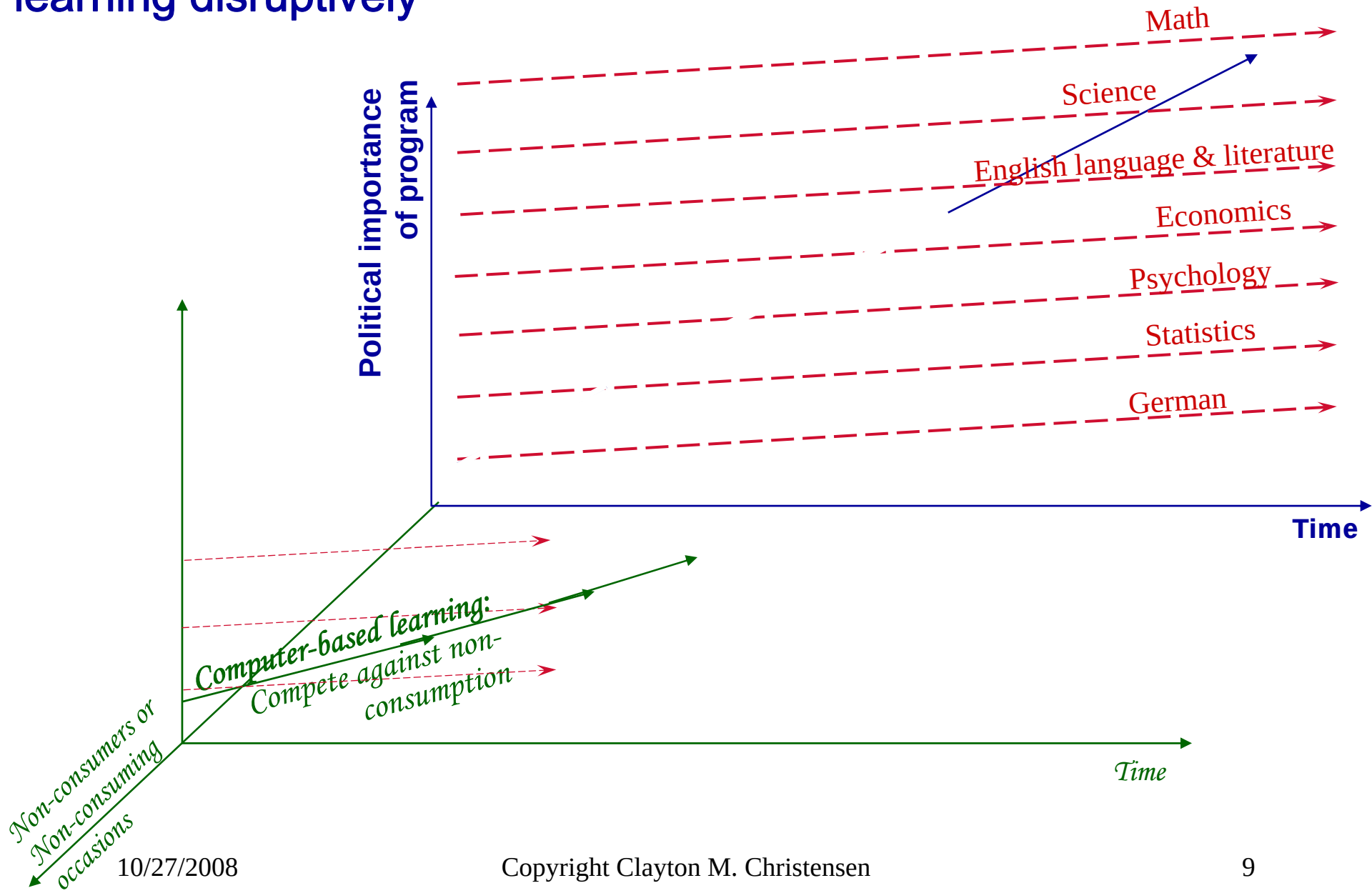
- Credit recovery
- Drop-outs
- AP Courses
- Home-schooled and homebound students
- Small, rural, and urban schools
- Tutoring
- Pre-K

School boards have been moving "Up-Market" to focus limited resources in the "new" trajectory of improvement

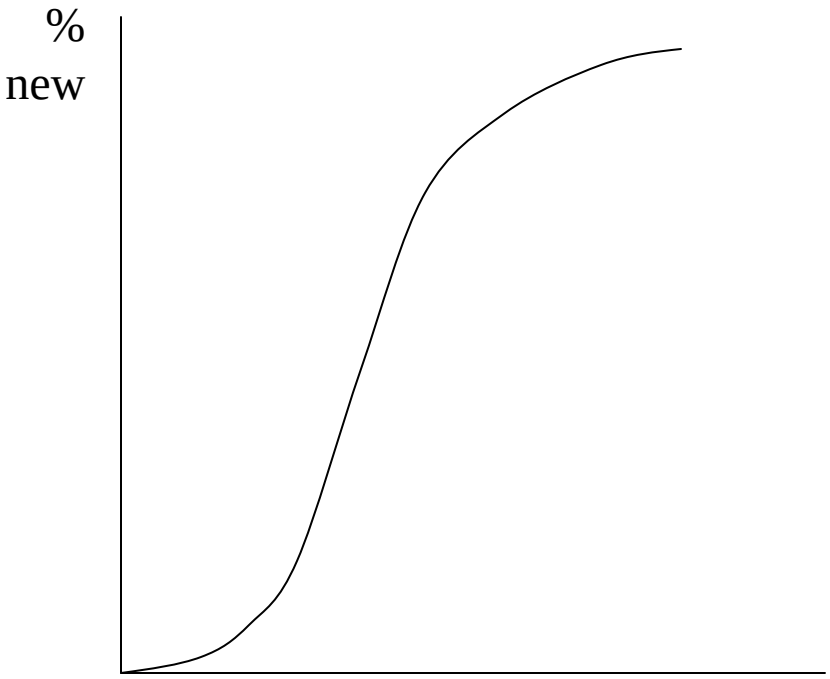


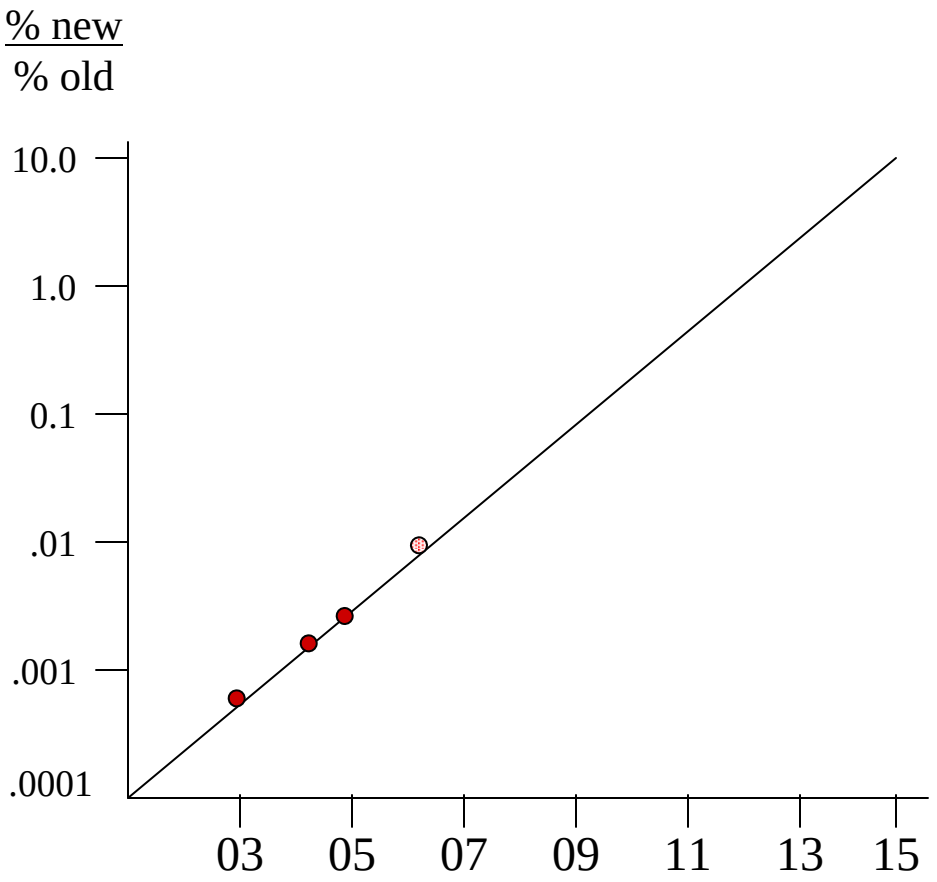
Time

Perfect opportunity to implement computer-based learning disruptively

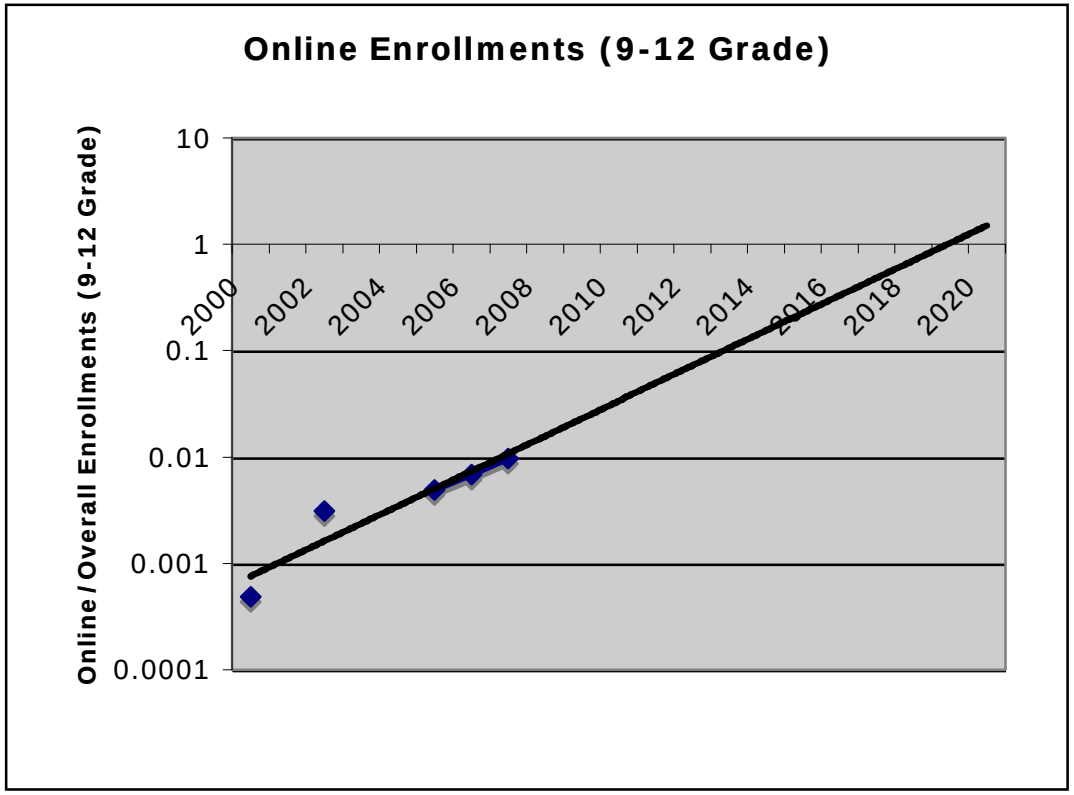


The substitution of one thing for another always follows an S-curve pattern





Online learning gaining adoption



Enrollments up from 45,000 in 2000 to 1,000,000 in 2007

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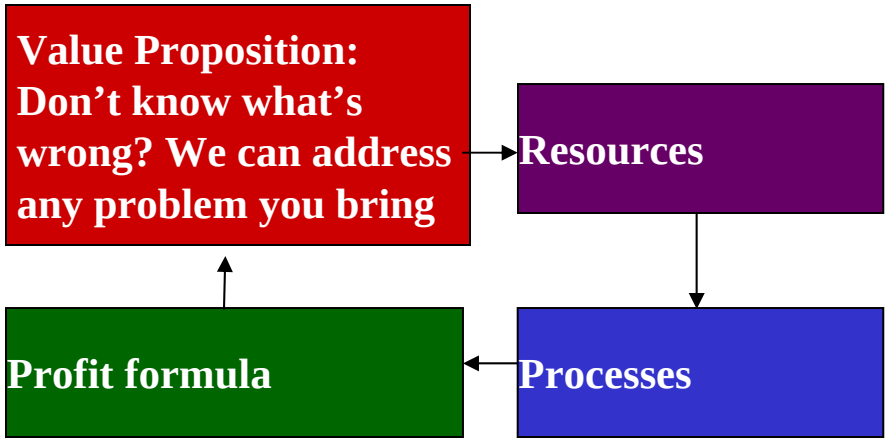
The Innovator's Prescription:

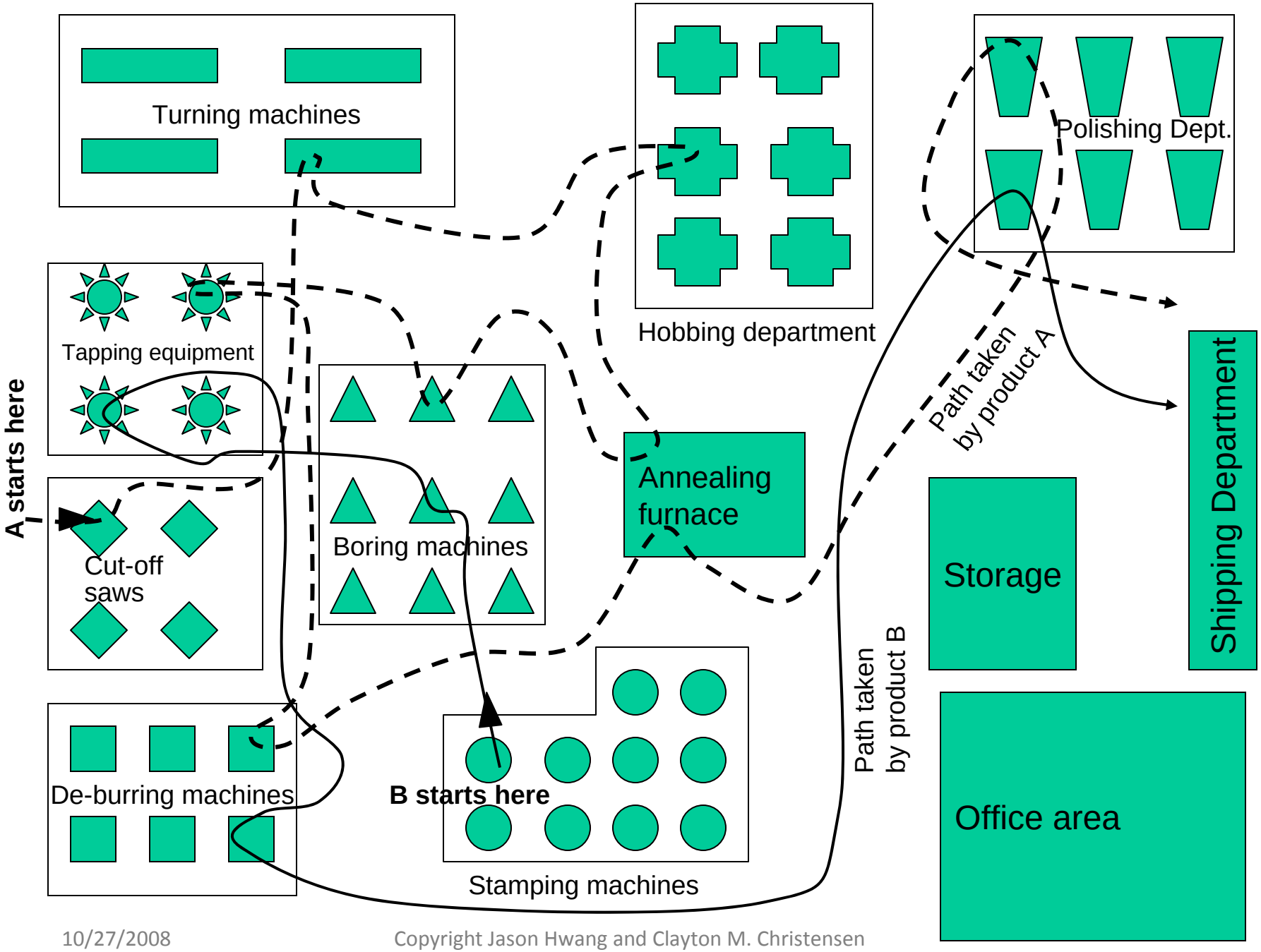
A Disruptive Solution for Health Care

Jason Hwang, M.D., M.B.A.
Executive Director, Healthcare

jhwang@innosightinstitute.org

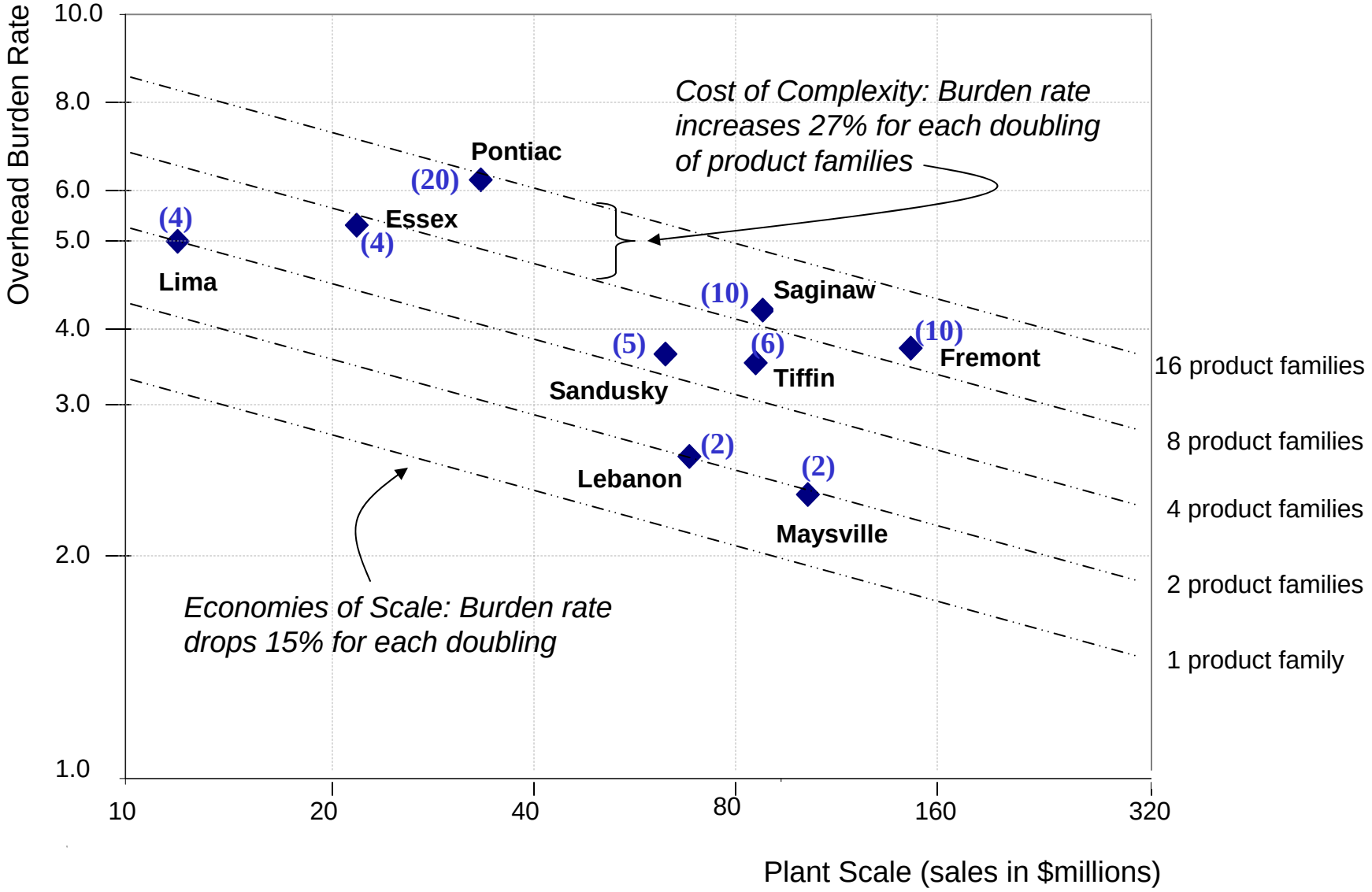
The Traditional General Hospital Is Not a Viable Business Model





Focus and integration optimizes efficiency and high quality

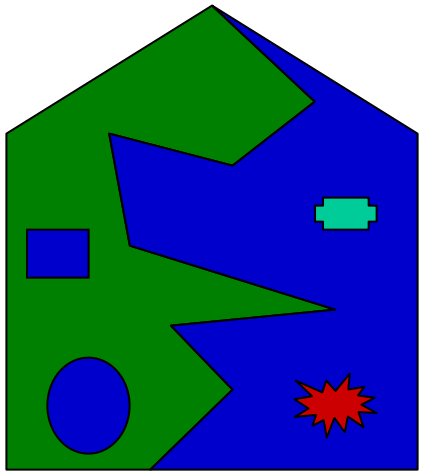
Economies of scale and countervailing costs of product-line complexity



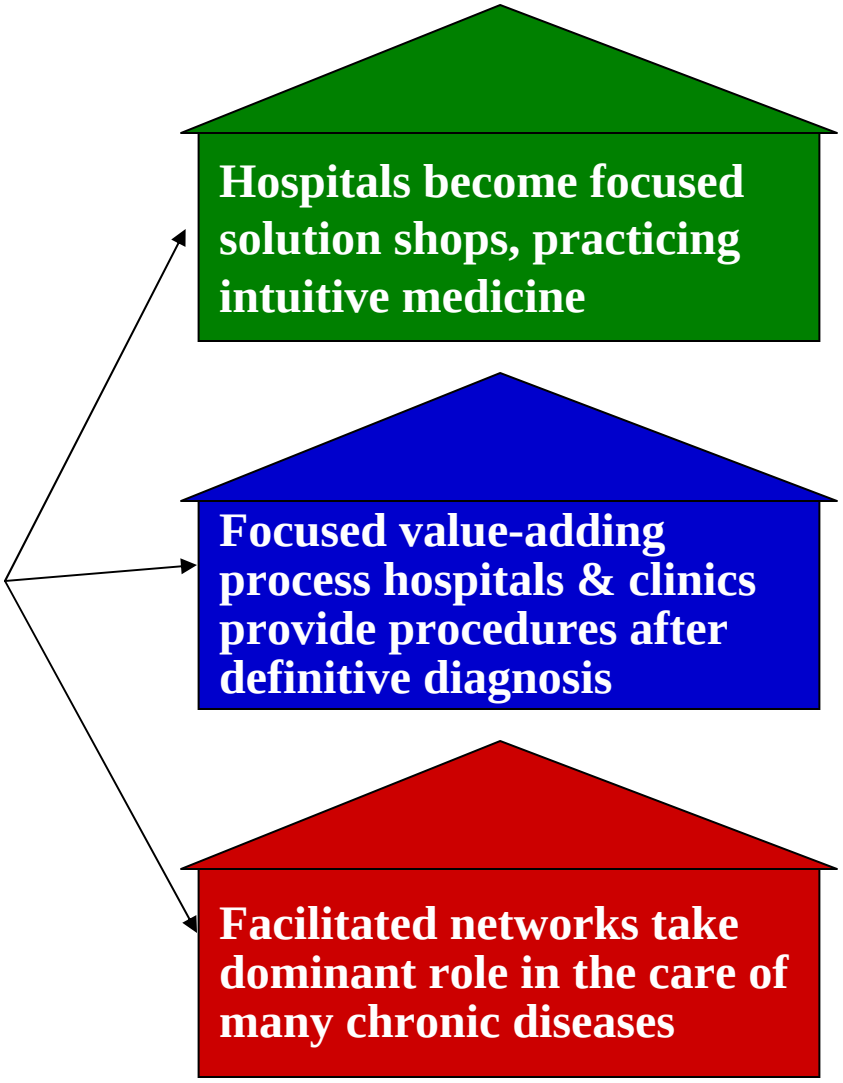
Sources & magnitude of cost differences: Specialty vs. General Hospitals

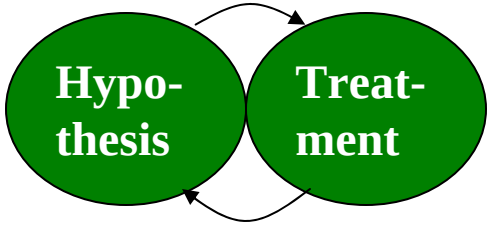
	Shouldice Hospital (hernia repair)	General Hospital
Cost of materials & supplies	$100	$300
Cost of direct labor	$600	$670
Overhead burden	$1600	$6030
Total cost for equivalent length of stay	$2,300	$7,000
# service families offered	1	75
Overhead burden rate	2.7	9.0

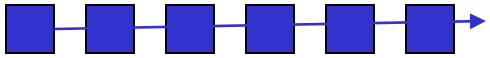
Business Model Disruption in Health Care

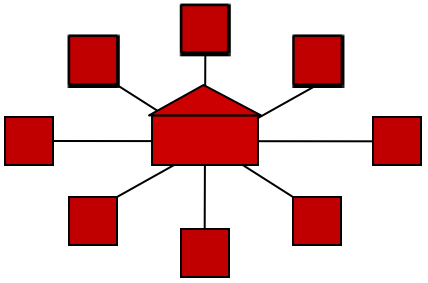


Today's hospitals and specialist physician practices are agglomerations of solution shop, value-adding process, and (a few) facilitated network activities

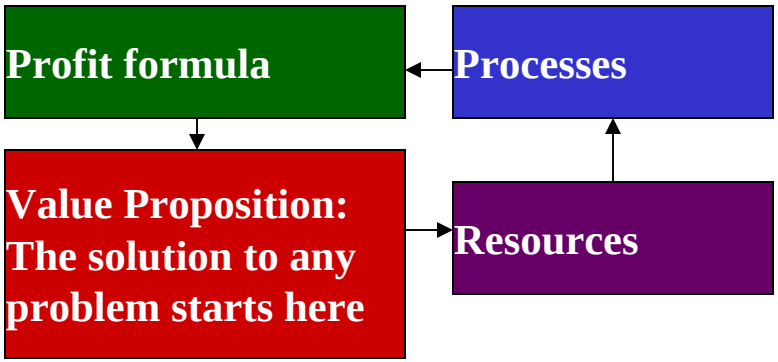


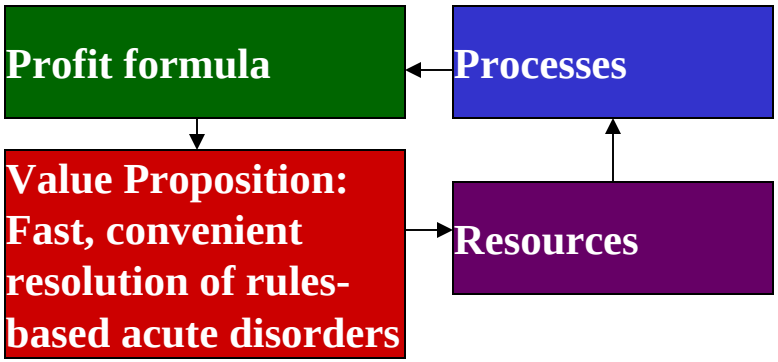




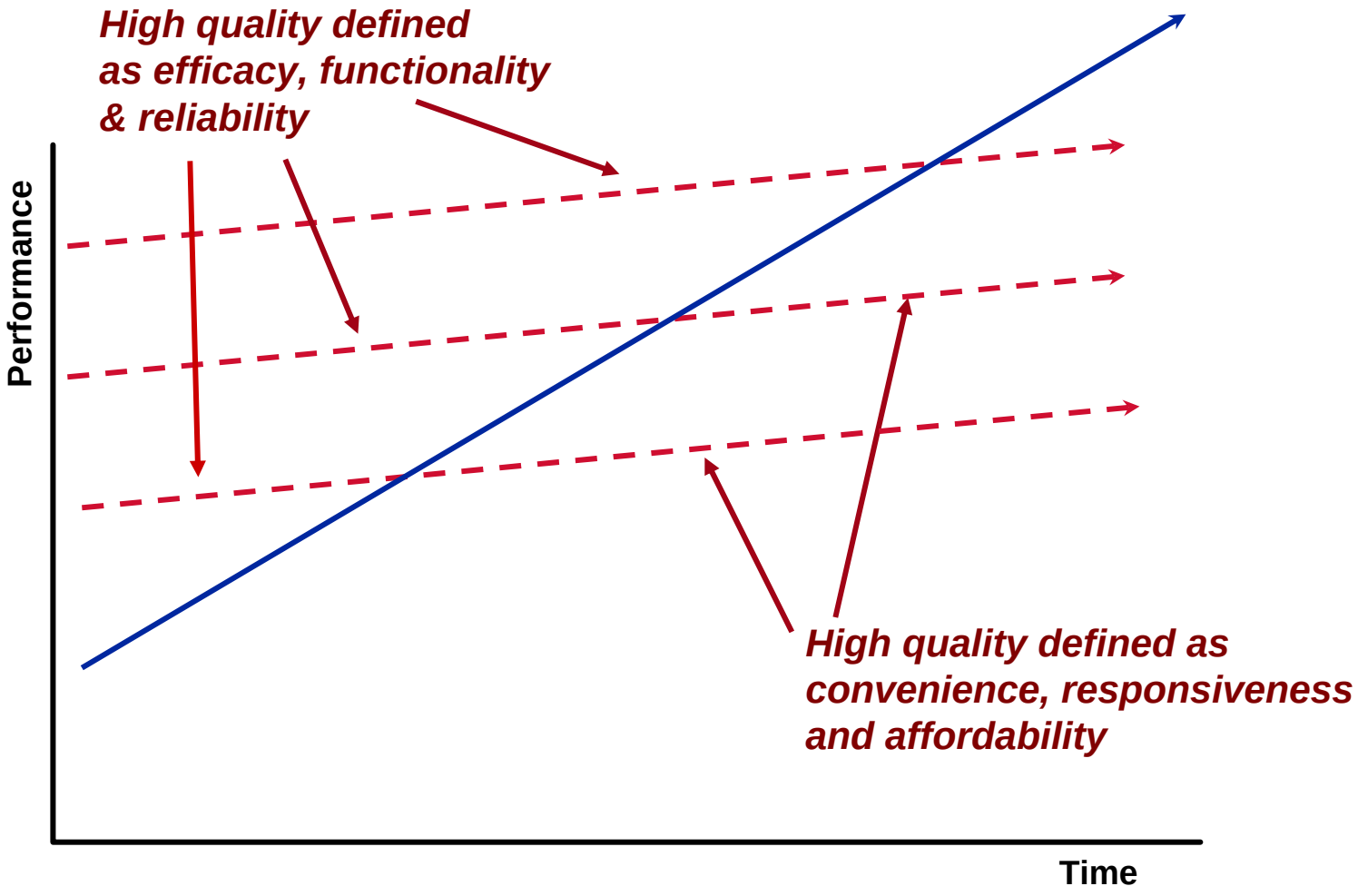


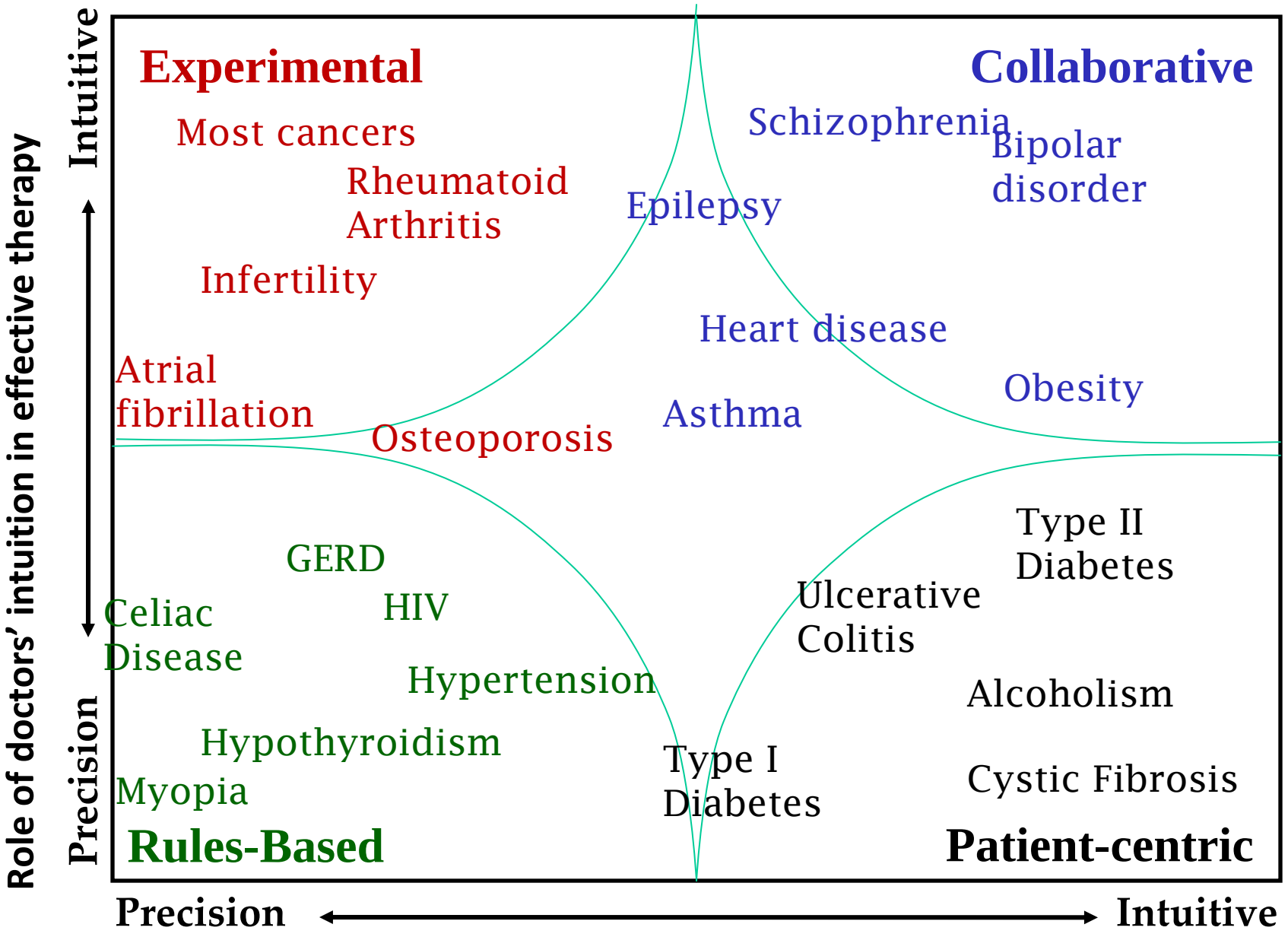
Disruptive business model innovation in physicians' practices

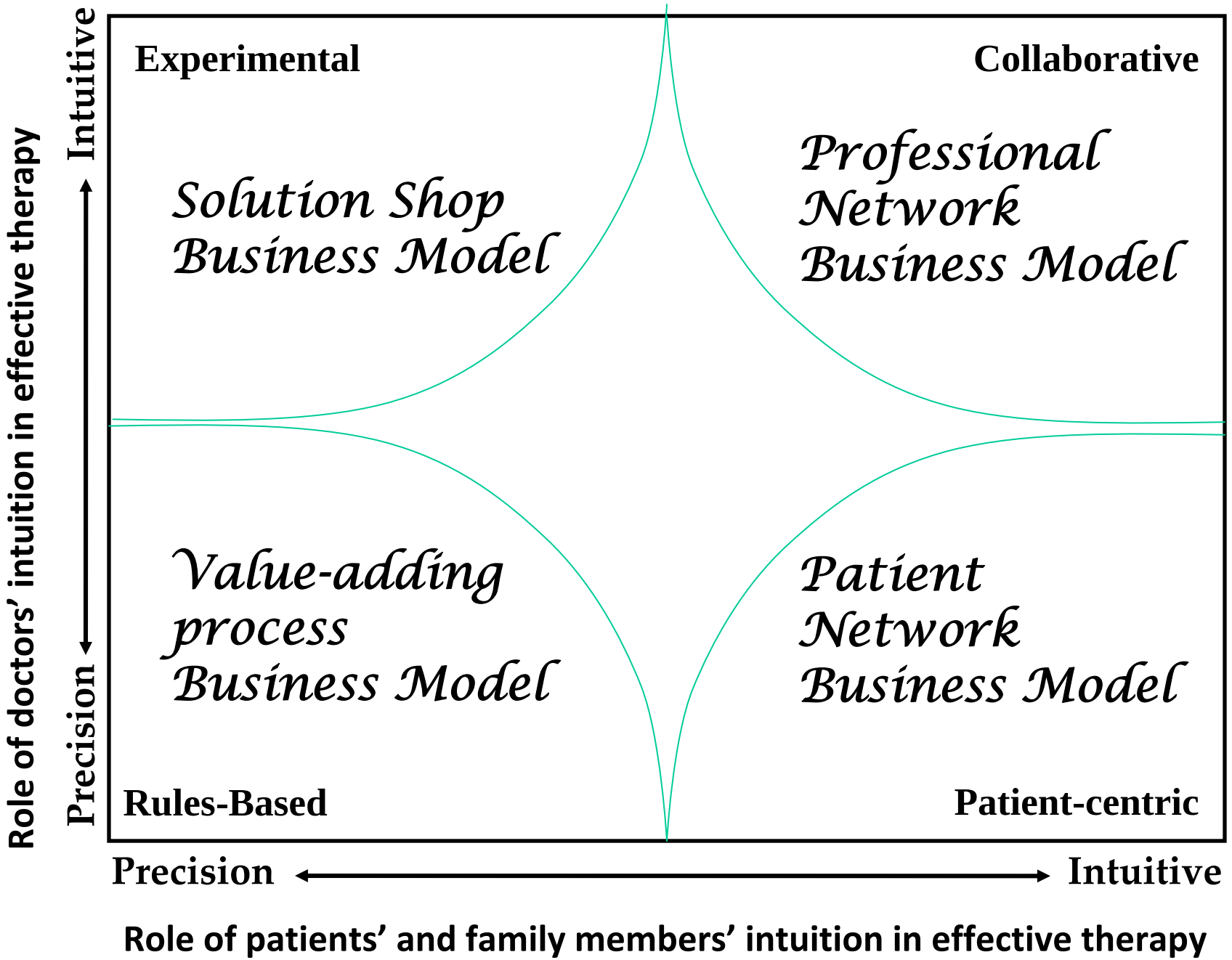




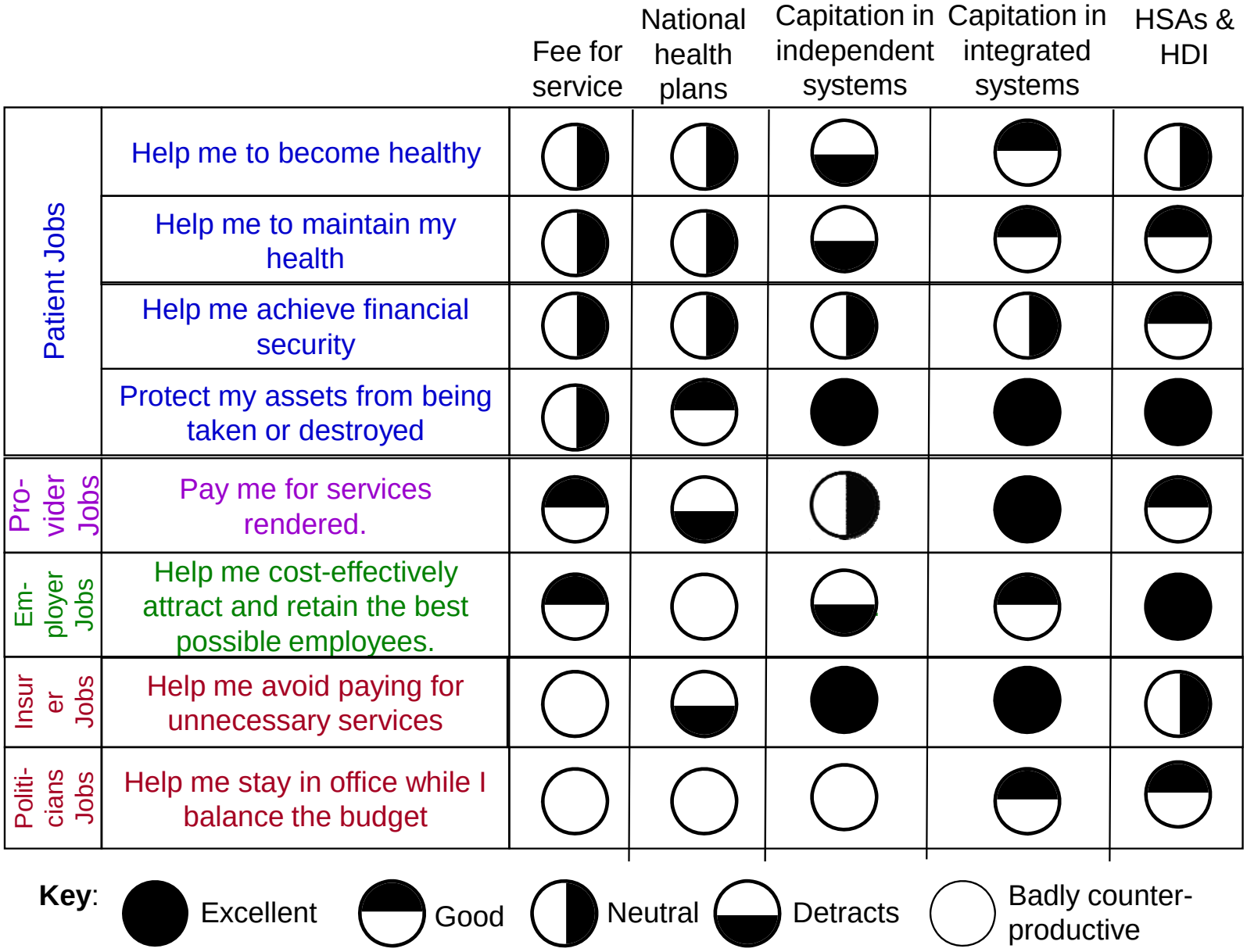
The basis of competition – the definition of quality – changes as the process of disruption unfolds



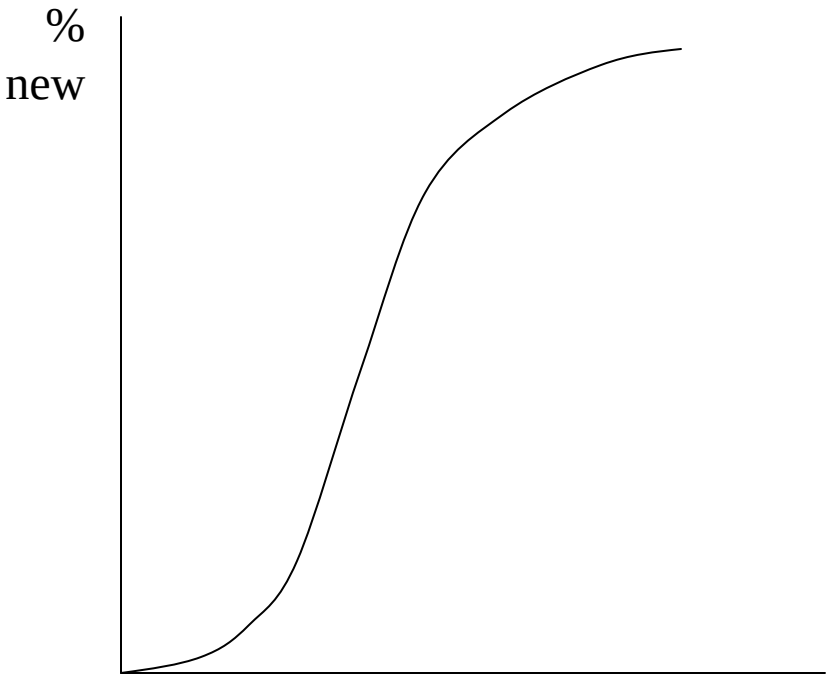

Experimental
Collaborative
Most cancers
Rheumatoid Arthritis
Infertility
Schizophrenia
Bipolar disorder
Epilepsy
Heart disease
Atrial fibrillation
Osteoporosis
Asthma
Obesity
GERD
HIV
Celiac Disease
Hypertension
Hypothyroidism
Myopia
Type I Diabetes
Type II Diabetes
Ulcerative Colitis
Alcoholism
Cystic Fibrosis
Rules-Based
Patient-centric
Role of doctors' intuition in effective therapy
Intuitive
Precision
Precision
Intuitive
Role of patients' and family members' intuition in effective therapy

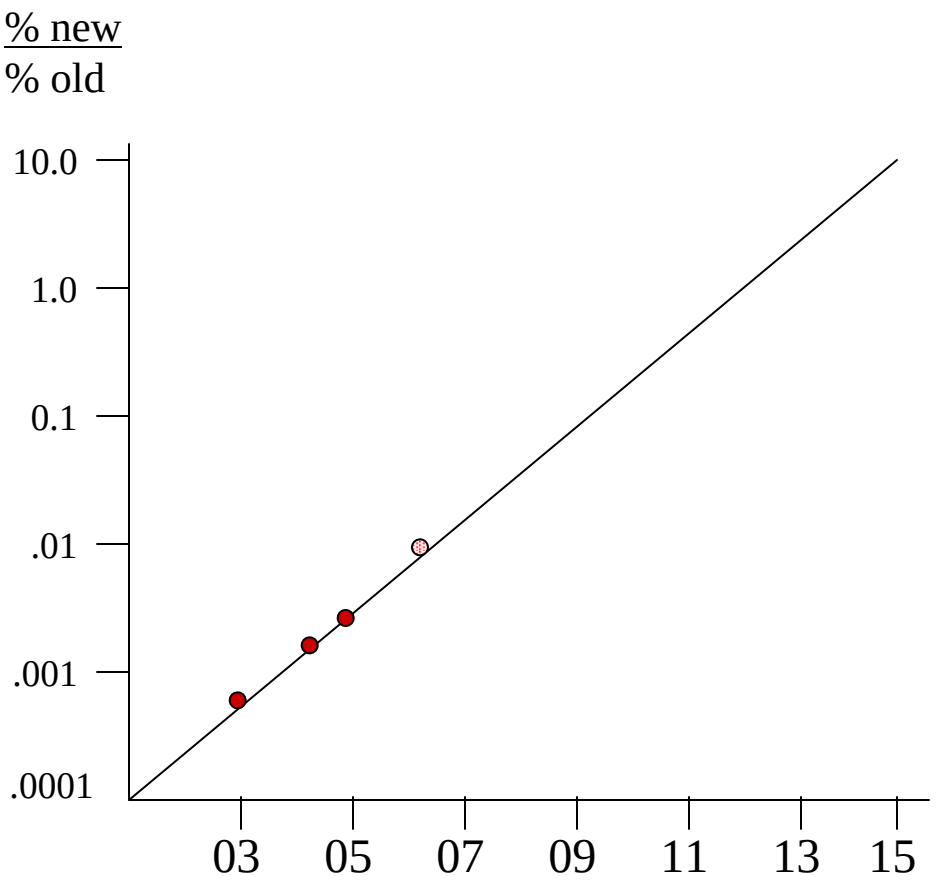

Experimental
Collaborative
Solution Shop Business Model
Professional Network Business Model
Value-adding process Business Model
Patient Network Business Model
Rules-Based
Patient-centric
Role of doctors' intuition in effective therapy
Intuitive
Precision
Precision
Intuitive
Role of patients' and family members' intuition in effective therapy

The jobs of reimbursement

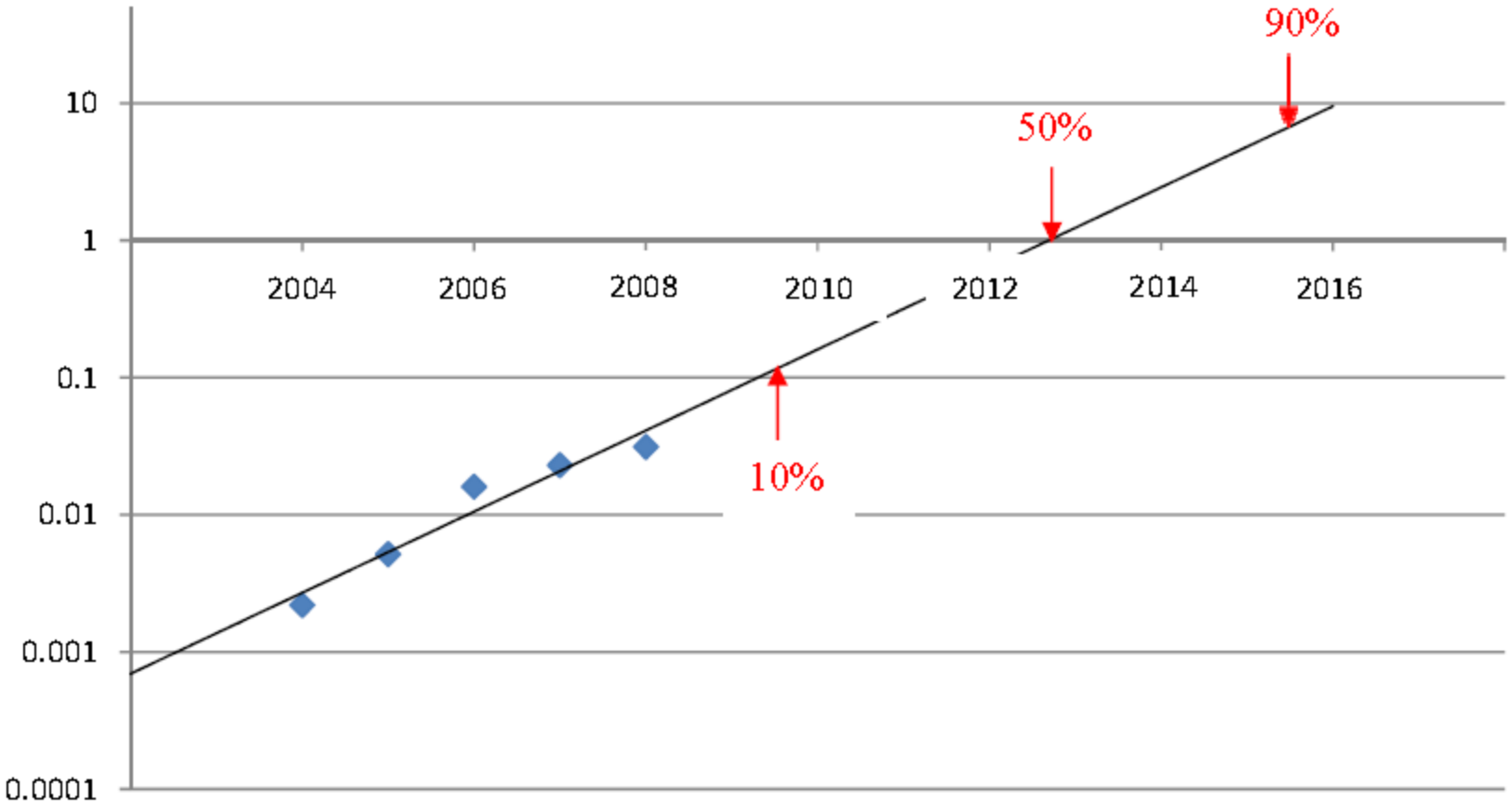


The substitution of one thing substitutes for another always follows an S-curve pattern

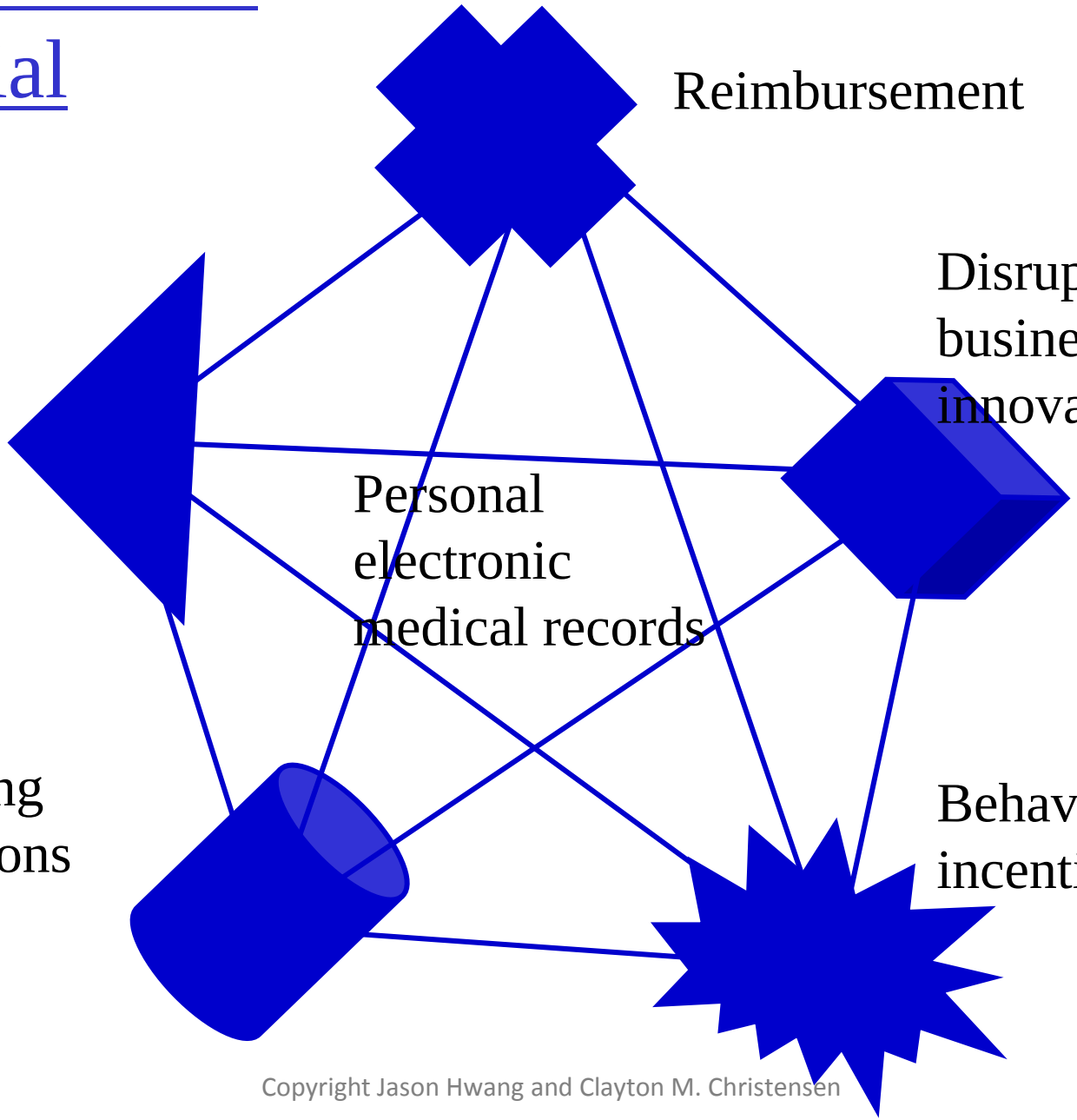




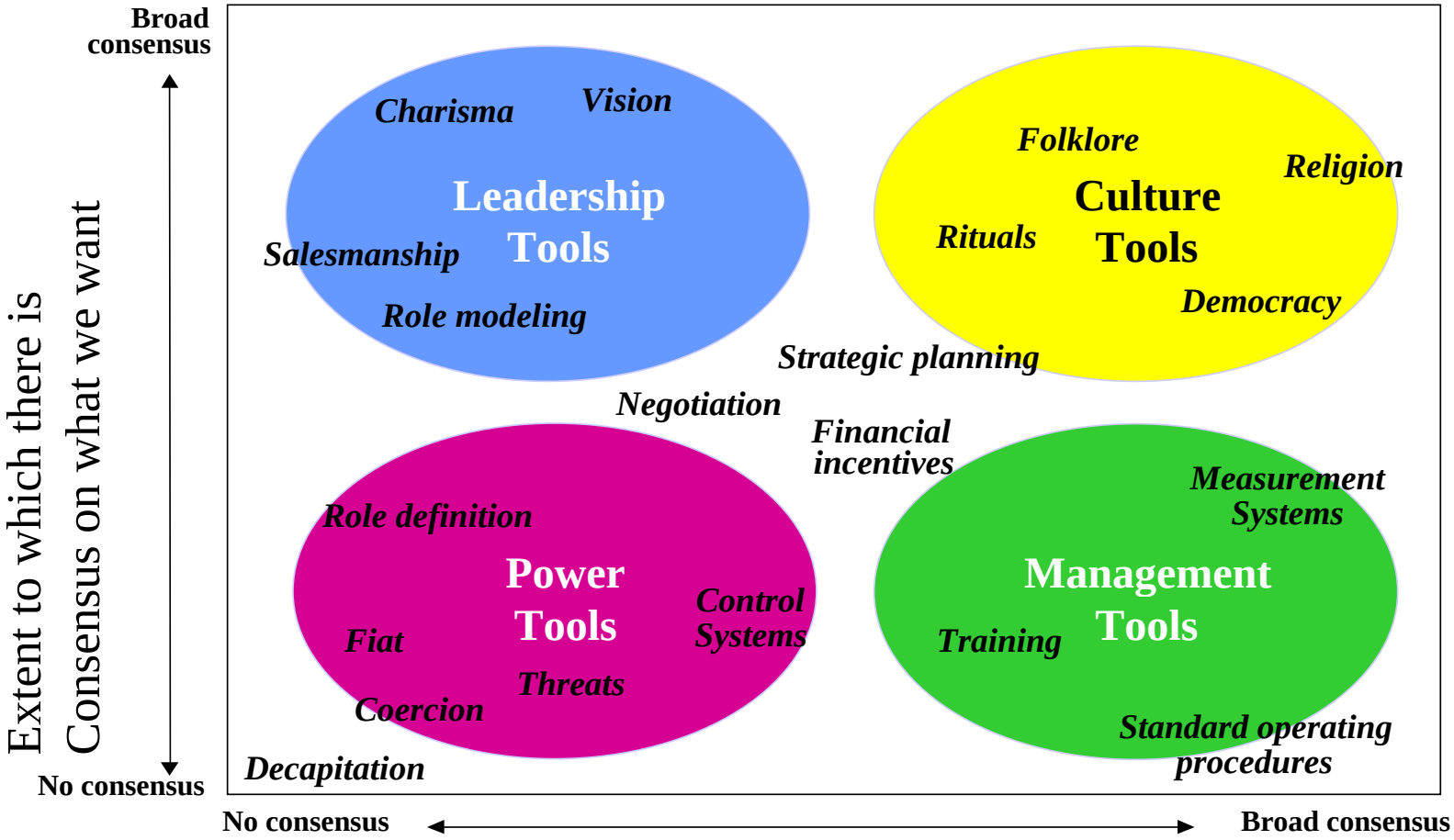
Past and Future Substitution of HSAs & HDI for Conventional Private Health Plans



Integration will be crucial



The Tools of Cooperation



Extent to which there is pre-existing consensus about what actions will lead to the needed results

The ideal entity responsible for healthcare should have a long-term horizon, strong motivations to keep people healthy, and the ability to make care convenient.

- Employers
- Insurance / reimbursement firms
- Doctors & hospitals
- Employees
- Government

Throughout business history, managers have integrated backward into activities that were not their "core competencies," when they could not get critical inputs from independent suppliers that were reliable and cost-effective