

Will Disruptive Innovations Transform Healthcare?

**HIPAA Summit Conference Series
Harvard University
19 August 2001**

*John W. Kenagy, MD, MPA
Health Care Strategy and Innovation
Visiting Scholar, Harvard Business School
jkenagy@hbs.edu*

Will disruptive innovation transform healthcare?

There are two classes of people who tell us what is going to happen in the future -

Those who don't know, and those who don't know they don't know.

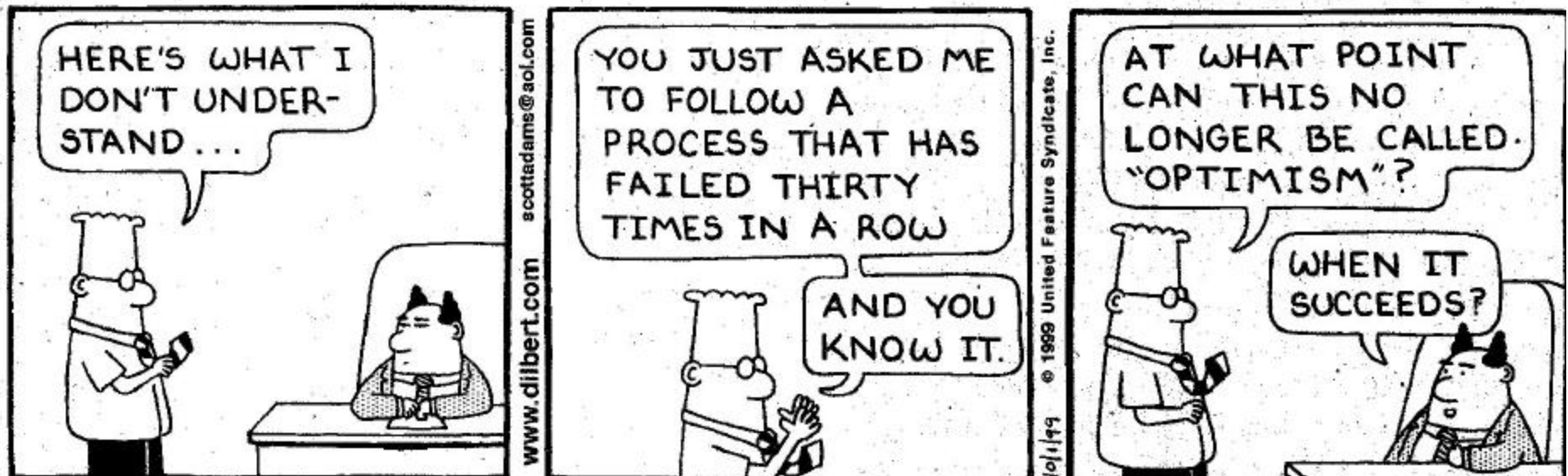
John Kenneth Galbraith

Strategy and Innovation Challenges for U.S. Healthcare Leadership

- “We innovate very successfully, but....?”
- “The Battleship Syndrome”
- “We cannot change what’s out of our control.”
 - “Who changed the rules?”
- “It is very difficult to change our internal processes and culture.”
- “So, technology drives innovation.”

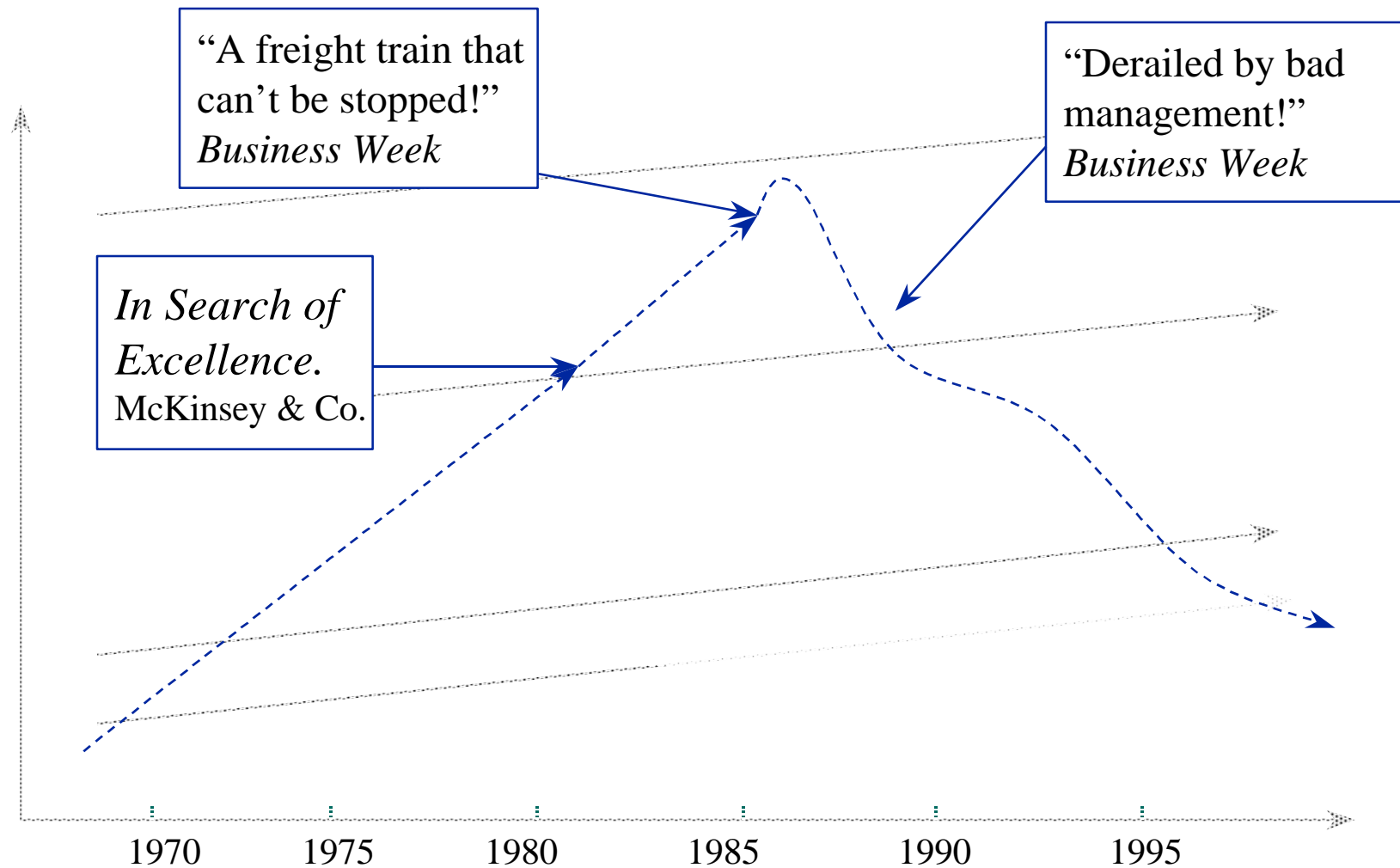
A summary of major policy initiatives in U.S. healthcare

DILBERT by Scott Adams

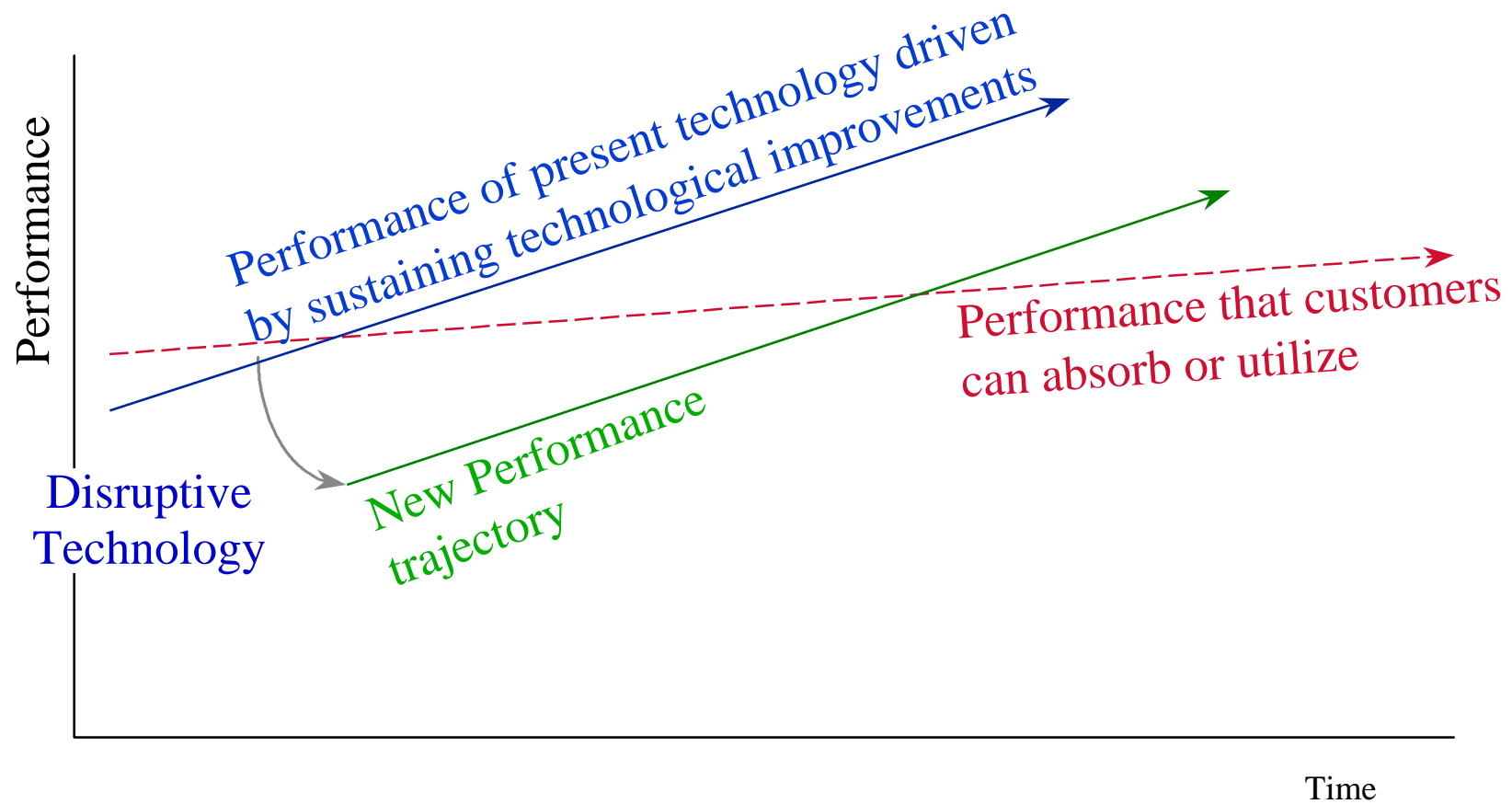


What Causes the Best Leaders to Fail?

The Digital Equipment Story

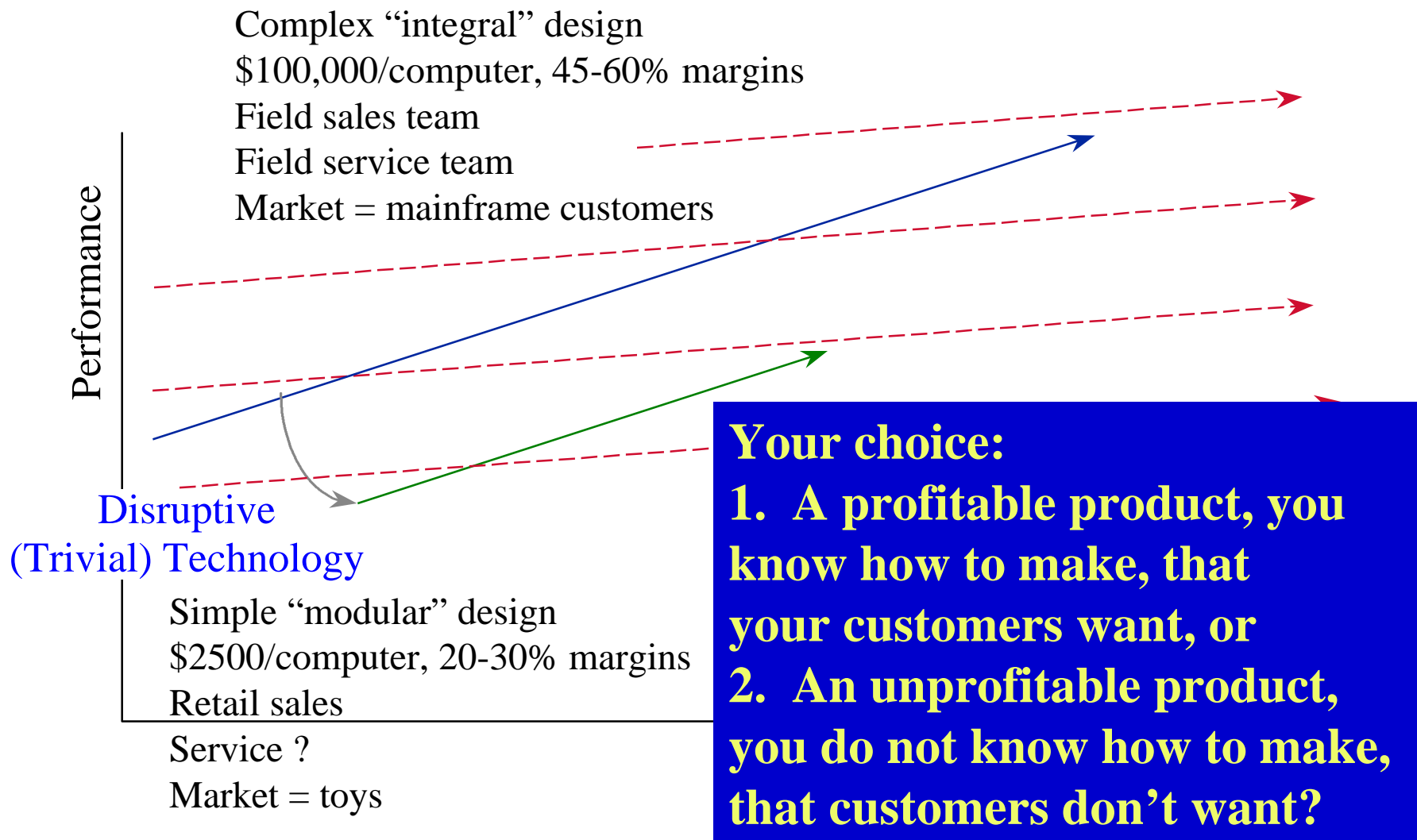


Disruptive Innovation: A driver of leadership failure



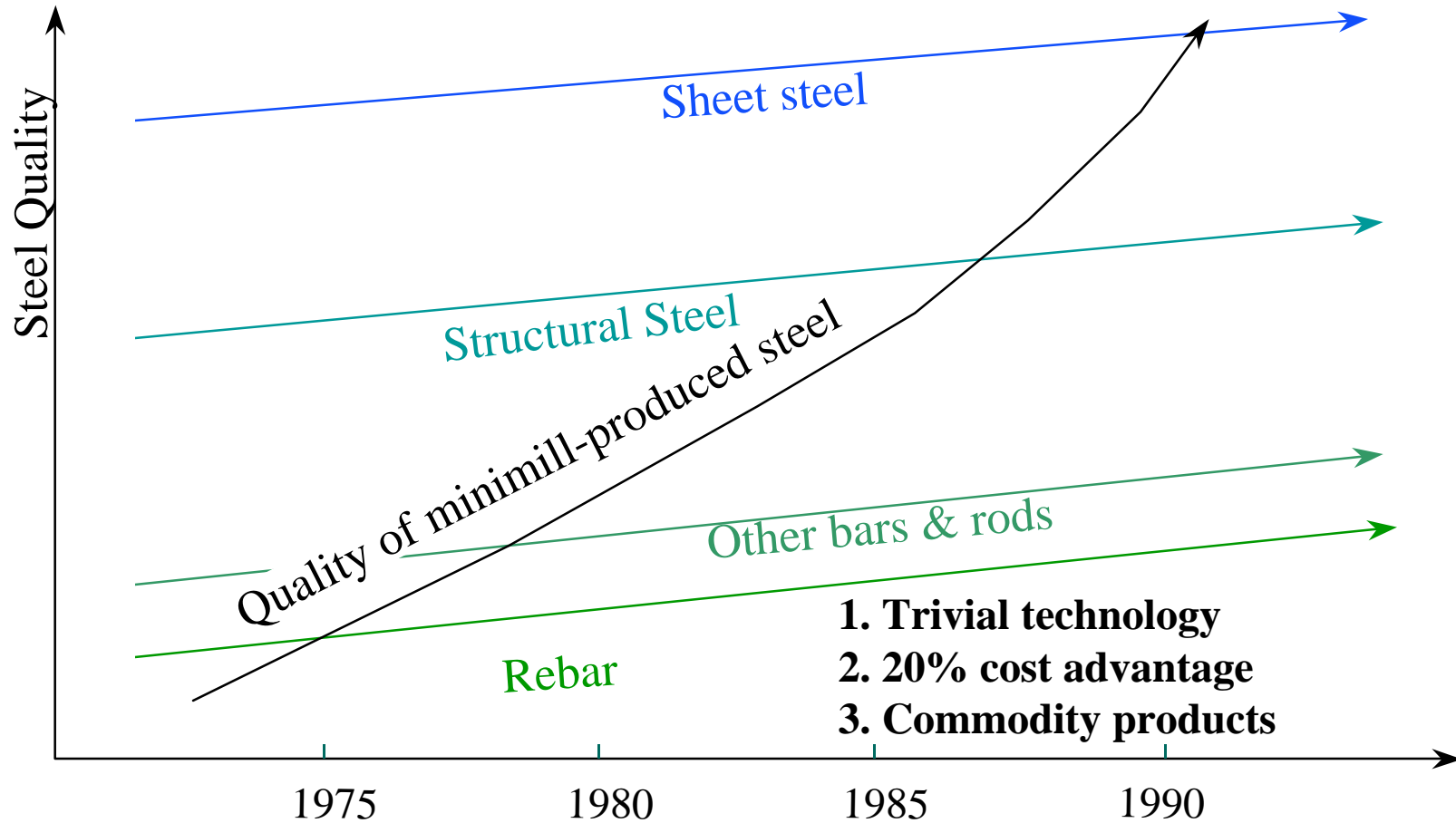
What Happened to Digital?

“It wasn’t a lack of technical expertise.”



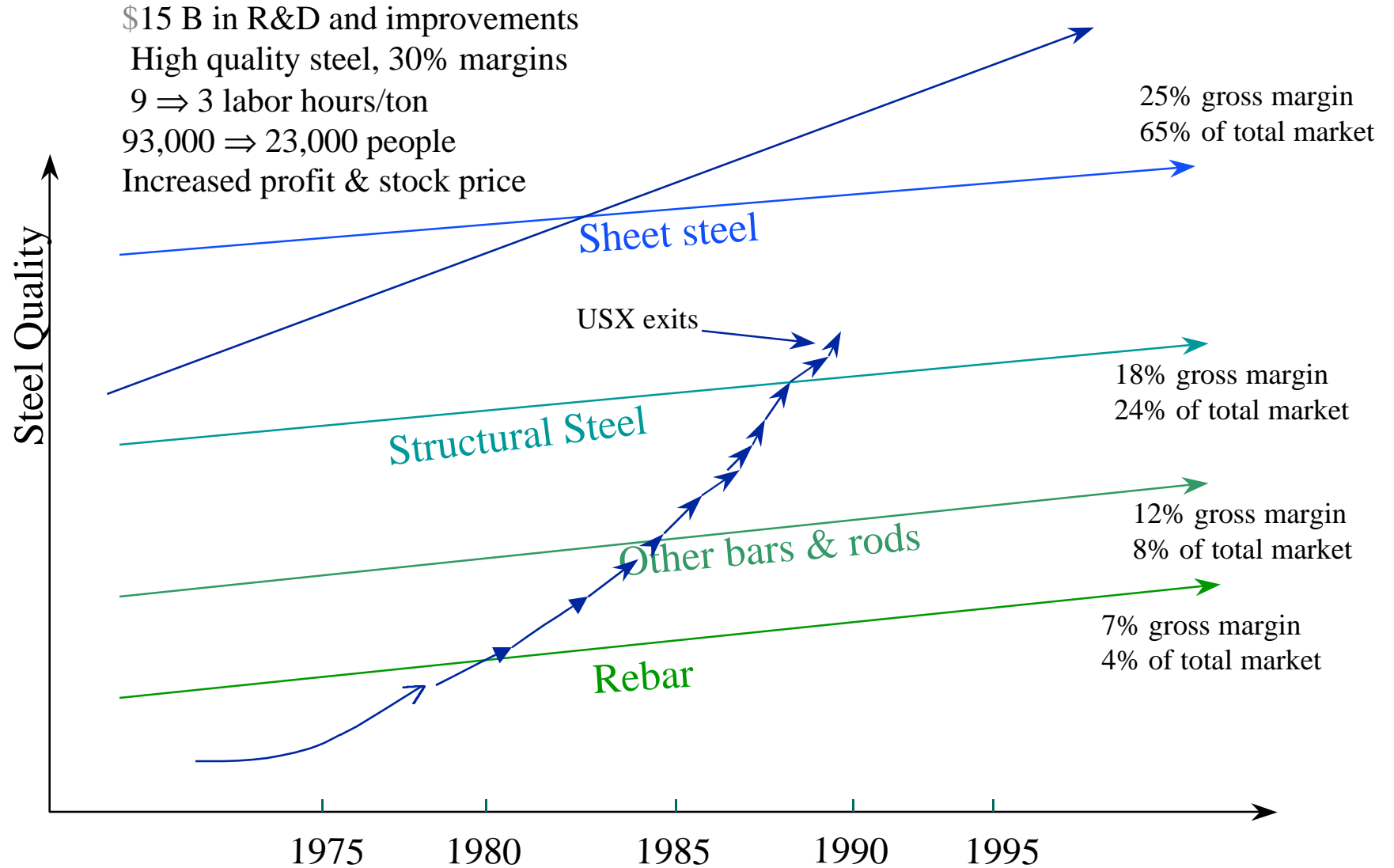
The Anatomy of a Disruption

Steel Mini-mills

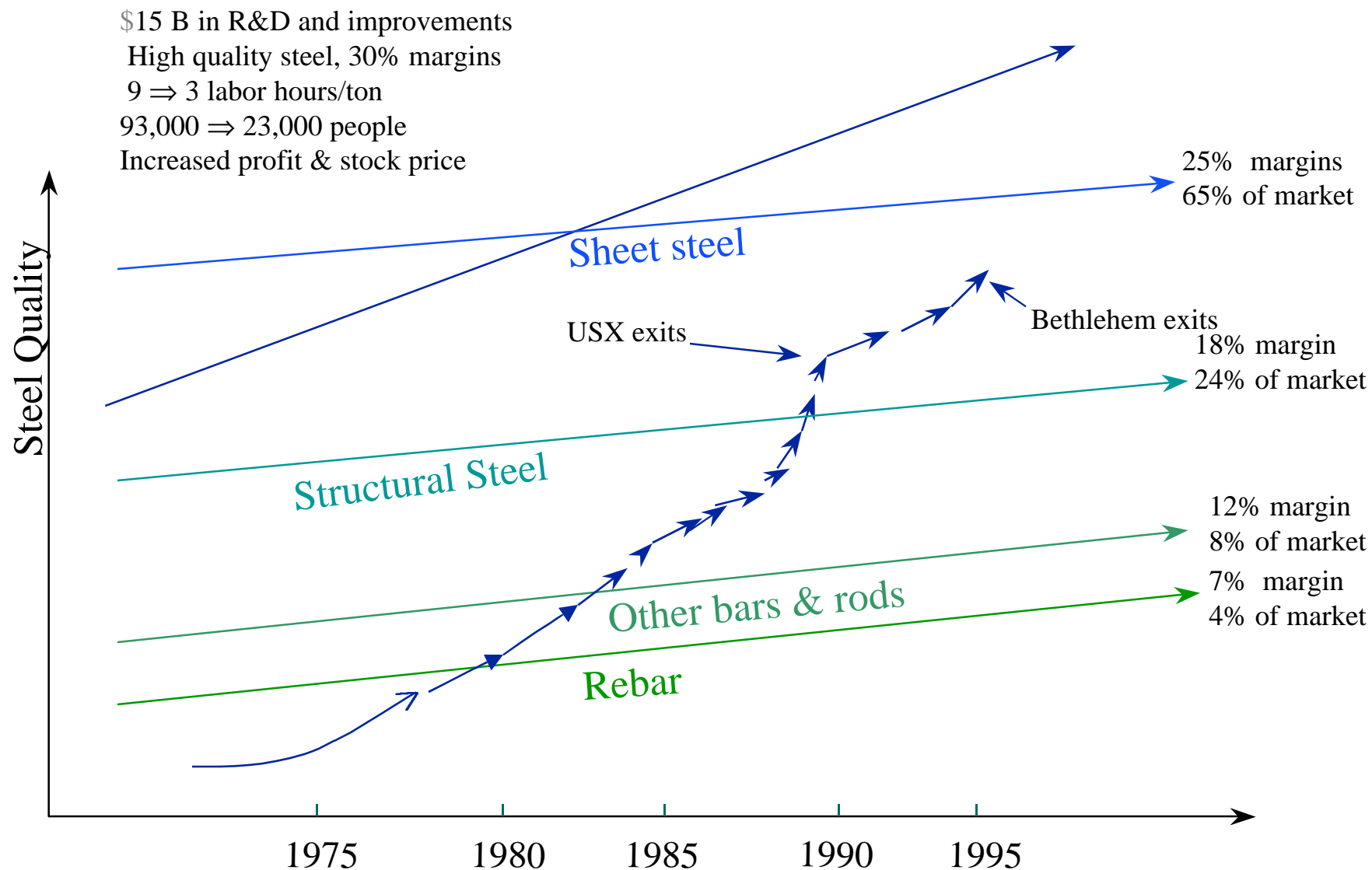


The Anatomy of a Disruption

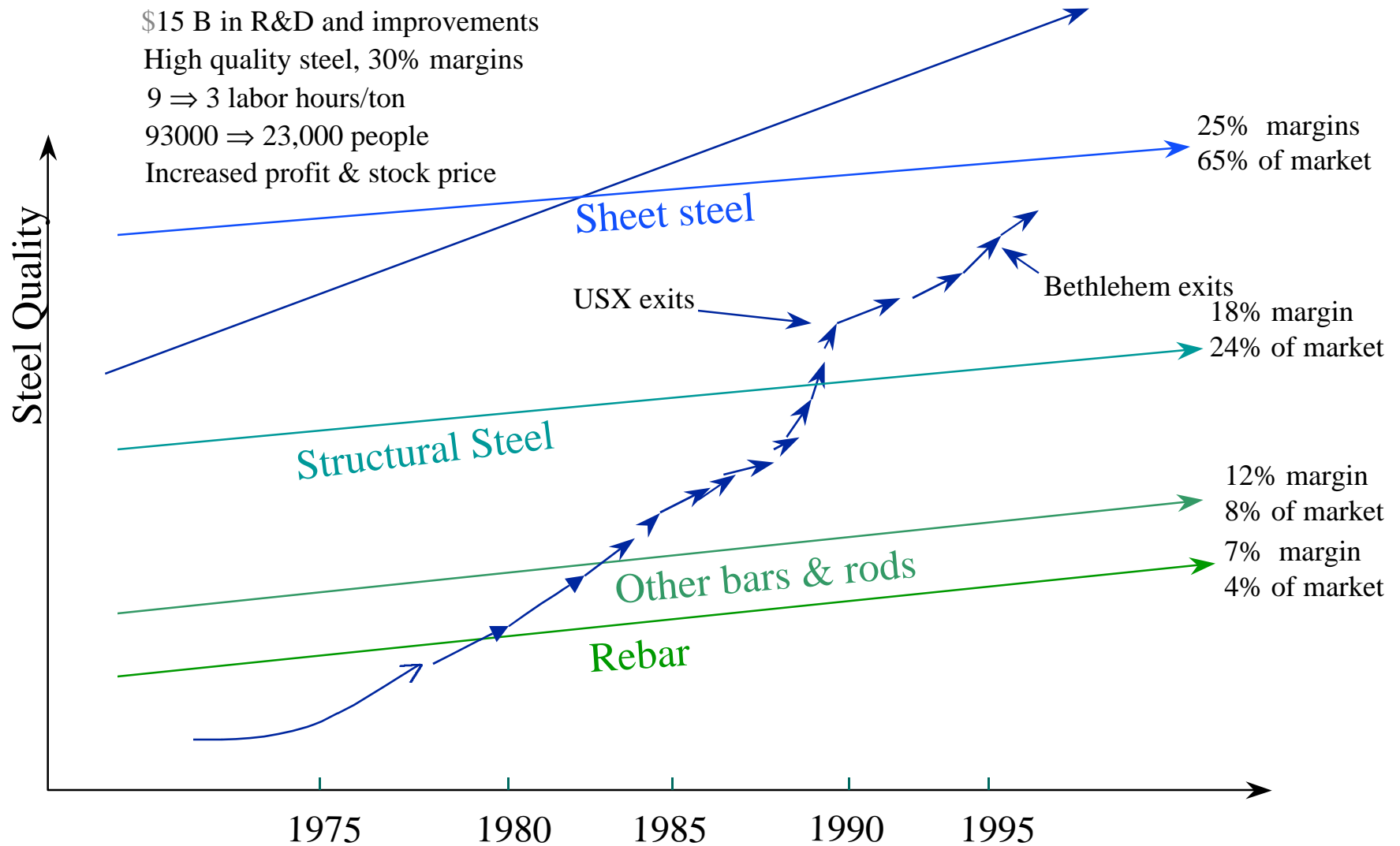
Steel Minimills



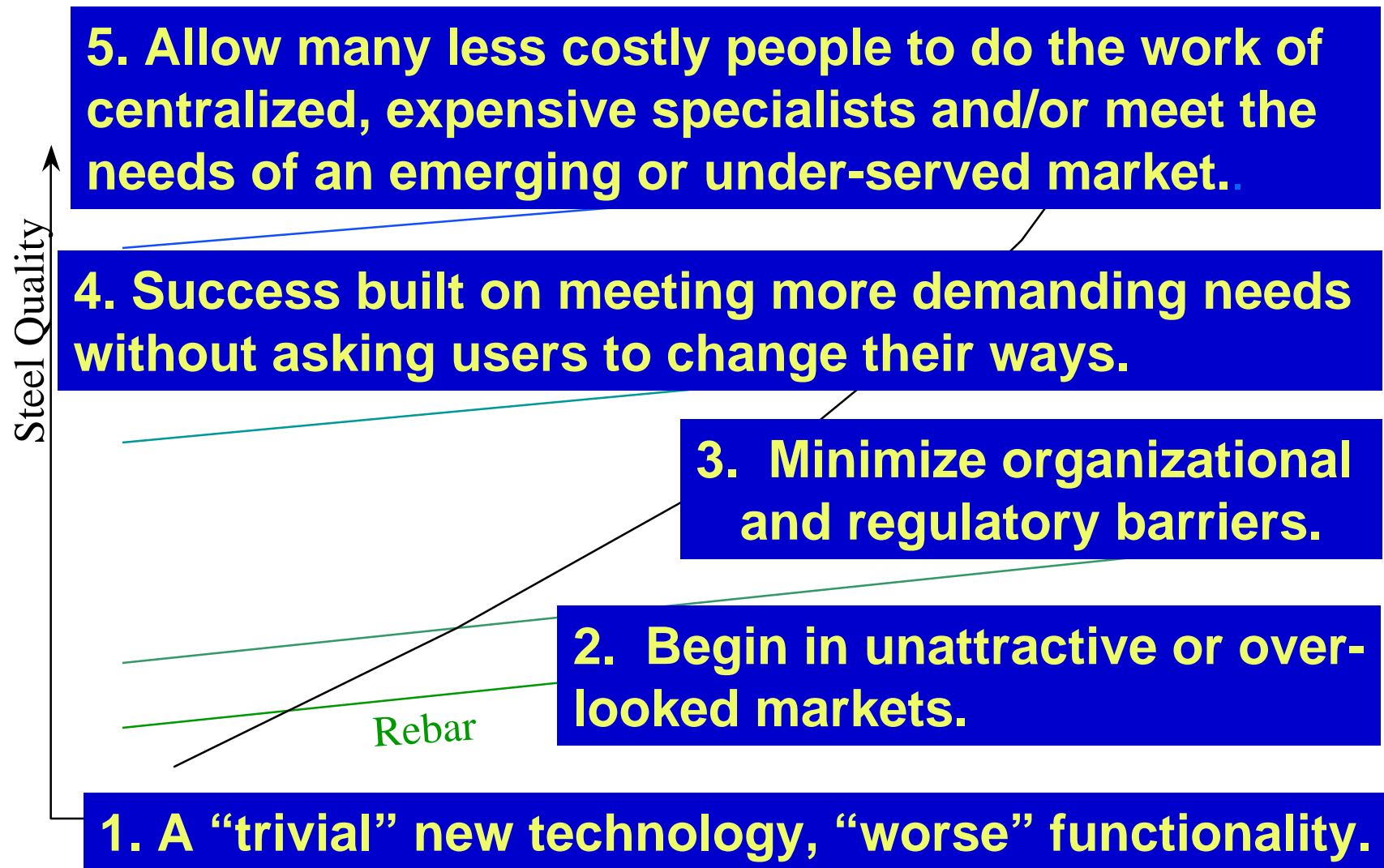
Perfect Symmetry of Motivations



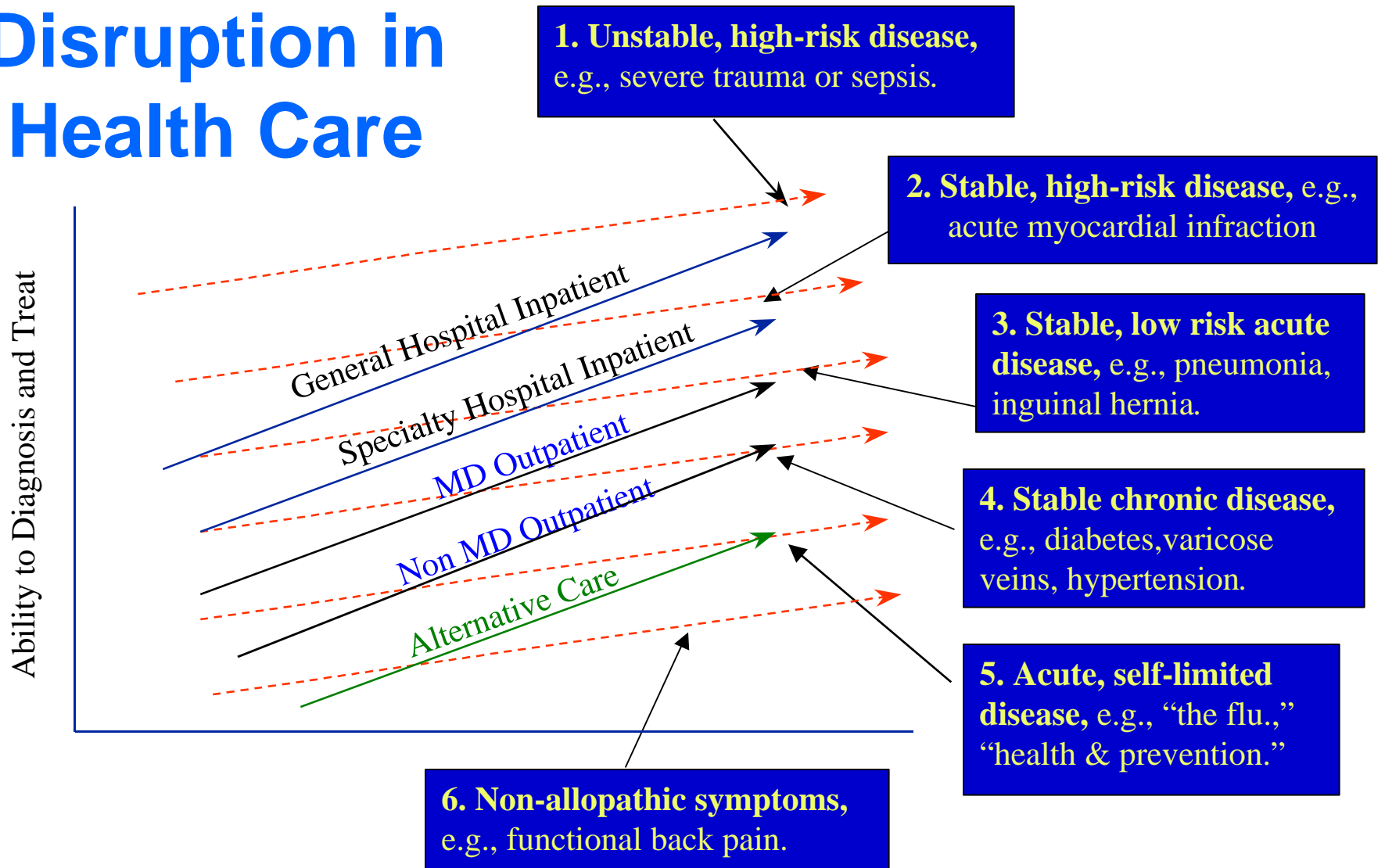
“Doing what we knew how to do, improving it and doing it really well, killed us.”



What's a Successful Disruption Look Like?



Waves of Disruption in Health Care

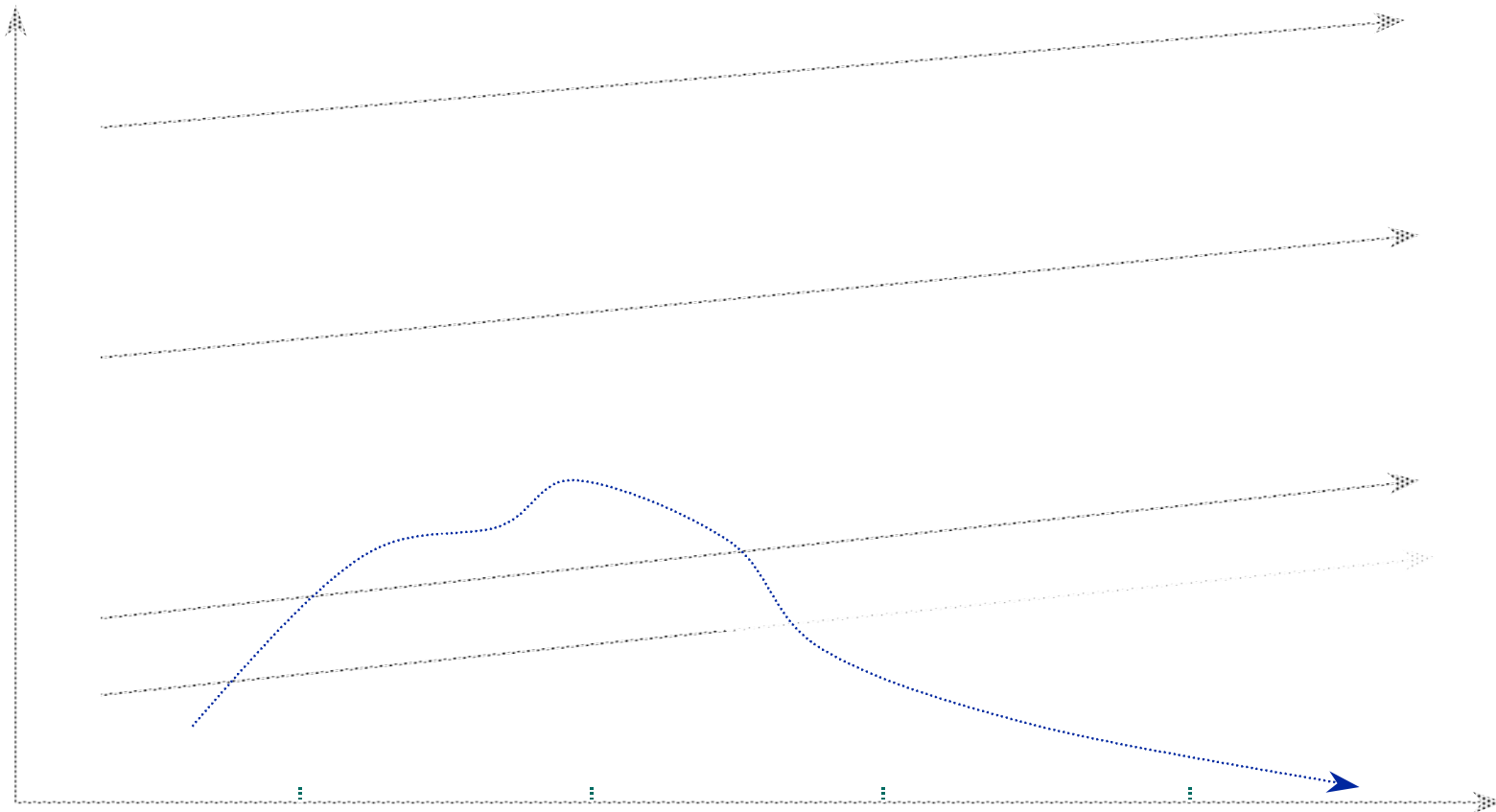


Disruptive Healthcare Innovations

- Surgery, anesthesia, antiseptics
- Angioplasty
- Out-patient Surgery
- Out-patient Lab and Imaging
- Non-invasive vascular diagnosis

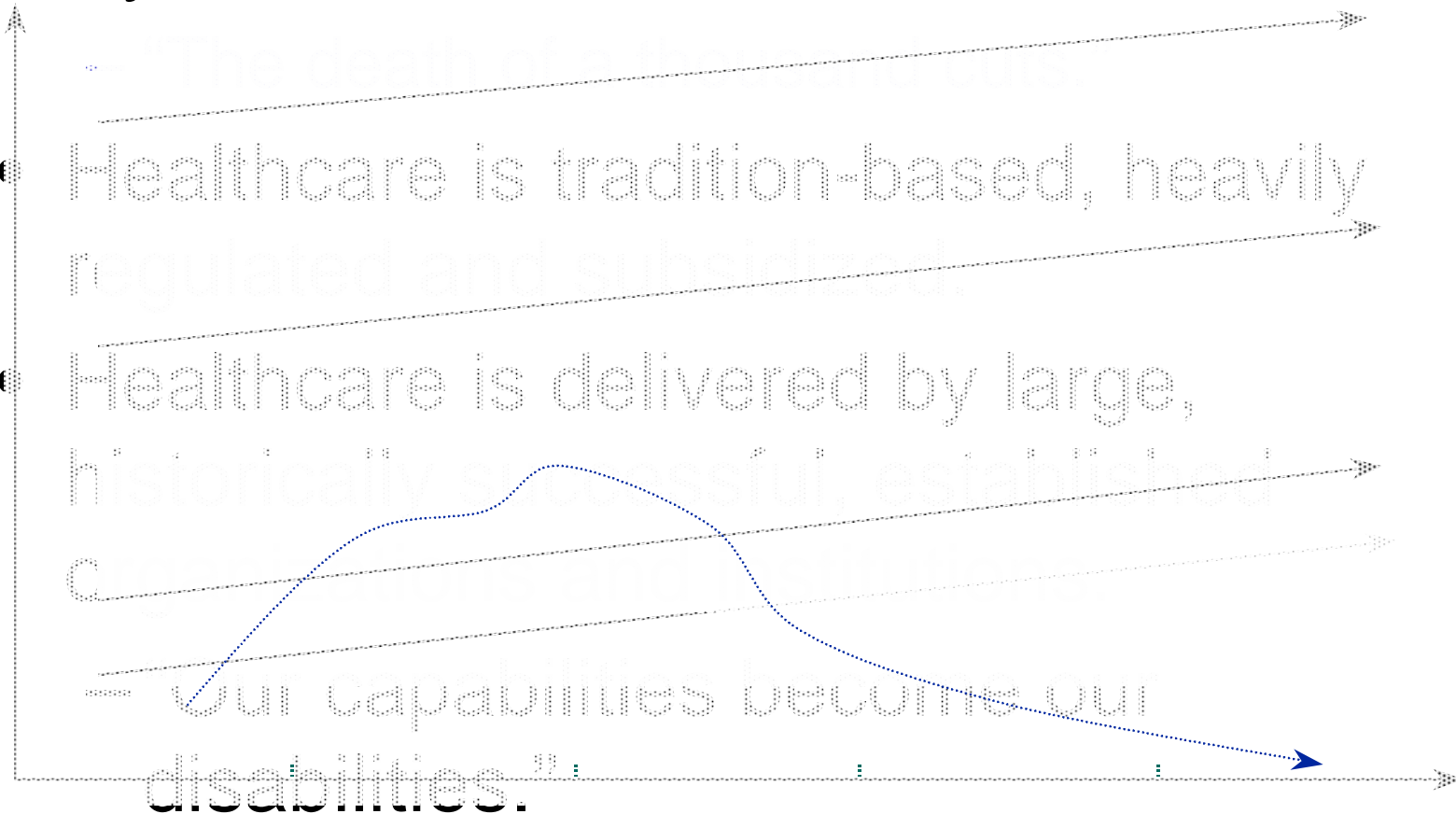
“Characteristically ignored or opposed by the established leaders and institutions.”

Why isn't Disruptive Innovation Obvious in Health Care Today?



Why Isn't Disruptive Innovation Obvious in Healthcare Today?

- Cycles are slower in service industries



Capabilities and Disabilities

What are the capabilities of your organization?

What does the DNA of your organization look like?

Resources

People

Cash

Technology

Brand Reputation

Equipment

Information

Products

Processes - The How

Clinical service delivery

MD relationships

Data acquisition

Research and teaching

Planning

Resource allocation

Quality Improvement

Finance

Values - The Why

Mission and Values

Budget limitations

Cash flow

Big enough to be interesting?

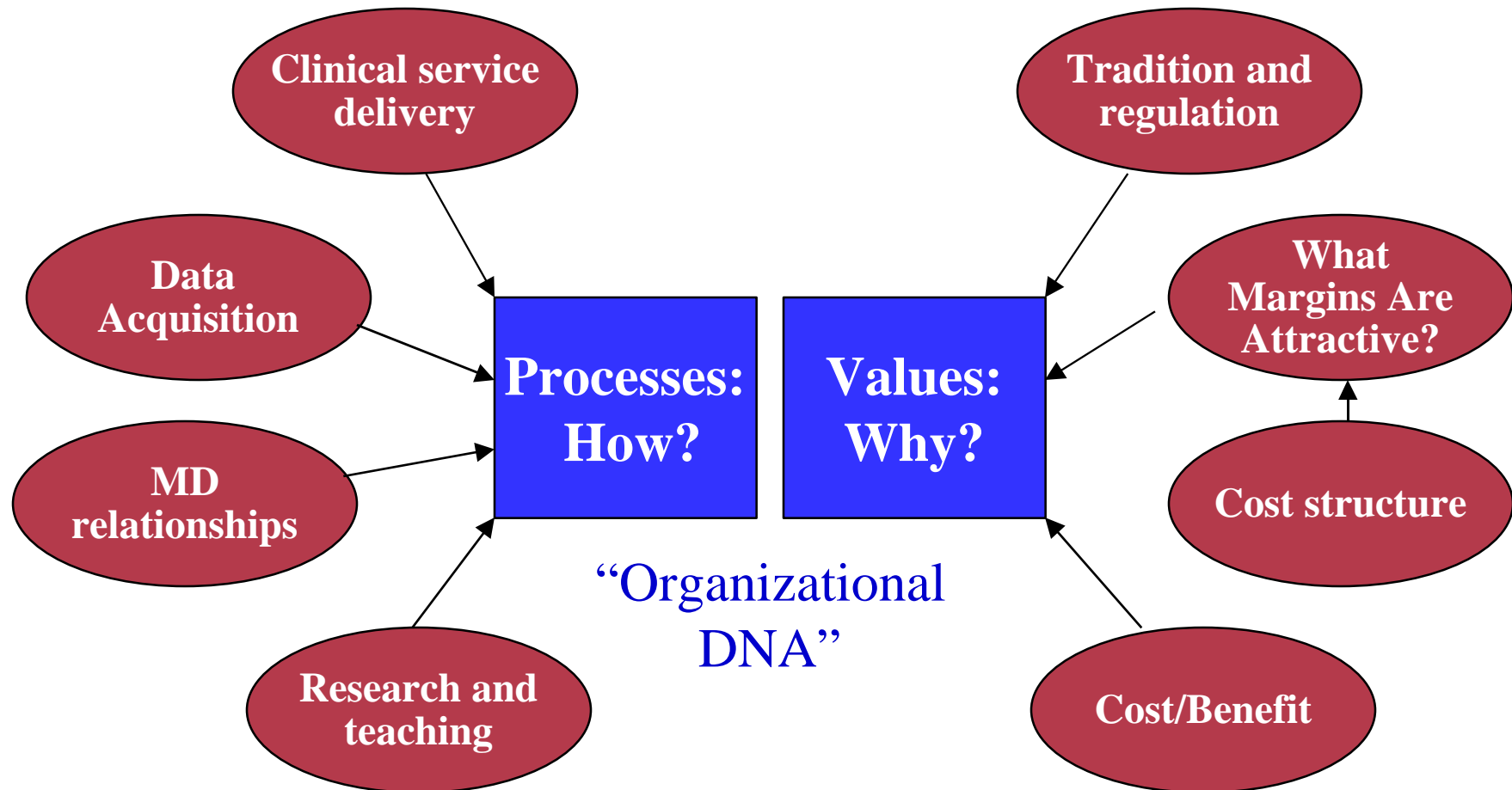
Cost/Benefit ratio

Risk/Reward

Politics

Tradition and regulation

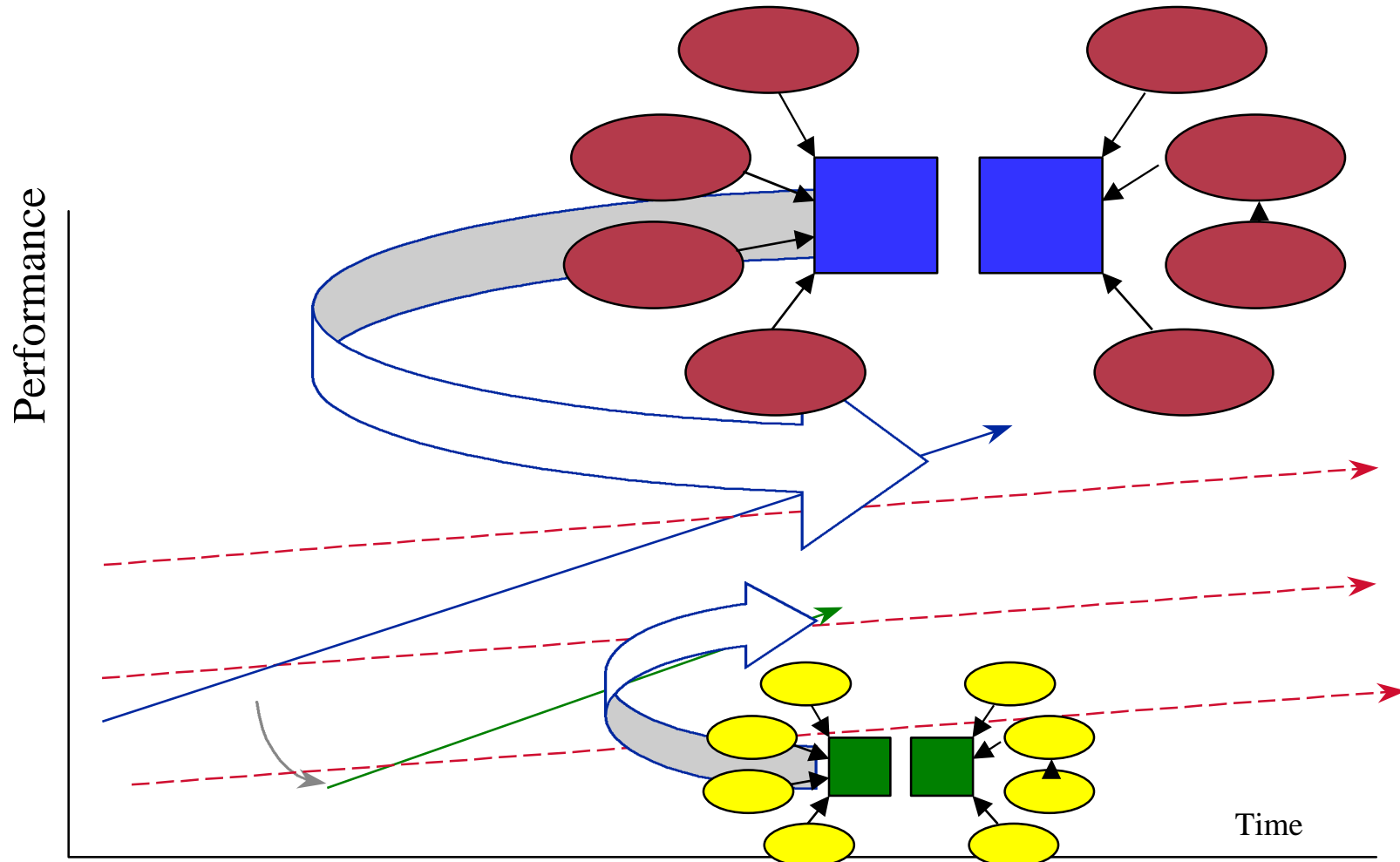
Capabilities in one context, become disabilities in another.



Success moulds the DNA of large, complex organizations.

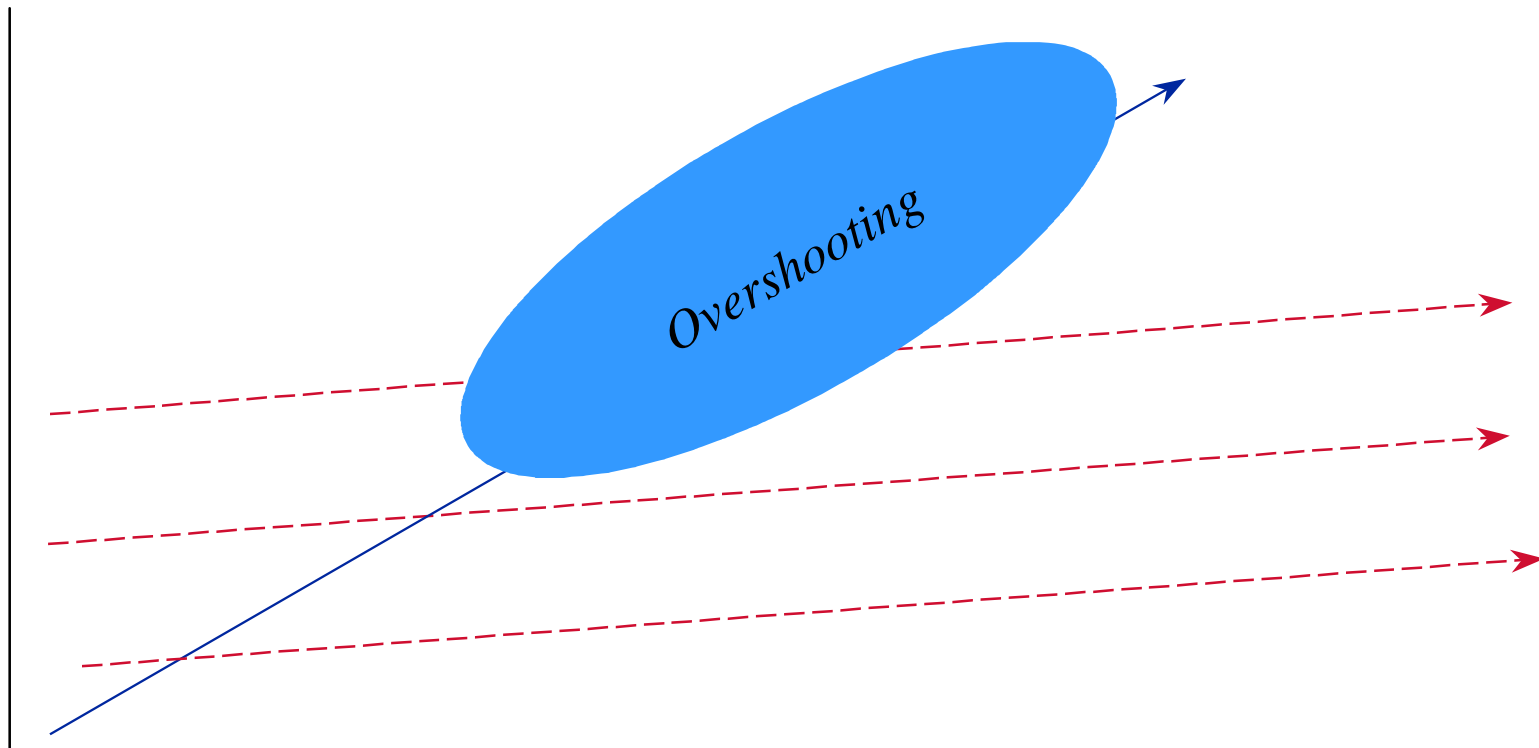
Our capabilities are our disabilities.

It is very difficult to change your DNA.



When Should You Worry?

Or, Who's a good target?



When Should You Worry?

Or, What's a good target?

Continually investing at the top of the market

Low profit services are low on the agenda

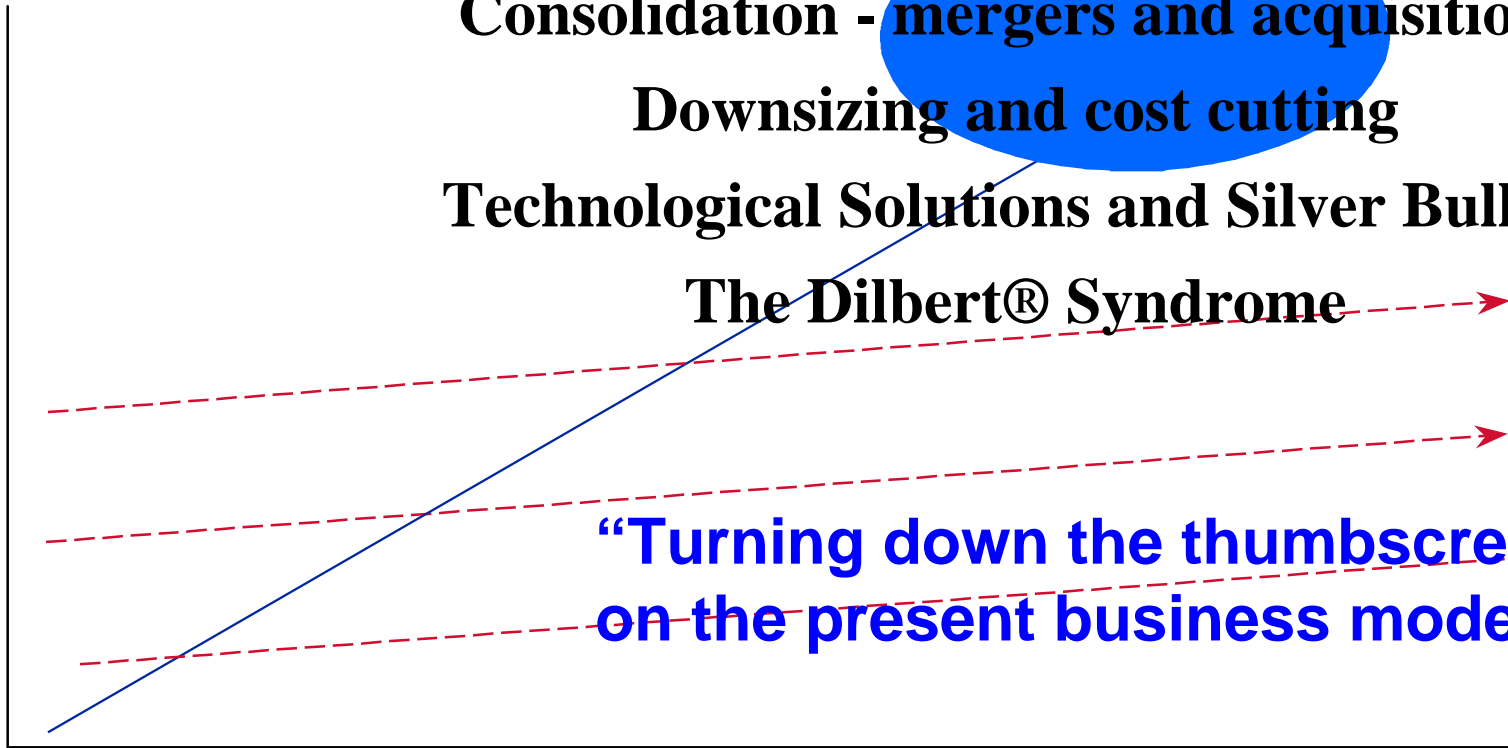
Consolidation - mergers and acquisitions

Downsizing and cost cutting

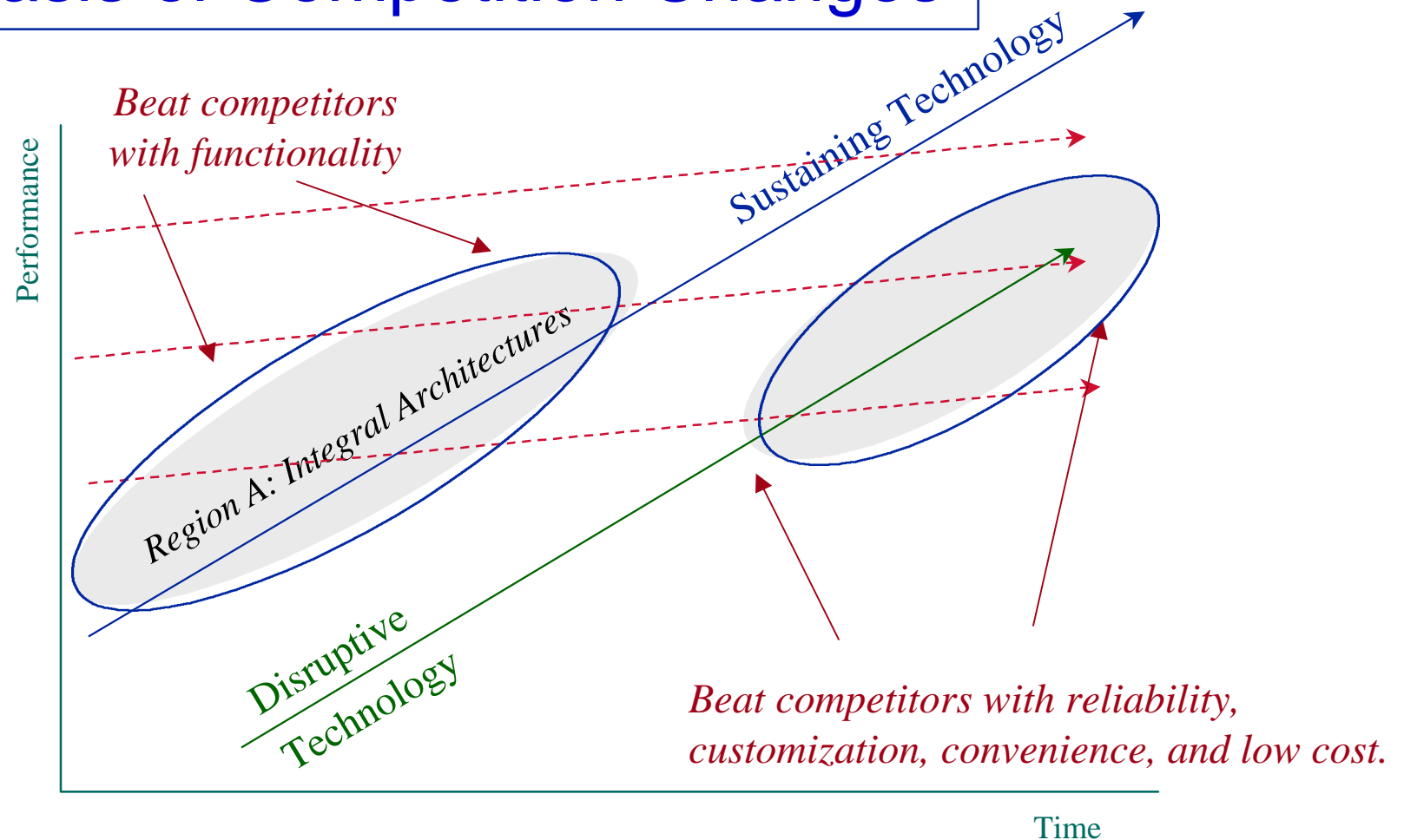
Technological Solutions and Silver Bullets

The Dilbert® Syndrome

“Turning down the thumbscrews
on the present business model.”



The Basis of Competition Changes



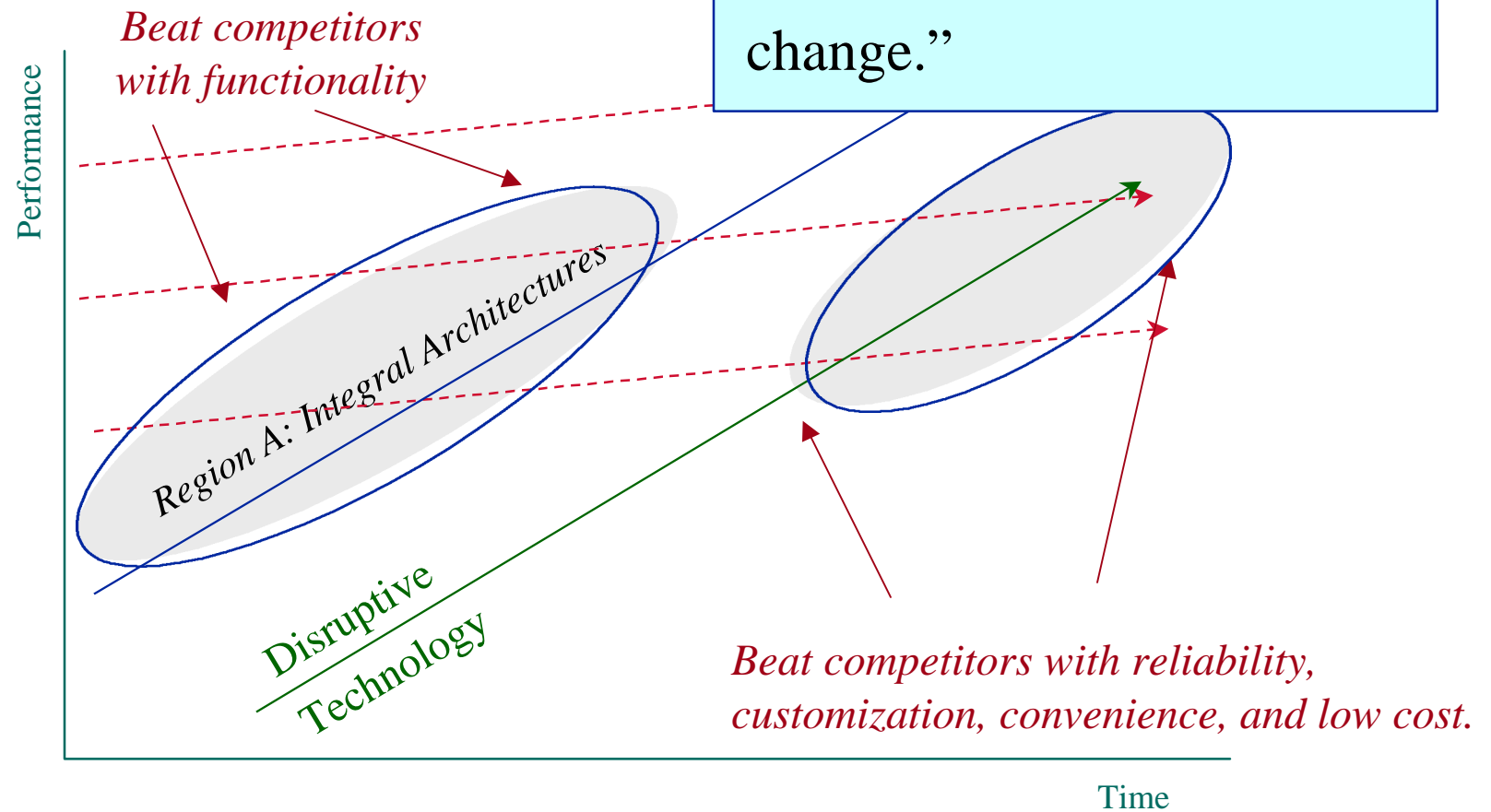
Integral architectures dominate when product functionality does not satisfy market needs.

Modular architectures prevail when functionality overshoots what customers can absorb.

The Basis of Competition Changes

Change results?
Change methods.

- “We are a battleship.”
- “It’s out of our control.”
- “Our culture is resistant to change.”



Struggling Children's Hospital expected to name chief executive

By Liz Kowalczyk
GLOBE STAFF

Children's Hospital, for years ranked the country's top pediatric medical center, is expected today to name a new physician chief executive to steer the hospital through a hoped-for financial recovery.

Dr. James Mandell, the dean of the Albany Medical College in upstate New York and a former Children's Hospital surgeon, has been offered and has accepted the job, sources said. The hospital would not confirm his selection last night.

Last year Children's joined the growing number of pediatric medical centers struggling with record operating losses. Of 45 teaching hospitals devoted solely to pediatrics, 10 to 15 have been confronting significant financial losses, according to the National Association of Children's Hospitals.

Children's lost \$61 million last year and is projecting losses this year at \$41 million - shortfalls the hospital blames on managed care and on low payments from the state Medicaid program.

As the hospital's top executive, Mandell will be responsible for further reducing costs and increasing

revenue when current chief executive David S. Weiner steps down in October.

With an endowment of nearly \$1 billion, Children's, a Harvard University teaching hospital, was able to more than cover its huge losses, board chairman William Boyan has said. But to fund a \$250 million expansion of its research facilities and intensive care unit over the next several years, the hospital has needed to drastically cut costs.

Mandell, a pediatric urologic surgeon, was appointed dean of Albany Medical College in August 1996 at the age of 51. He oversees a staff of 350 academics and physicians and a \$40 million budget. Children's, which has a \$400 million operating budget, will be a much larger stage.

Mandell went back to school at the age of 50 to learn more about the business side of the medical profession. He earned a master's degree in health systems administration at Union College in Albany.

"It was a realization that many physicians have to deal with the changing economic environment," he told the Times Union newspaper in Albany at the time. Mandell could not be reached last night.

Boston Globe

TUESDAY, DECEMBER 26, 2000

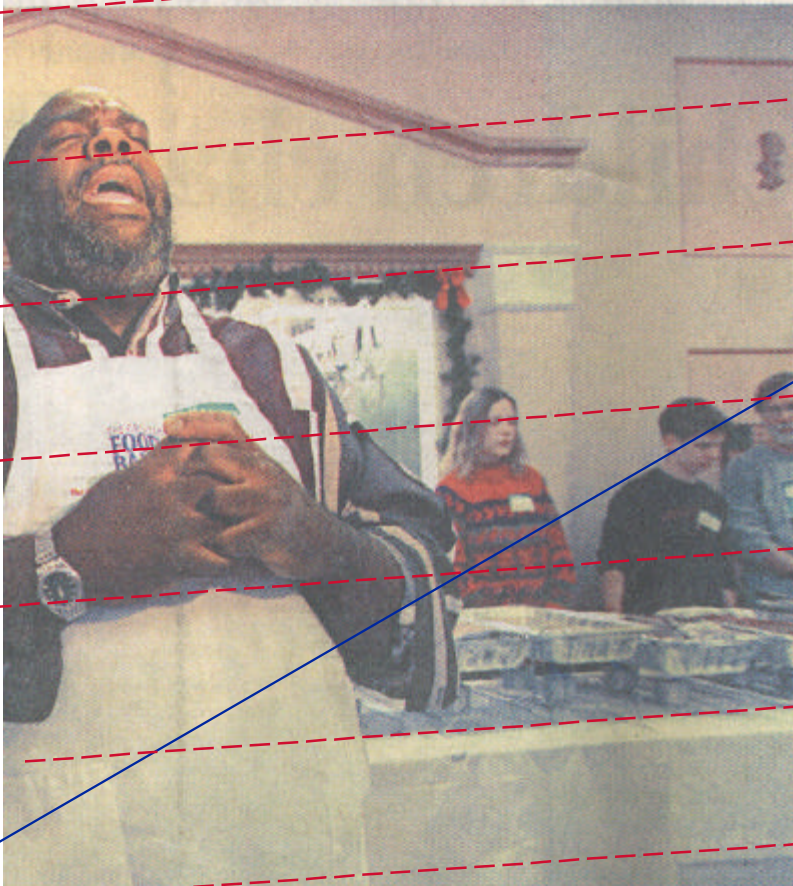
THE FREEZE AND I

TODAY: Mostly sunny but cold and windy, -5-21

TOMORROW: Partly cloudy, milder 12-24

HIGH TIDE: 11:27 a.m.

FULL REPORT: PAGE B16



Hospitals battle to do cardiac care

Seek state OK for open-heart procedures

By Anne Barnard

GLOBE STAFF

Brockton's patients are the poorest. Fall River's are the sickest. The ones on Cape Cod have the longest drive to Boston.

From the MetroWest area around Framingham to the South

of the business costs lives, while their rivals have argued that the surgery is riskier at smaller facilities and that expanding access would lead to unnecessary procedures.

"Hospitals that are saying they want to serve their community are also saying they want to become financially stable, and there's nothing wrong with that," said David Mulligan, the former state health commissioner who has long advocated moving more services to community hospitals. "But the

What to do.

Innovation Characteristics

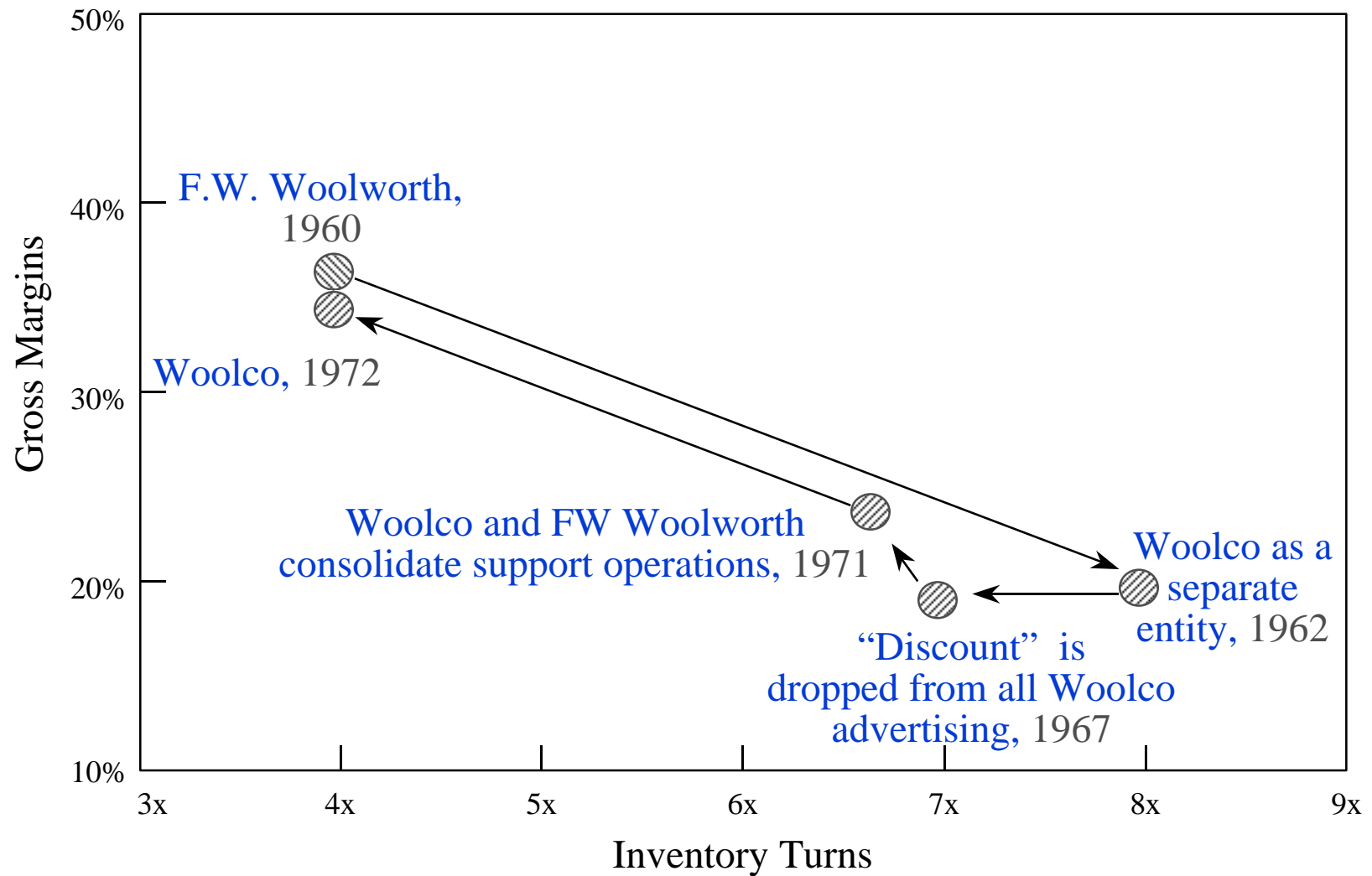
Sustaining

- Better products; best customers.
- Leverage our capabilities.
- Better functionality and new features.
- Adapt new technology to meet our business needs.

Disruptive

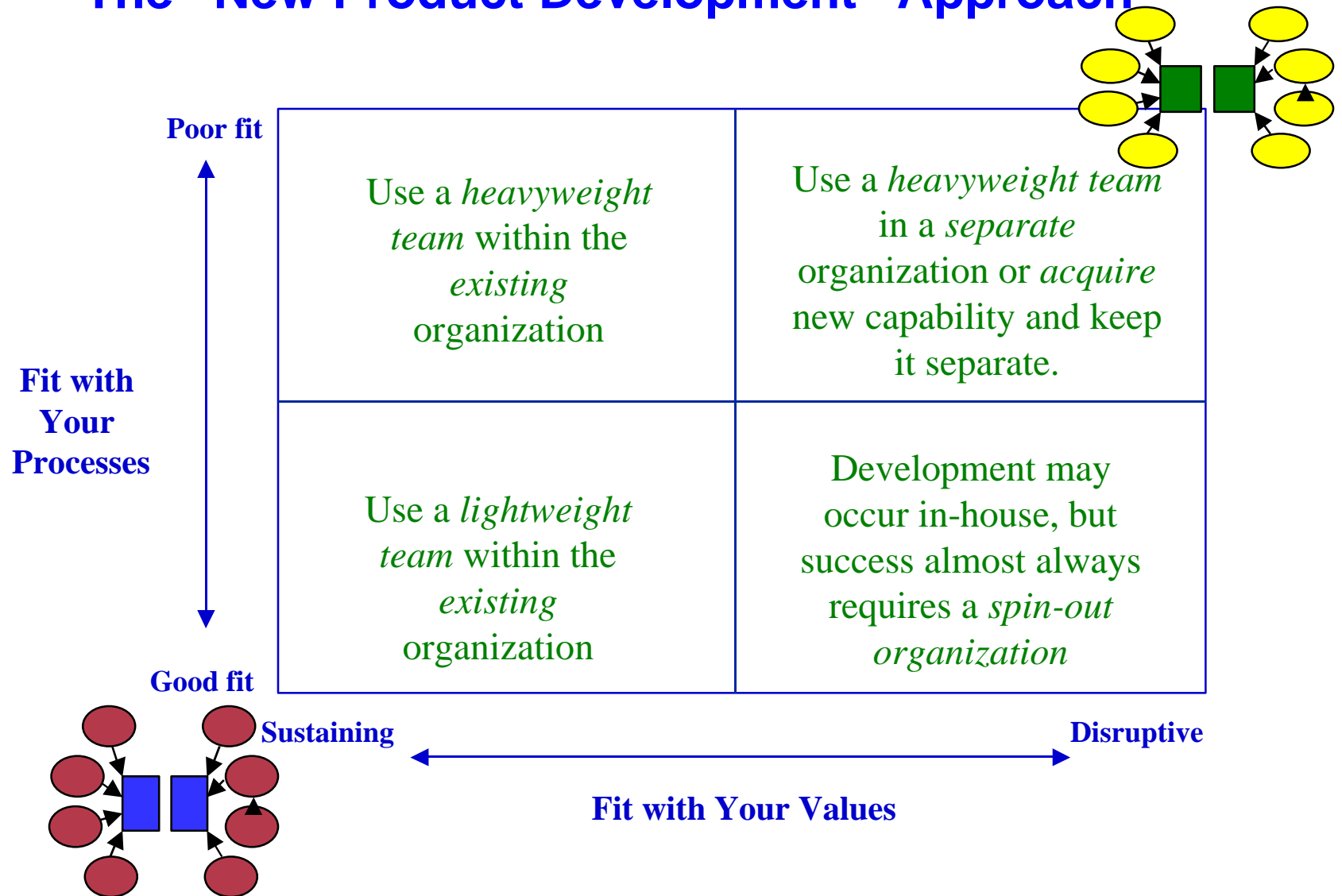
- Simplicity; unattractive, overlooked market tiers.
- Our capabilities are our disabilities.
- Reliability, access, customize, low cost.
- Improve to meet the needs of new, more demanding users.

How to do it. What does not work.

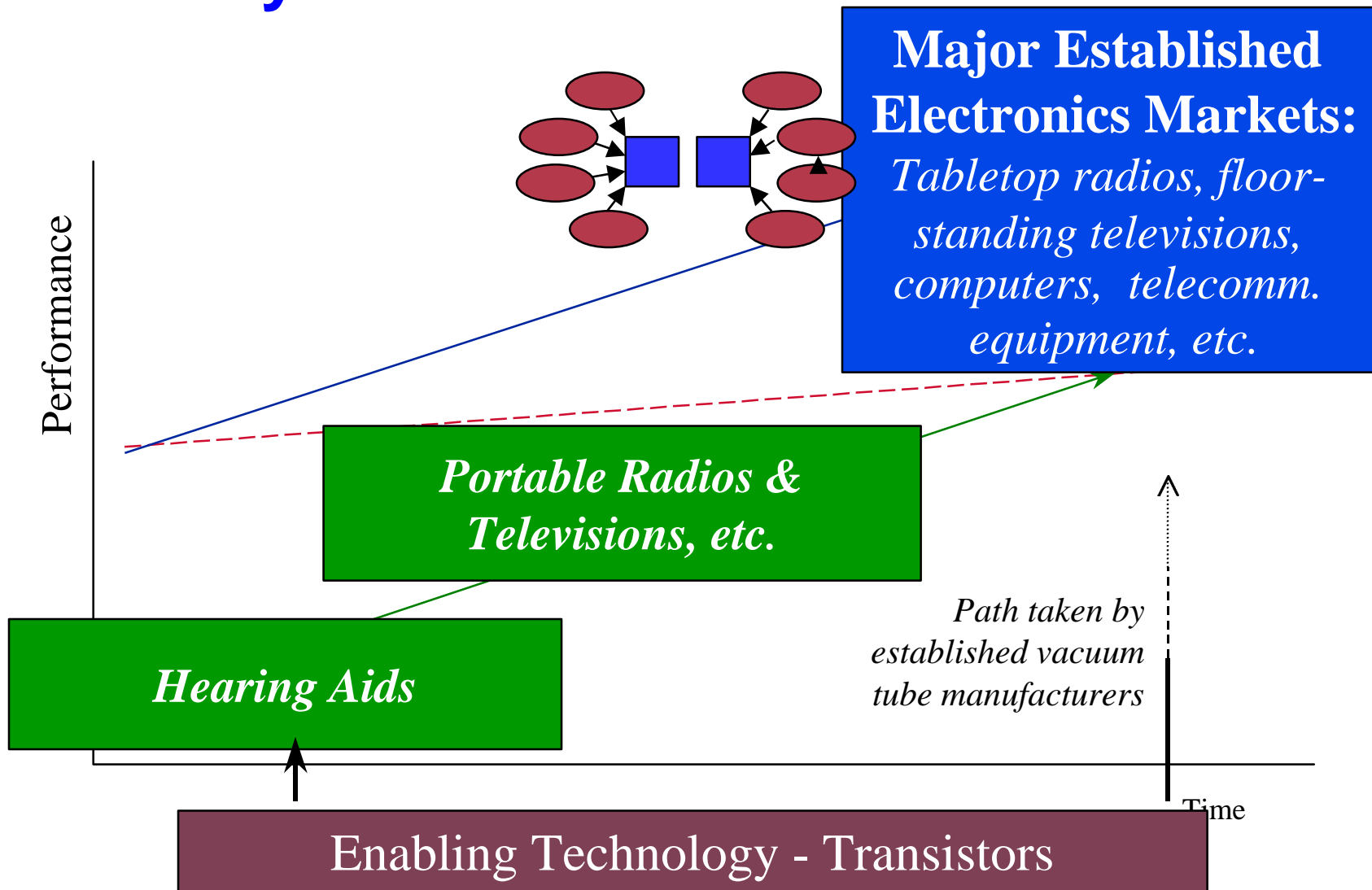


A Framework for Innovation

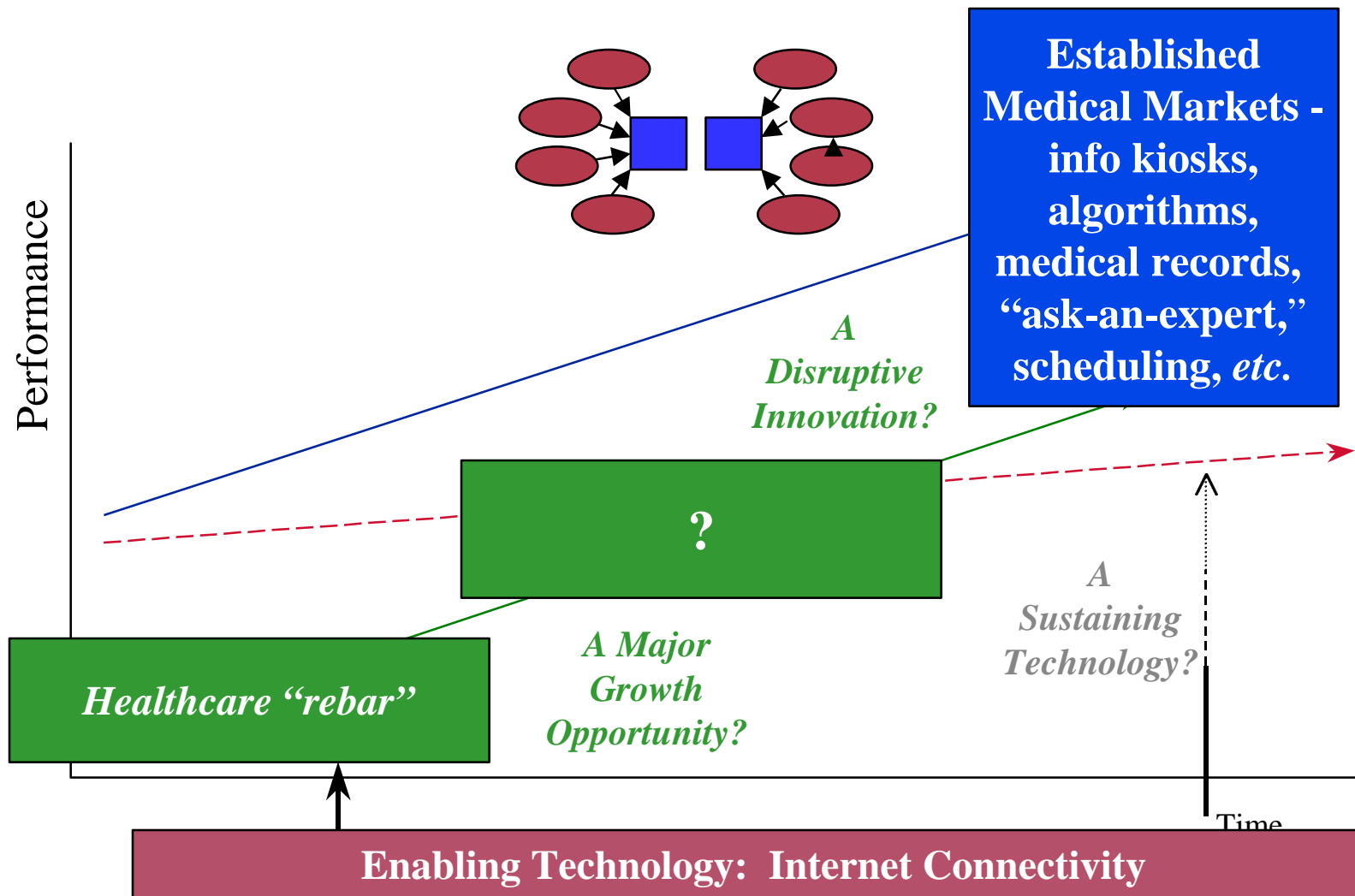
The “New Product Development” Approach



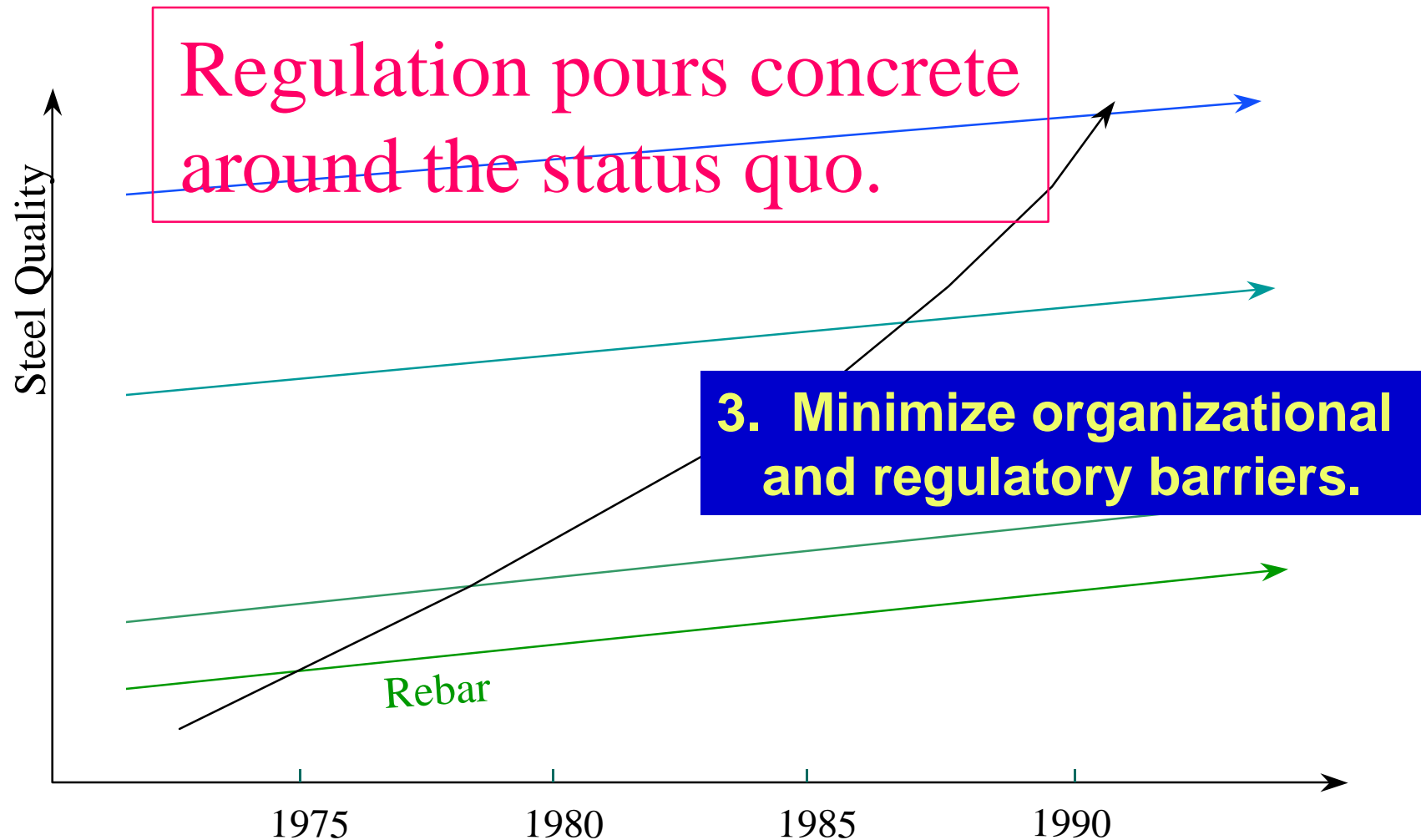
Successful and Unsuccessful Innovation Pathways - Vacuum tubes and transistors



What Is the Successful “Internet in Healthcare” Pathway?



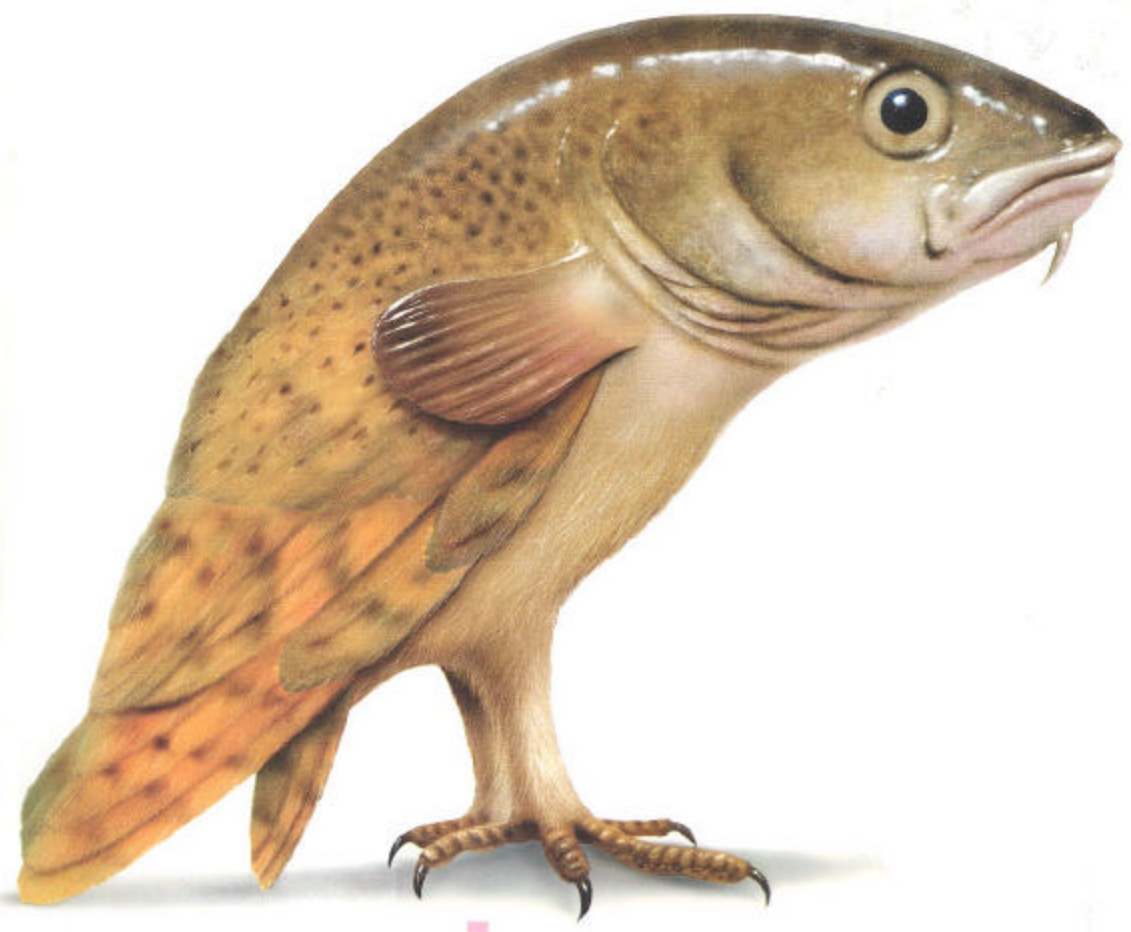
The Government and Disruptive Innovation?



The
Economist
JULY 22ND - 28TH 2000

3 4862 00376 3789
page 22
CHINA MEETS
THE INTERNET
pages 24-28

How mergers go wrong



Filling Digital's void

Former computer giant's offices house new generation of high tech



GLOBE STAFF PHOTO / DAVID KAMERMAN

Clock Tower Place site in Maynard previously housed Digital Equipment Corp.

By Peter J. Howe
GLOBE STAFF

ACTON - Two decades ago, as a grunt-level "de-bug technician" for computer giant Digital Equipment Corp., Dennis Rainville came here regularly for what he recalls as "meetings straight out of 'Dilbert,'" where engineers learned what products the Digital salespeople had already promised to deliver.

Today, Digital is gone, bought for \$9 billion by Houston-based Compaq Computer in 1998. But Rainville is back in the same Nagog Park building - this time as founder and president of a hot optical-networking telecom company, Equipe Communications. It recently got a \$50 million venture capital infusion and is hiring dozens of employees monthly to develop advanced communications gear for companies like AT&T and WorldCom.

Rainville's former Digital building on a leafy hilltop has become a hothouse of Internet and telecom start-ups, one of dozens of similar stories epitomizing a regionwide rebirth and transformation of the high-tech economy.

In the bleakest days of Digital's demise, the extent of the renaissance might have been impossible to imagine. As Digital withered in the 1990s, along with mini-computer brethren like Data General, Prime Computer, and Wang, many local officials feared the suburbs would be littered with white-elephant Digital office complexes.

But today, virtually all of them are brimming with businesses that exemplify the resilience of the local tech economy, as well as its considerably broader reach than the days when big computers and



GLOBE STAFF PHOTO / WENDY MAEDA



GLOBE STAFF PHOTO / PAM BERRY



GLOBE STAFF PHOTO / JOANNE RATH

Mike Zapolin (top), Steven Wasser (middle), and Ian Agranat are among the business tenants at the sprawling Clock Tower Place complex.

DIGITAL, Page B6



GLOBE STAFF PHOTO / TOM LANDERS

Doug Hardy (second from left) and students Gregg Kusumah (left), Theresa Roberts, and Shaun Chambers watching Dan Miller of Monster.com, which occupies Digital's former headquarters in Maynard.

Small firms filling space once occupied by computer giant

■ DIGITAL
Continued from Page A1

Pentagon contracts were the biggest game around.

Digital's former Maynard headquarters, known in tech legend as "The Mill," became a ghost town after Digital pulled out in 1994. Today, however, the 38-acre site is al-

now in old Digital space such as Equipe, Tenor Networks, and Apian Communications are building devices that do vastly different and more complex things than Digital minicomputers.

But in broad terms, they are similar: boxes filled with semiconductor processors and wires that

Life after DEC

Following is a look at many, but not all, sites occupied by the former Digital Equipment Corp. in Greater Boston and New England at times during the 1970s and 1980s and the newer high-tech and other companies that have filled up or are filling space vacated by DEC, now part of Compaq.

MASSACHUSETTS

Acton

① **100 Nagog Park**

THEN: 500-person global marketing, testing facility and shops.

NOW: Tenor Networks (optical switches), Equipe Communications (optical switches), MediaBridge (Web site support), Alcatel (telecom supplier), QuickBuy.com (e-commerce for Web sites), Yantra b2b software.

Bedford

② **12 Crosby Drive (five buildings)**

THEN: 620-person education, tech documentation, training center for all DEC products.

NOW: Redeveloped in 1995 by Beacon Properties, now home to RSA (Internet security), Interactive Data, Teradyne, Intel, day-care center.

③ **32 Wiggins Avenue (two buildings)**

THEN: 265-person process engineering division.

NOW: Millipore North American sales (high-tech filters, purifiers), Spire Communications Inc. (Internet service provider), Bandwidth Semiconductor (optical networking/wireless chip maker).

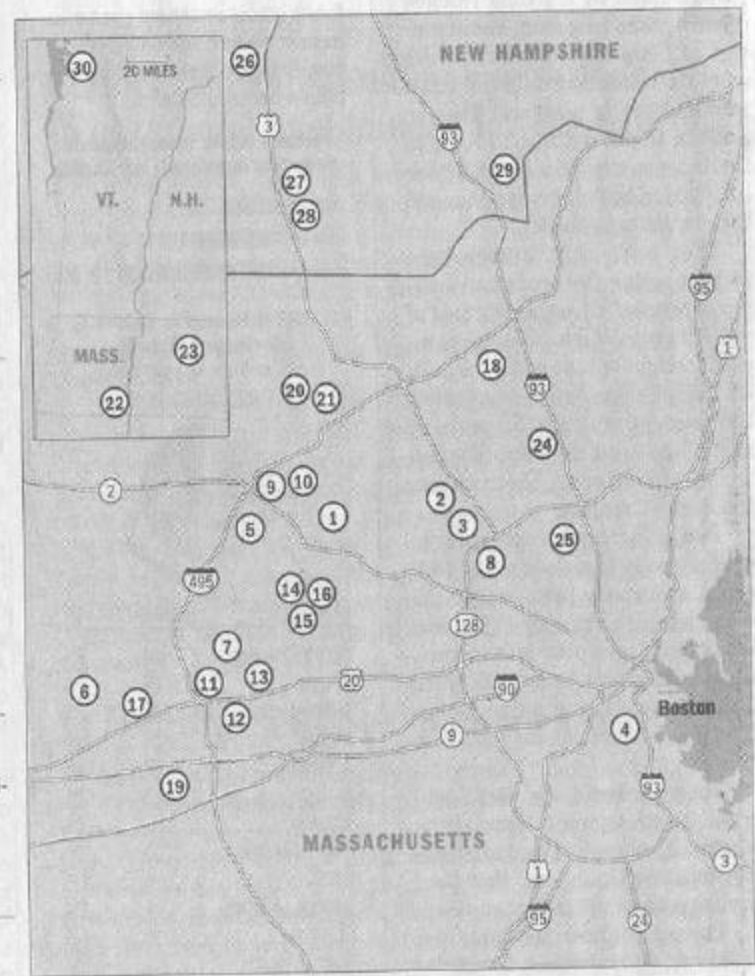
Boston (Roxbury)

④ **Melnea Cass Boulevard**

THEN: 220-person video terminal plant.

NOW: planned Crosstown Center complex with 12-screen cinema, office, retail and parking space.

Borborough



Maynard

⑭ **146 Main Street ("The Mill")**

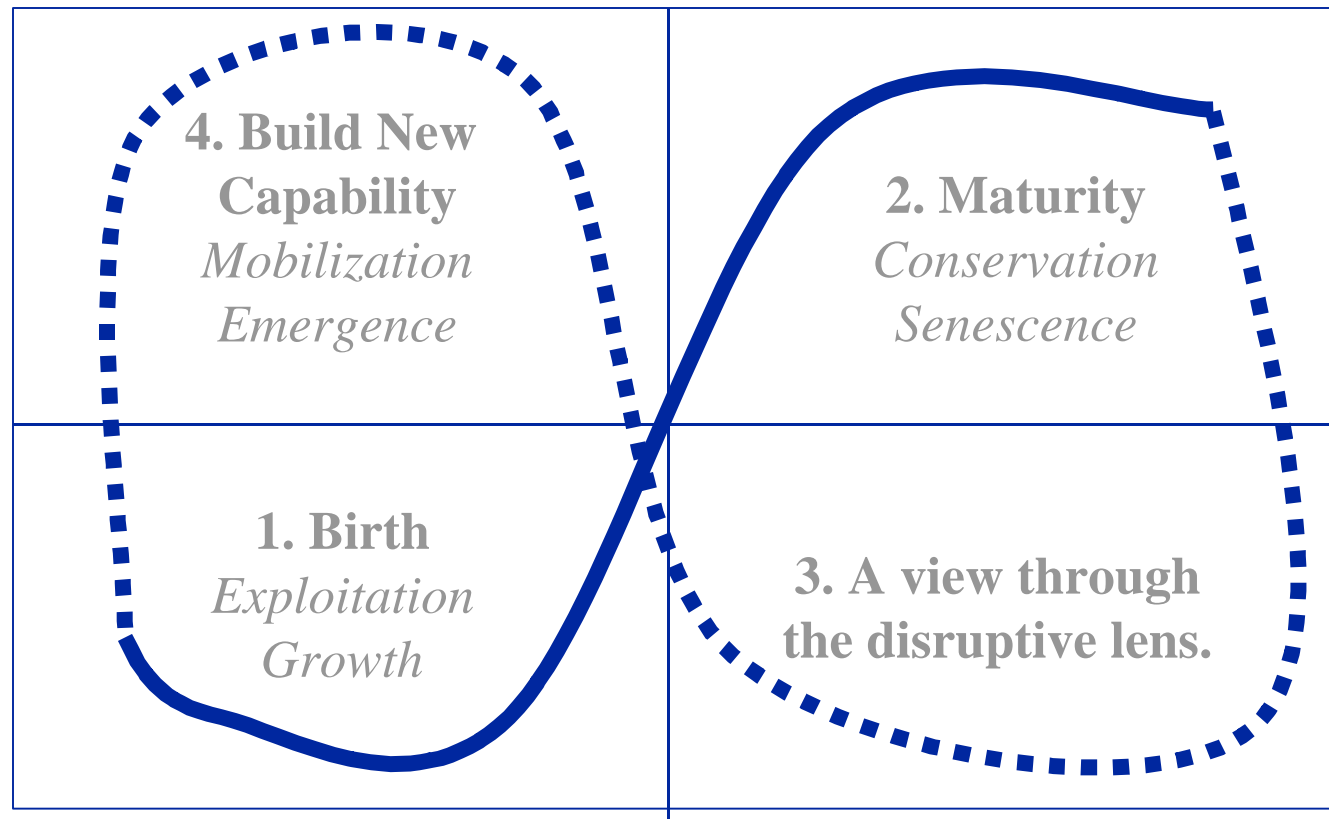
THEN: 3,900-person admin, module assembly, PC boards. 1.1 million square

Westminster

⑮ *THEN:* 1 Digital Drive, 1,690-person final assembly and testing.

NOW: 1-100 Simplex Drive, Simplex

Life Cycle to Ecocycle

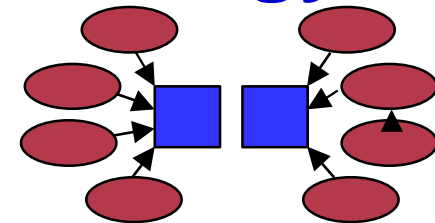


Adapted from Brenda J. Zimmerman,
McGill University, Montreal, Canada

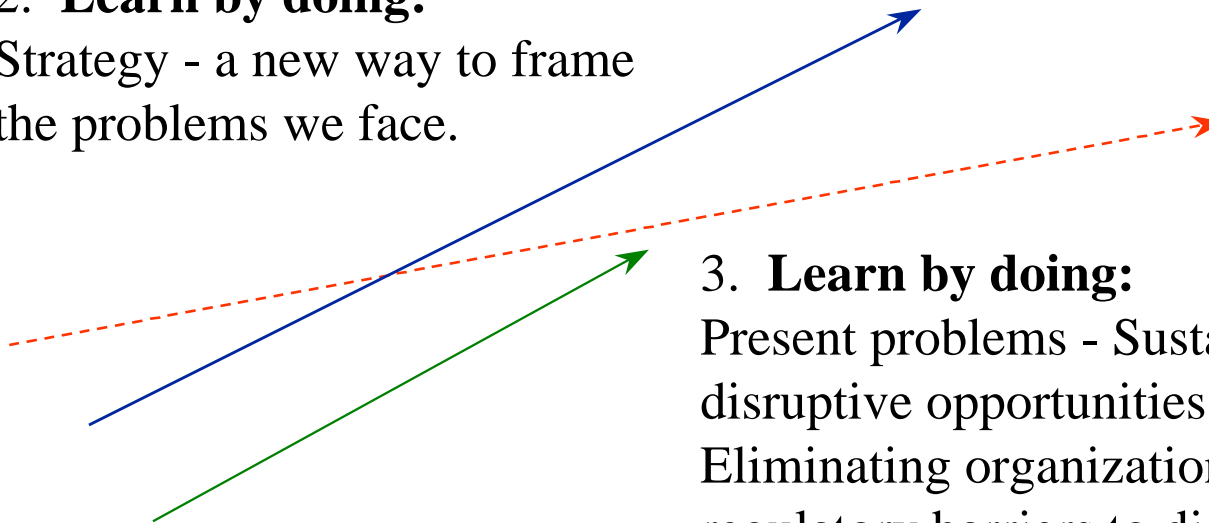
Disruptive Innovation

New Tools for Healthcare Strategy

1. **Understand:** Trajectories, overshooting, the change in the basis of competition and “Our capabilities are our disabilities”



2. **Learn by doing:**
Strategy - a new way to frame the problems we face.



3. **Learn by doing:**
Present problems - Sustaining and disruptive opportunities
Eliminating organizational and regulatory barriers to disruption.

4. **Will disruptive innovation transform healthcare?**
What are your strategic options? -

What I do know, for sure.

Insanity is repeating the same behaviors and expecting different results.

Anonymous

You cannot solve the problems of the present with the solutions that produced them.

Einstein

Will disruptive innovation transform healthcare?
What do you need to know?