



IT'S ALIVE

Association for Enterprise Integration

Christopher Meyer

2 December, 2003

The Adaptive Imperative

“When the rate of change outside exceeds the rate of change inside, the end is in sight.”

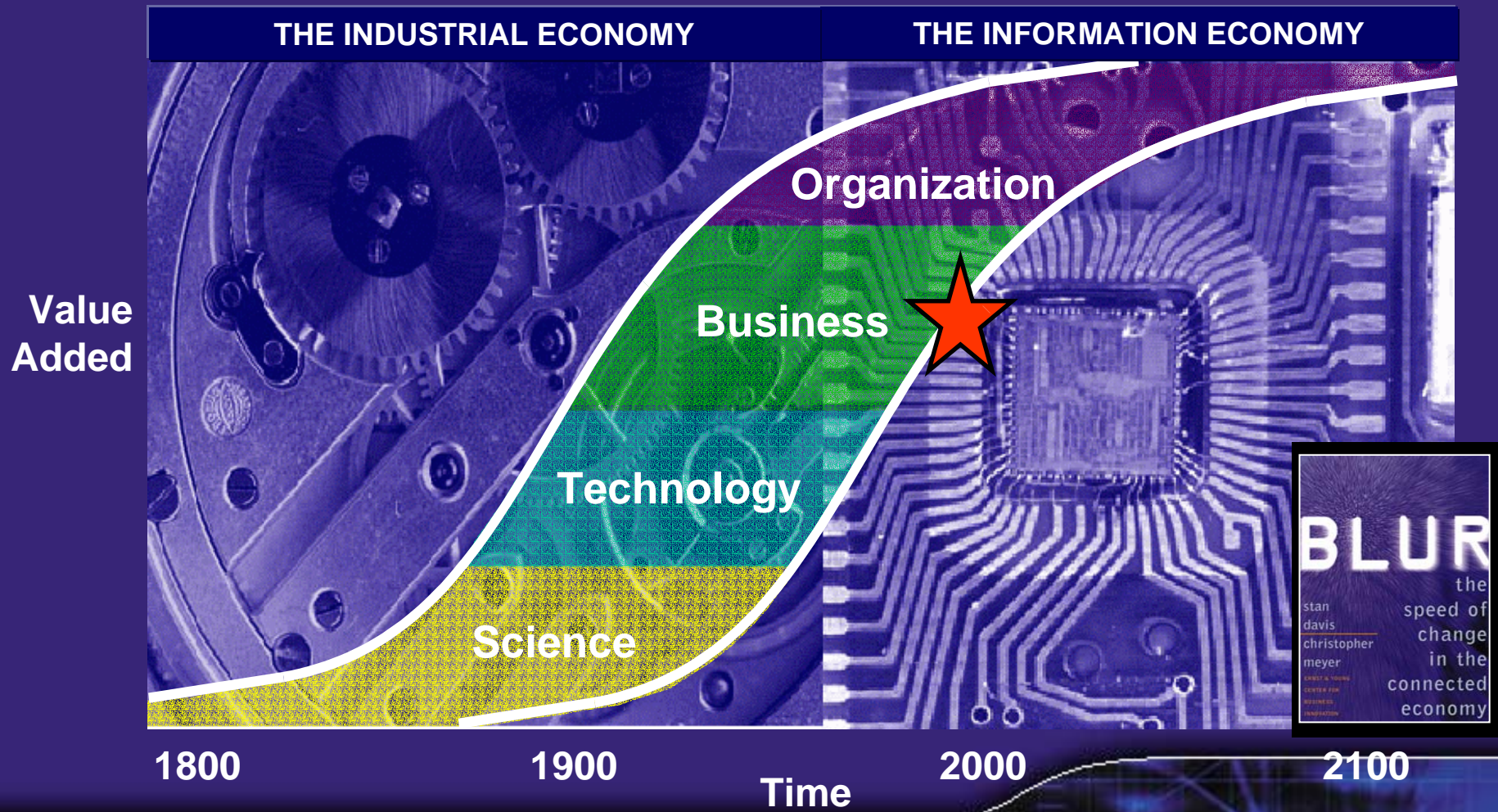


Jack Welch
Chairman, General Electric

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The Pattern of Economic Evolution

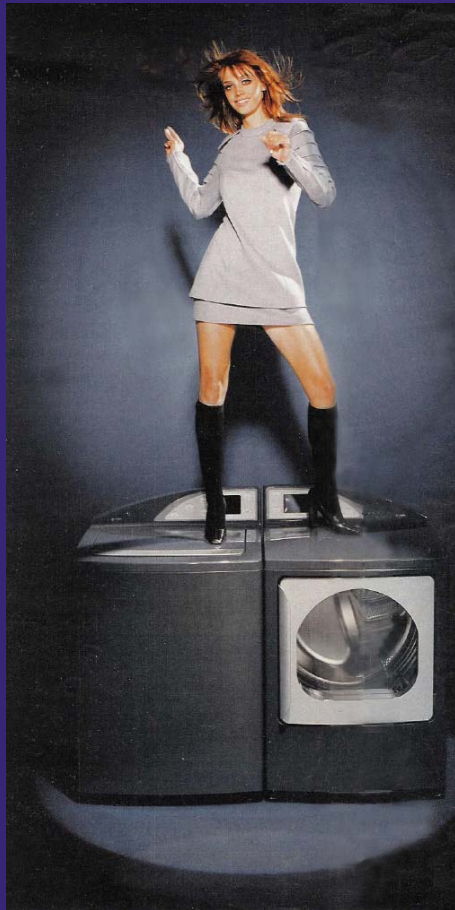


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Everything's Connected



GE's new washer and dryer

Sony's PS, PVR, PC, Phone...



Mercedes' radar-based cruise control



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Connectivity Accelerates Change

Chemical Reactions



Life

Genetic Interactions

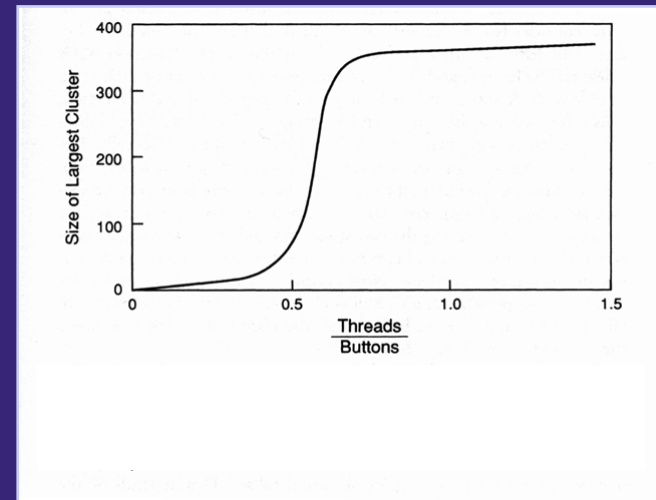
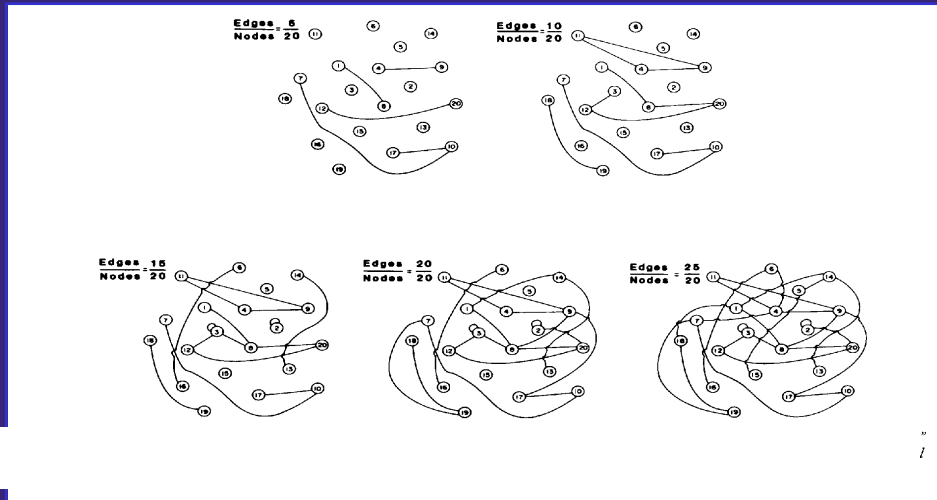


Ecology

Business Transactions



Connected Economy



Package

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Connectivity Accelerates Change

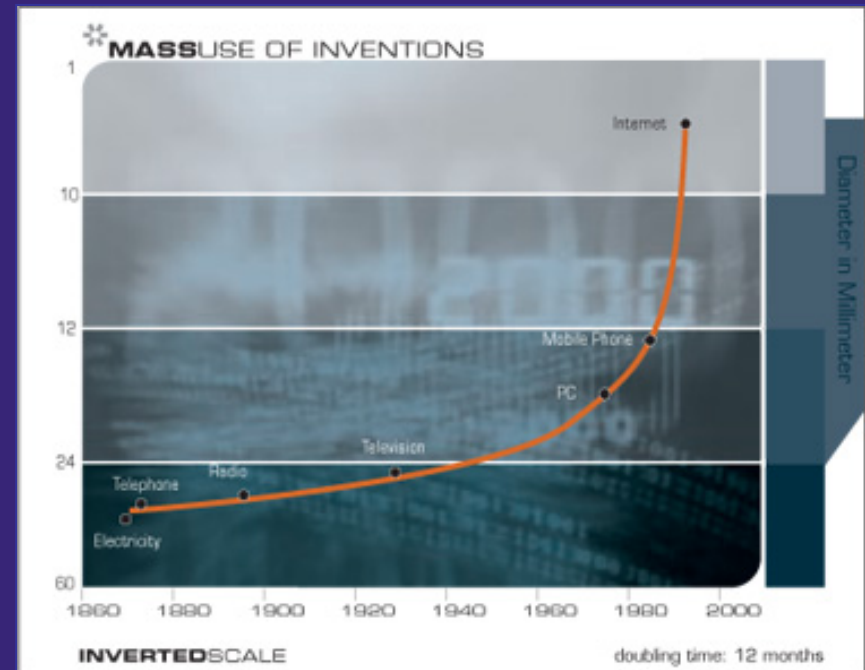
“The rate of progress not going to remain at today’s rate; it’s doubling every decade.

We’ll make 20 years of progress in the next 10 years, 40 years in the decade after that—140 years in the next 30”

Ray Kurzweil

Keynote Address, ACM SIGGRAPH

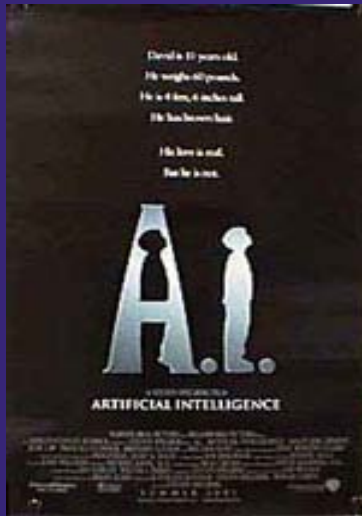
July, 2000



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Artificial Intelligence?



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Artificial Intelligence: Connectivity and Self-Organization



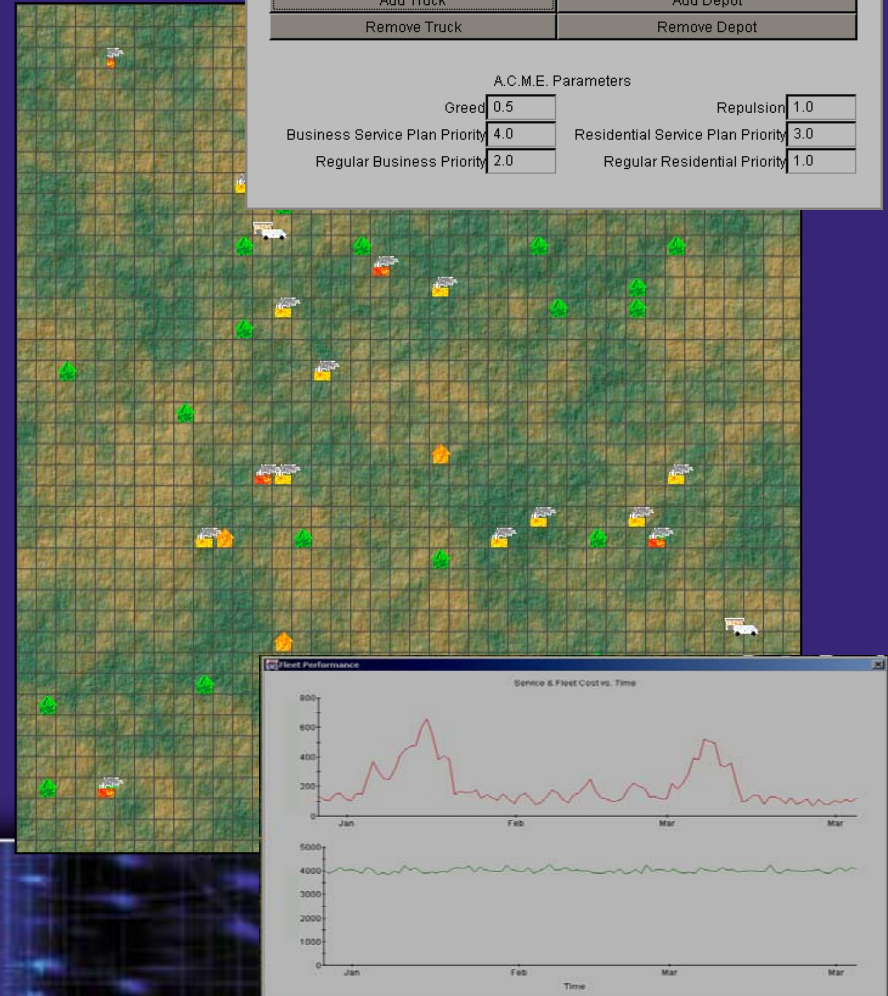
Transit times
reduced 15% in Los
Angeles.



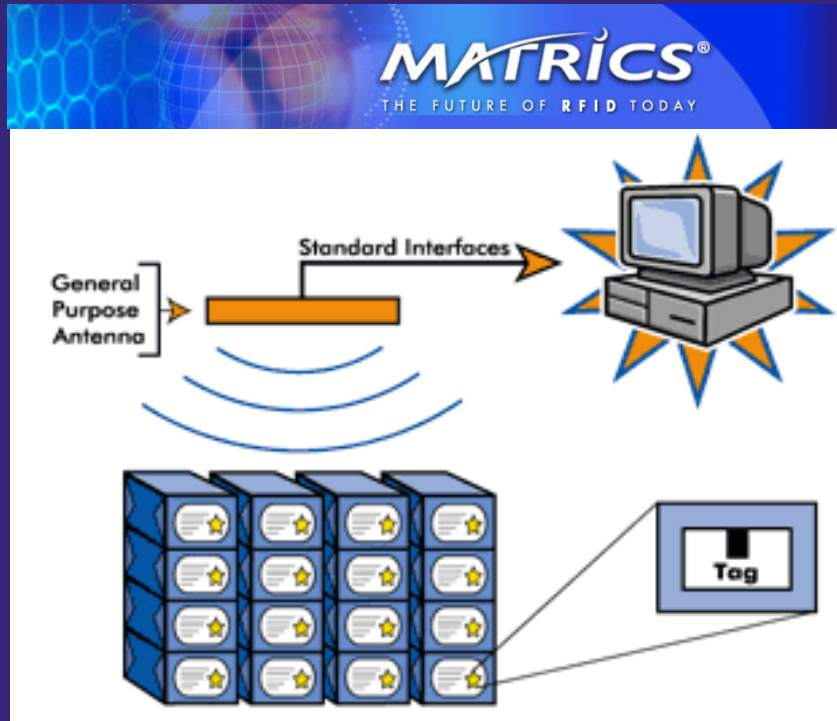
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Robots: Autonomy and Self-Organization



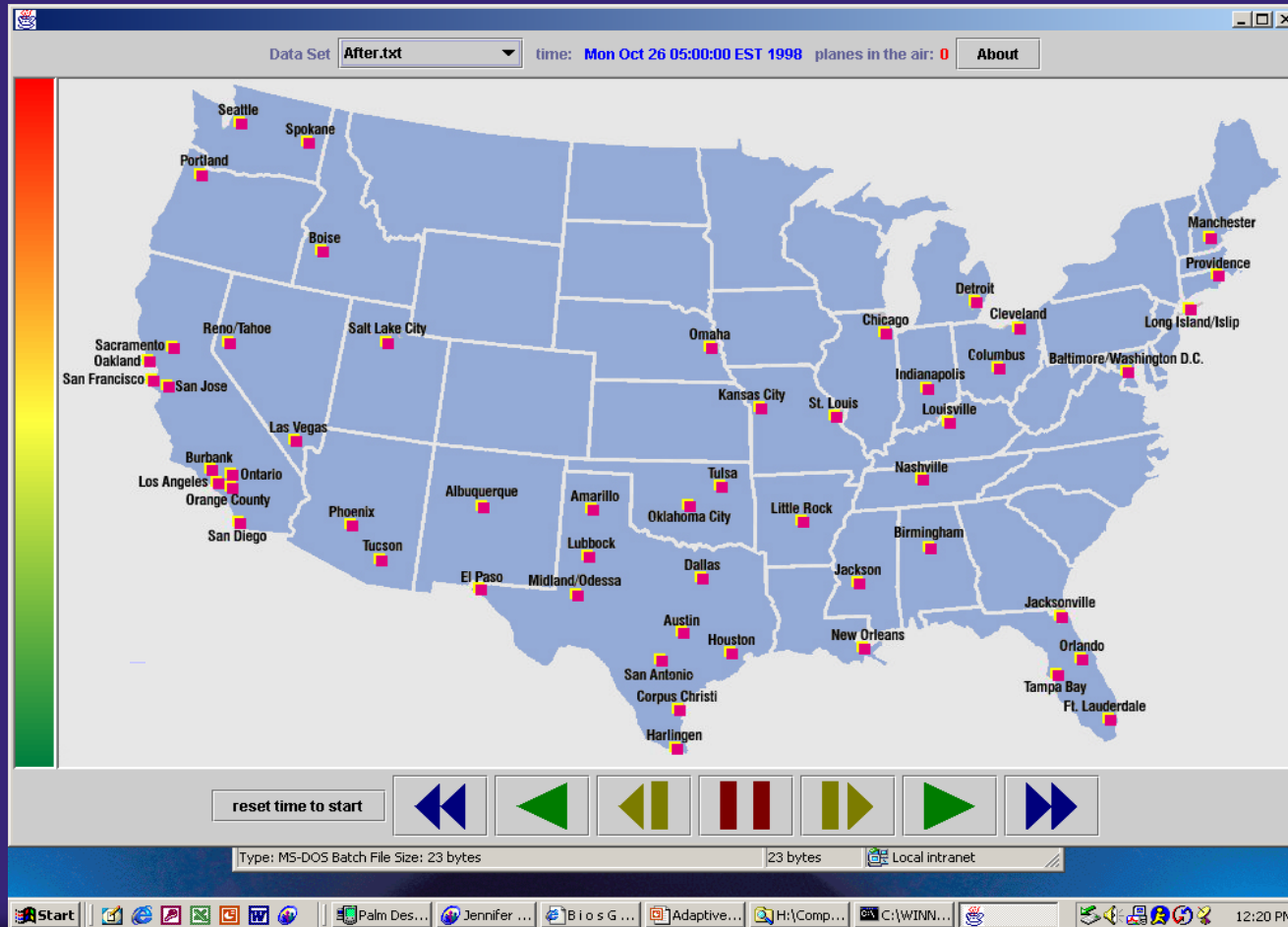
Connecting Simple Things: RFID



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Emergence: Managing Evolution By Managing Rules



MS-DOS Batch File

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Selection and Recombination



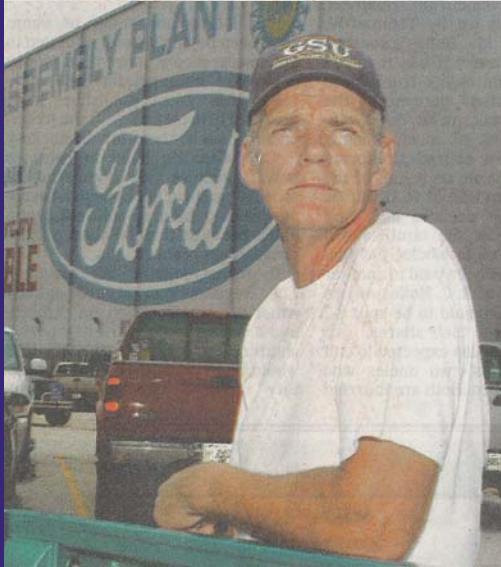
Evolving the BMW



Sense, Respond, Learn, and Adapt



Efficiency Vs. Adaptability

Ford Plant Finds Efficiency Is No Protector



	 Civic	 Element
LENGTH	174.7 inches	169.3 inches
WIDTH	66.7	71.5

Yes, Assembly Lines Can Mix Apples and Oranges

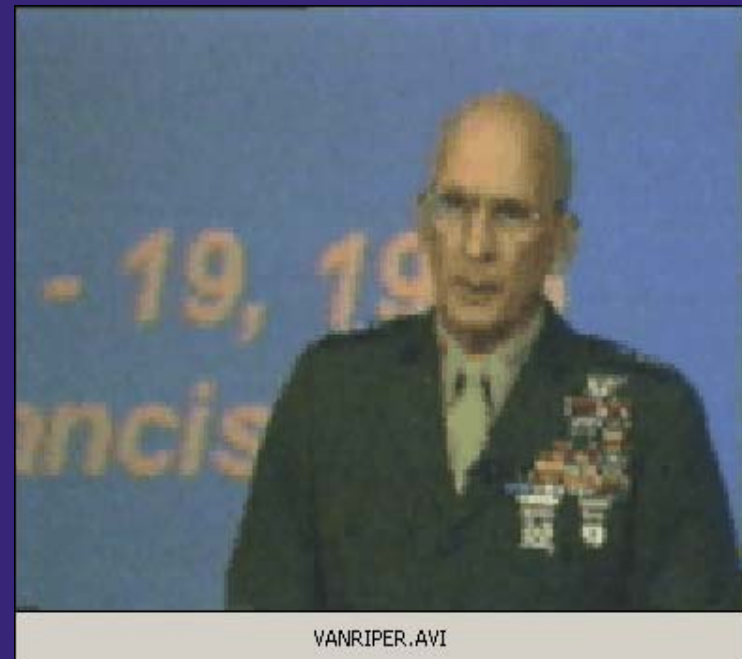
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The Edge of Chaos

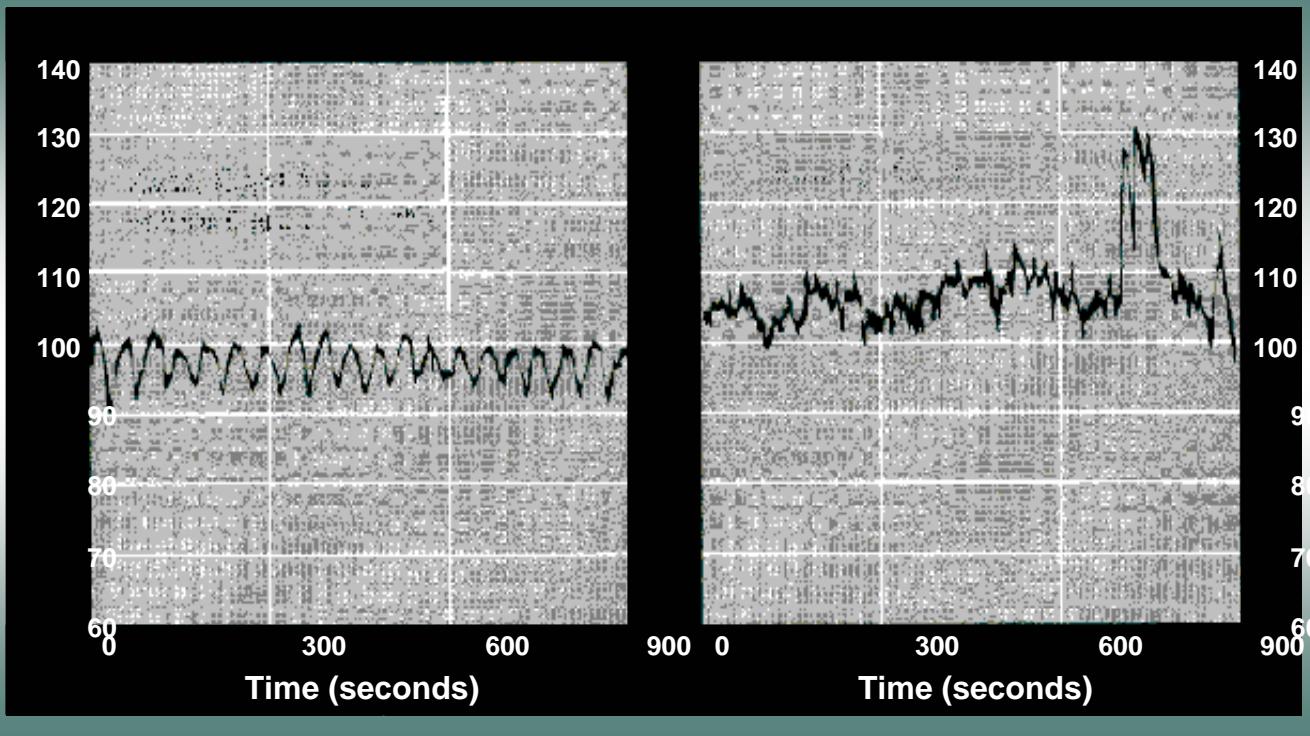
"We are very good at instilling certain behaviors in our Marines, they understand our intent, and intent is like an algorithm in a computer or DNA in a biological system"

- Lt. Gen. Paul K. Van Riper



Which Process Is Healthier?

Heart Rate (beats per minute)



**Heart Eight Days
Before Cardiac Death**

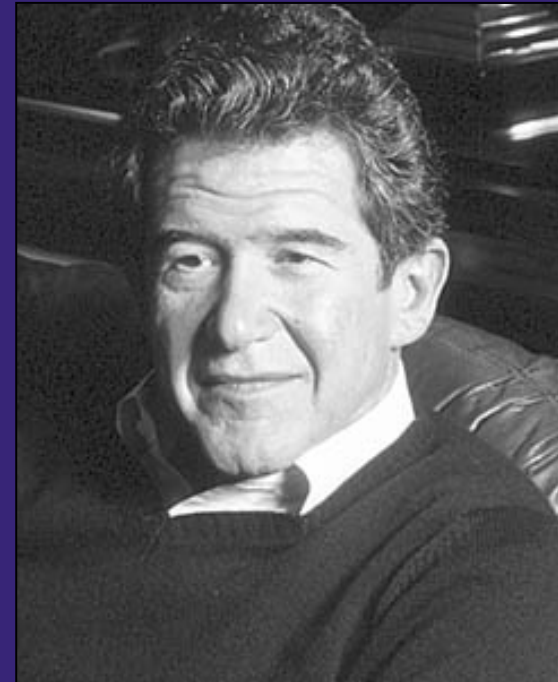
Healthy Heart

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Leading Change in the Adaptive Organization

“All we can do is watch carefully, to keep an open mind...and be ready to move. Giving up the illusion that you can predict the future is a very liberating moment. All you can do is give yourself the capacity to respond...*the creation of that capacity is the purpose of strategy.*”

Lord John Browne
CEO, BP Amoco
November 23, 2001



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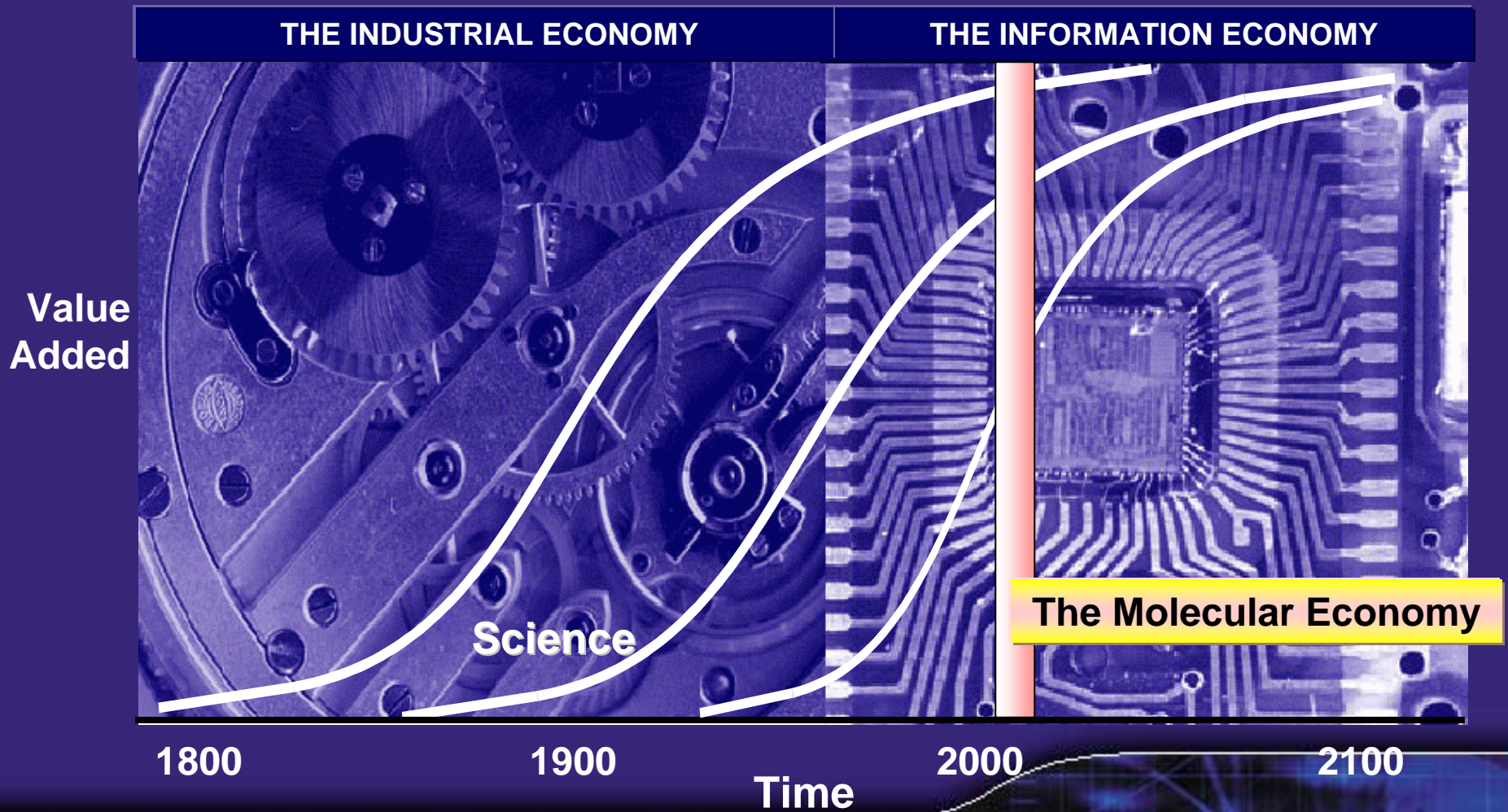
The Coming Convergence of Information, Biology, and Business

www.itsalivebook.com

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The Next Wave Has Already Started



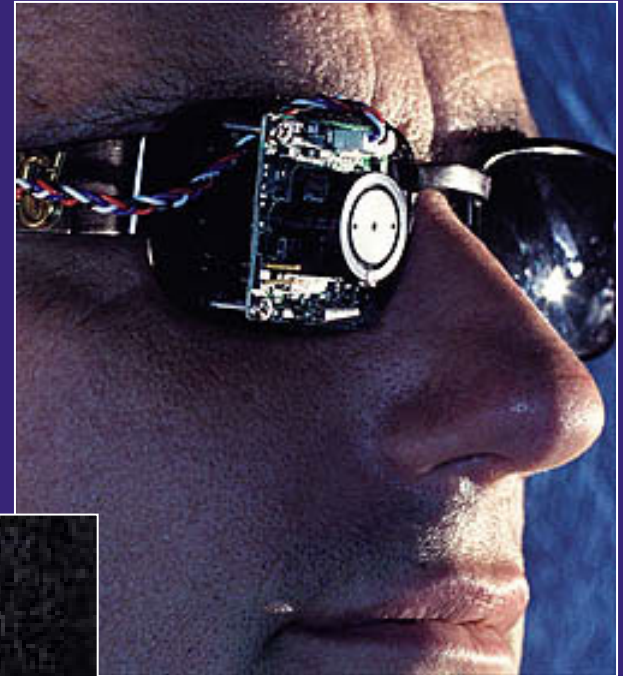
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Code is Code: Chemical and Electrical

“He claimed he had a way I could control a cursor and the muscles of my hand just by thinking. I thought it was BS. You know, brain science.”

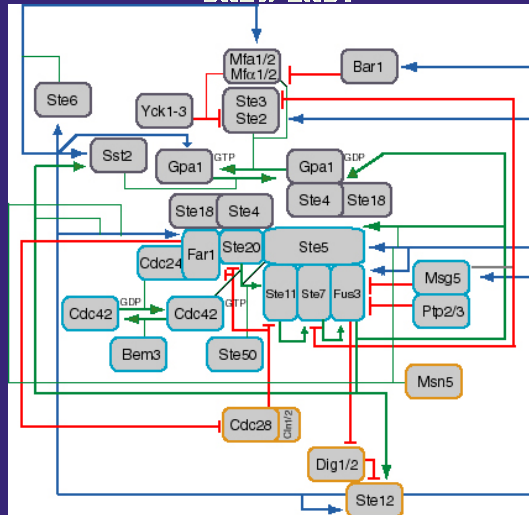


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The Molecular Economy: Science



DREW ENDY



“We are learning to apply molecular models of specific biological systems to predict the future of the system--as it exists, and in response to perturbations.

In parallel, we are creating a technical foundation to support synthetic biological systems.”

Software? Or Yeast Pheromone Signal Transduction

<http://web.mit.edu/biology/www/facultyareas/facresearch/endy.shtml>

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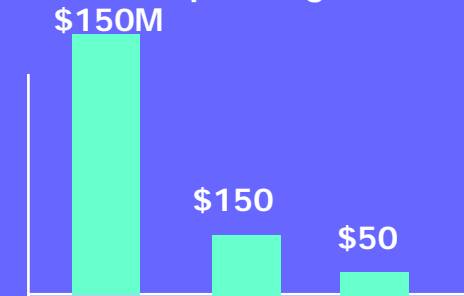
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Molecular Economy: Technology

*Human Genome
Placed on Chip;
Biotech Rivals
Put It Up for Sale*



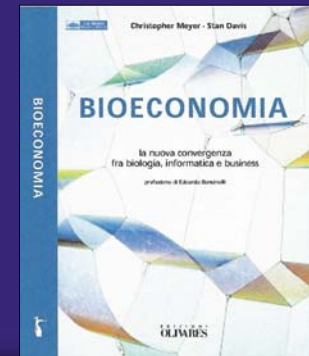
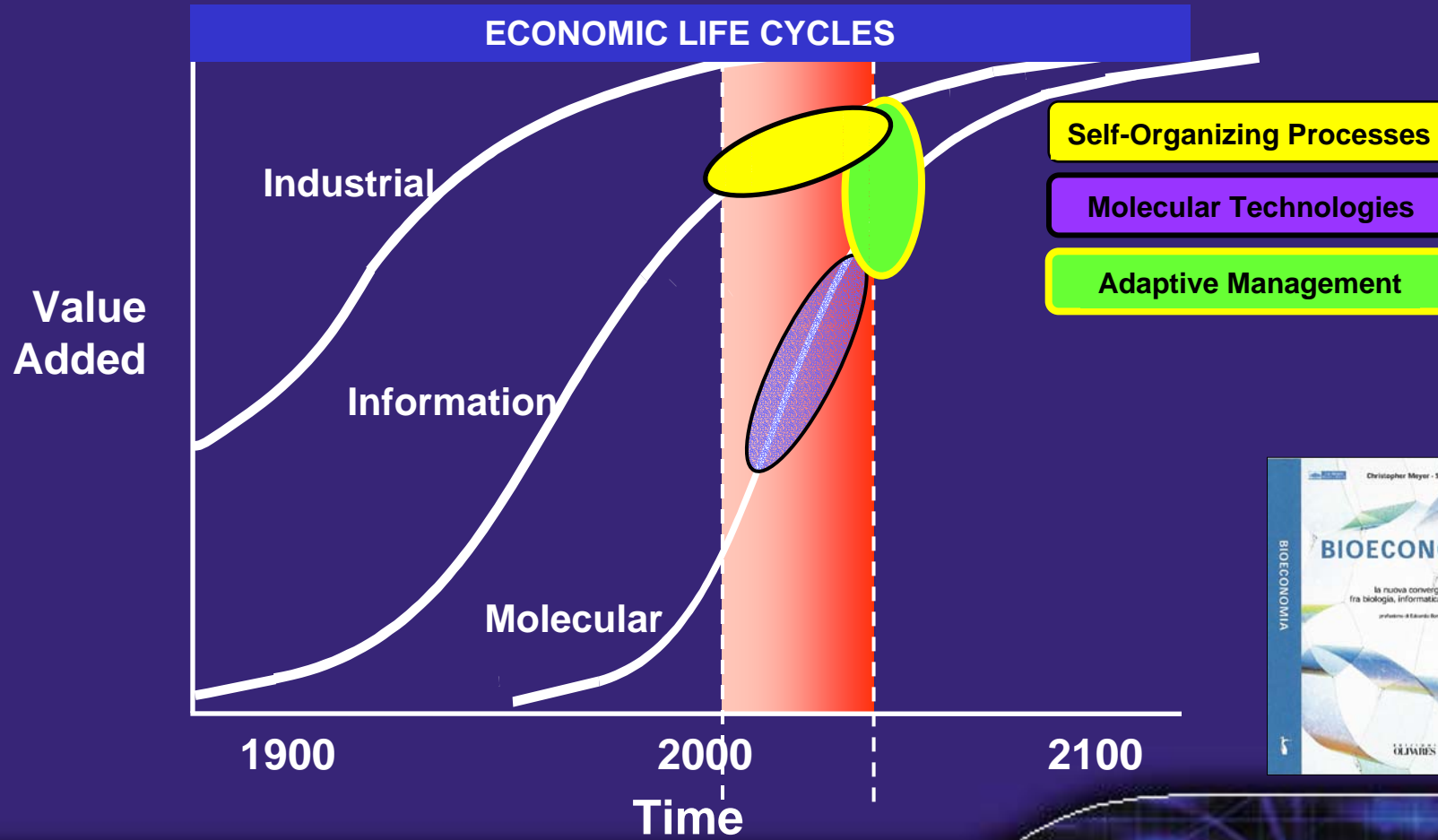
Cost of Sequencing One Gene



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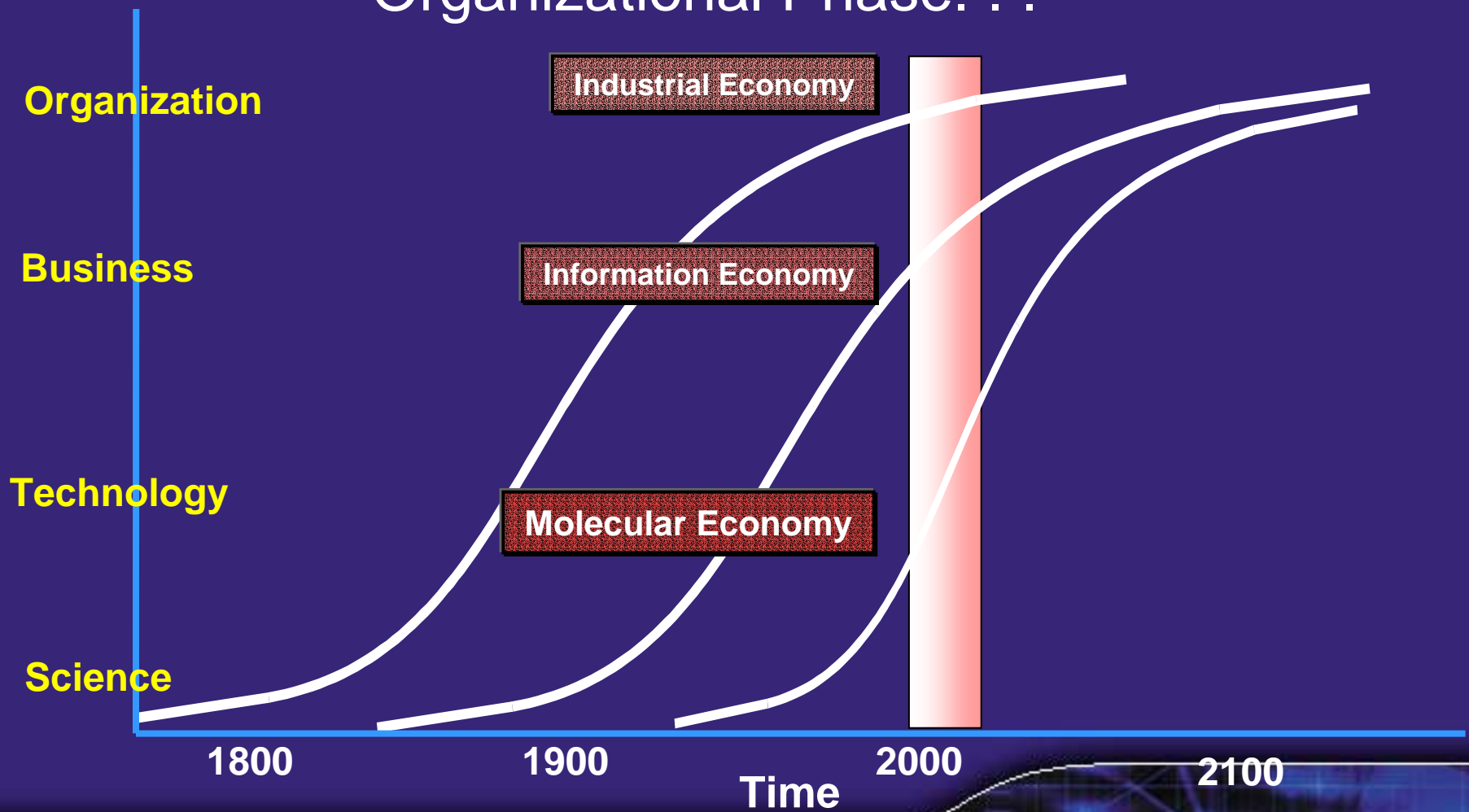
The Next Ten Years: Three Big Stories



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The Information Economy Is Entering Its Organizational Phase...



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The Adaptive Enterprise: Memes for Management

1. Sense and respond
2. Learn and adapt
3. Recombination
4. Selection
5. Emergence
6. Live at the edge of chaos
7. Monetize molecules

Honeywell



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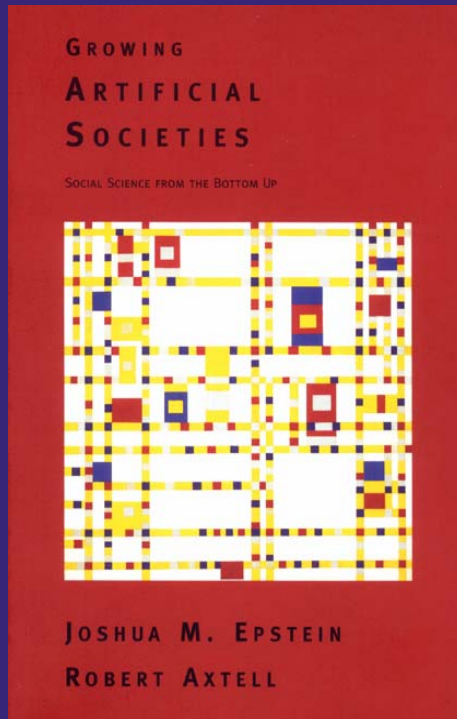
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Tools For Recombination, Selection, and Emergence

- Wireless Sensors
- Autonomous Software Agents
- Genetic Algorithms
- Agent-Based Models
- Hybrid Simulations



Emergence: From Directing People to Directing Evolution



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