

The background features a dark, curved shape resembling a globe or a lens, set against a lighter, textured background. Faint technical drawings, including a cross-section of a mechanical part and various circular patterns, are visible in the background.

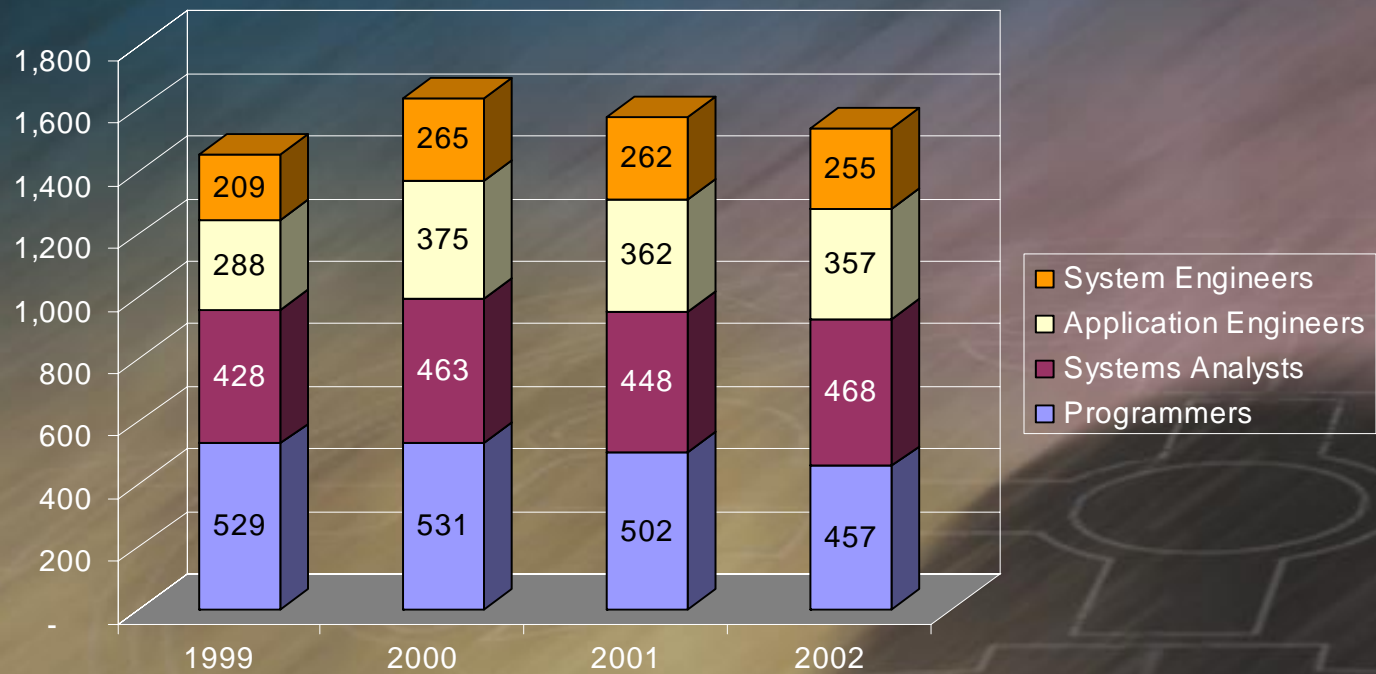
Make More Money

Improve Our
Standard of Living

Mary Poppendieck
www.poppendieck.com

Law of Supply and Demand

Software Development Employment (Thousands)



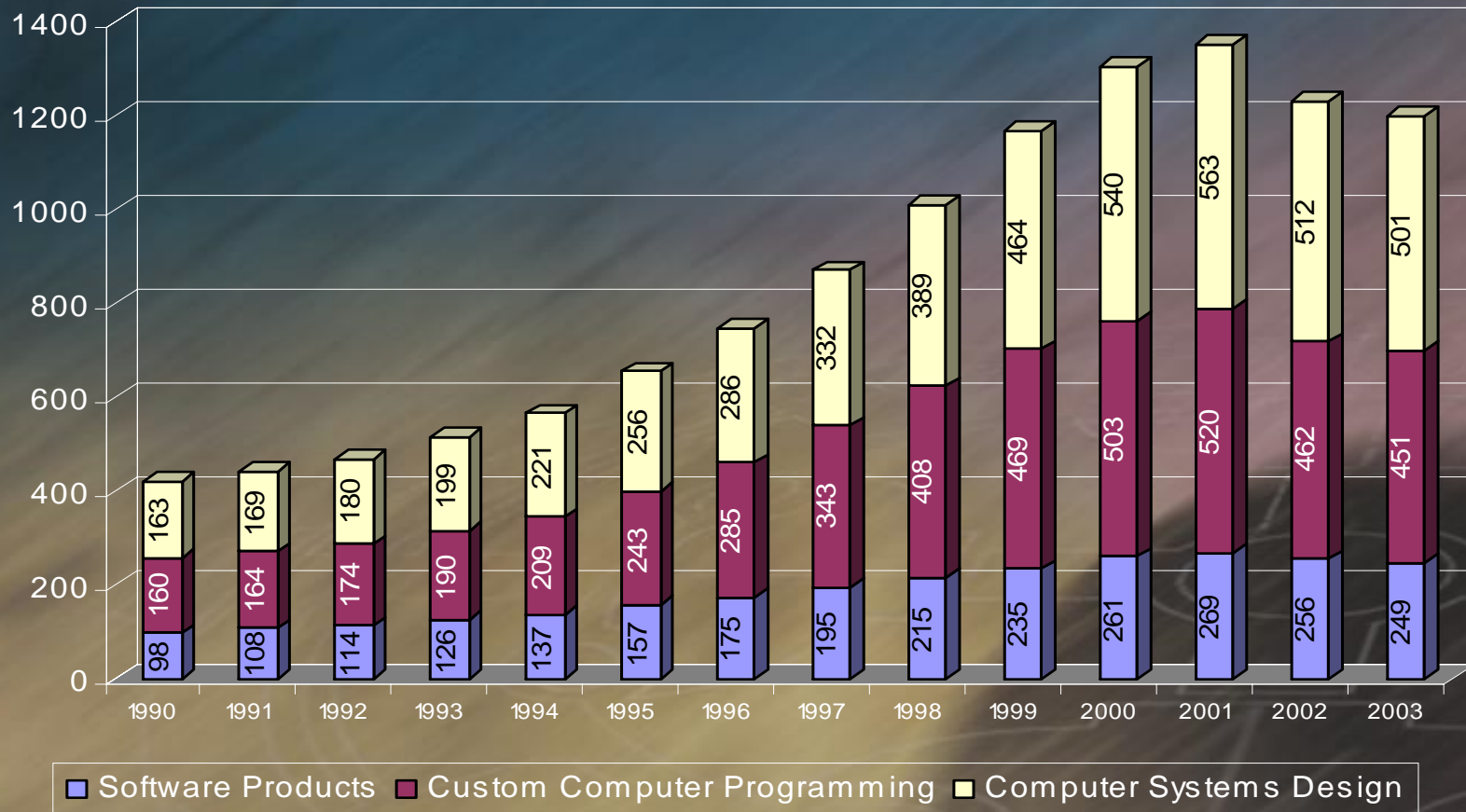
Data from: US Bureau of Labor Statistics

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March 2004

A New Experience for Software

Software Company Employment (Thousands)

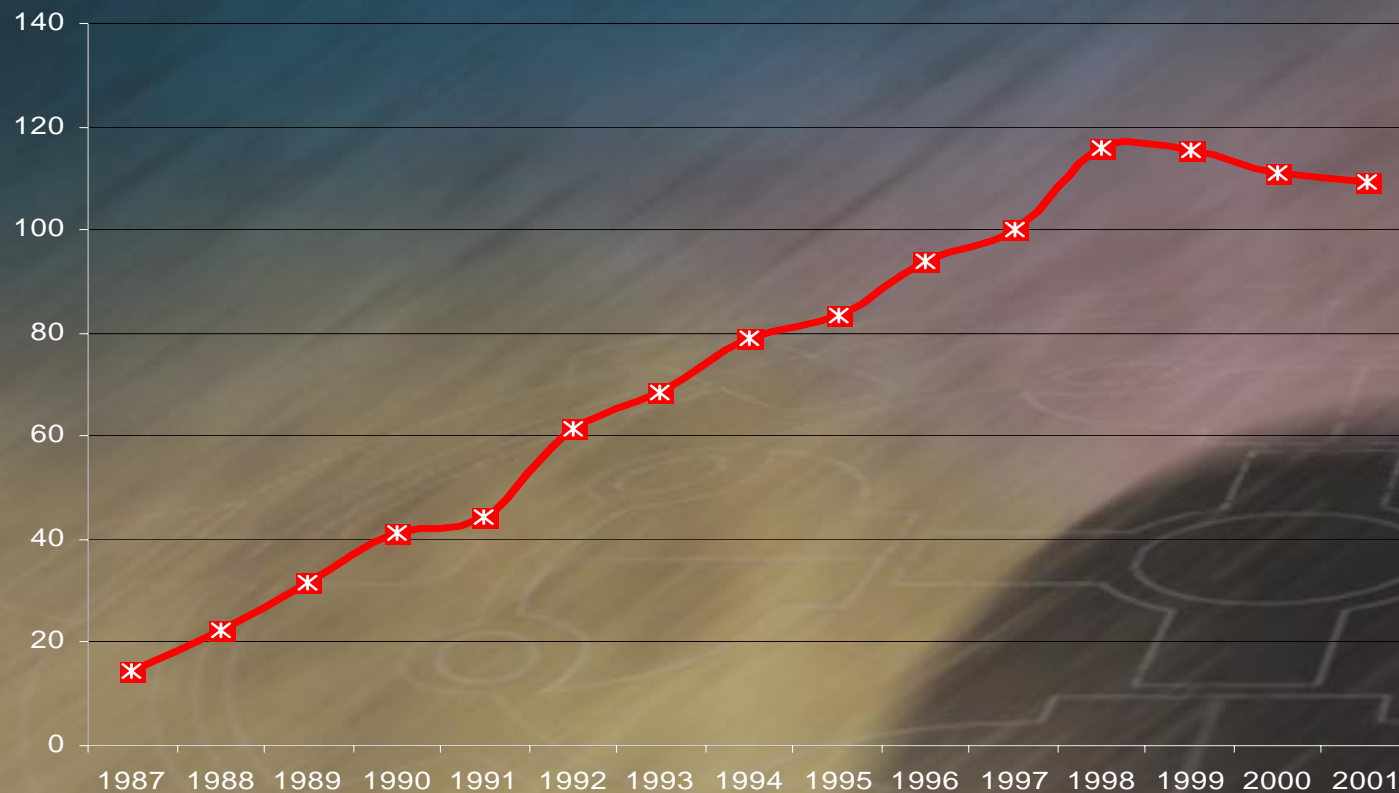


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US Software Productivity

Productivity Index of Software Product Companies
Output per Hour (1997 = 100)



Data from: US Bureau of Labor Statistics

March 2004

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Law of Productivity

- Productivity is the prime determinant of our standard of living
- On a level playing field, more productive companies enjoy higher profits

And

- The key to improving our standard of living is to ***increase software development productivity***

Productivity



- The value of what you get out compared to what you put in



Productivity Metrics

- Lines of Code per Developer?
 - Are lines of code proportional to revenue?

Alternatives

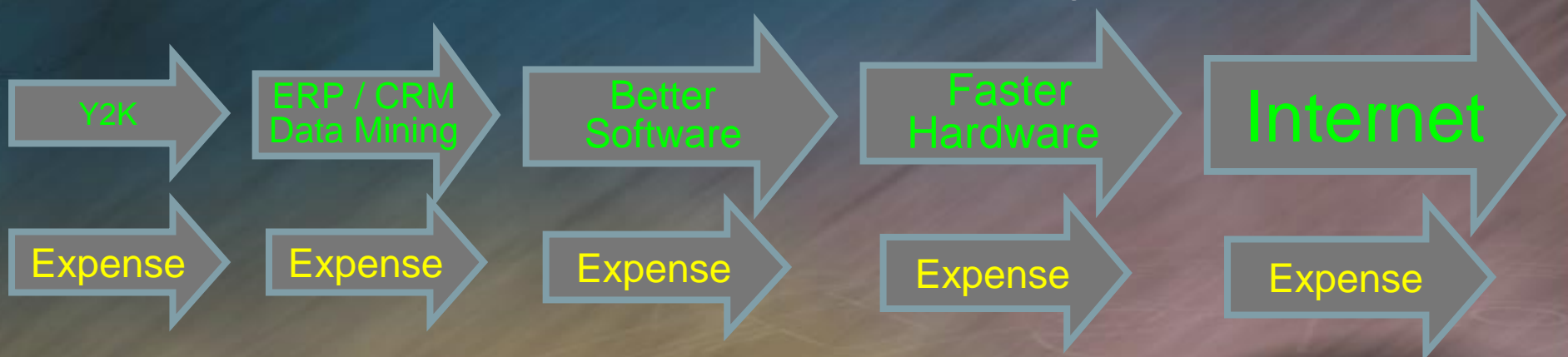
- If you sell software
 - Revenue per employee
- If you have a support organization
 - Increased revenue in the supported business per dollar spent by the IT organization

Software Productivity

1990's

Intense Customer Demand

Rapidly increasing technical capability



2000's



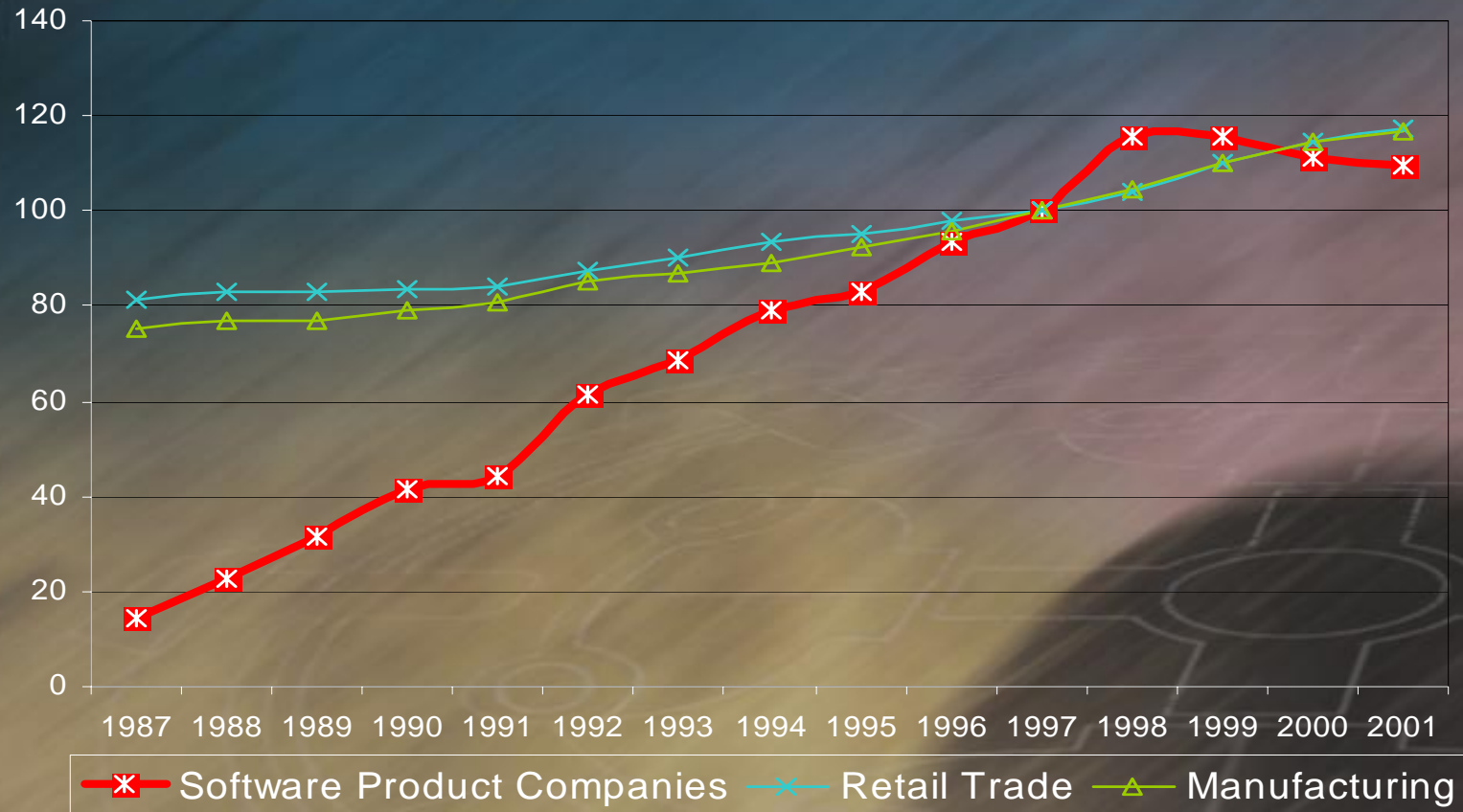
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US Software Productivity

Productivity Index of Software Product Companies
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Lessons From The Winners

- How do the pros increase productivity?
 - Focus on core business processes
 - Levers that drive productivity
 - Decide where to match and where to lead
 - Match ‘best practice’ in most processes
 - Pick a few areas for leadership
 - Create end-to-end improvements
 - Close interaction across the value chain
 - No Silver Bullet

From: “What **high tech** can learn from slow growth industries” Janaki Akella, James M. Manyika, and Roger P. Roberts *The McKinsey Quarterly*, 2003 Number 4

Processes that Drive Software Development Productivity

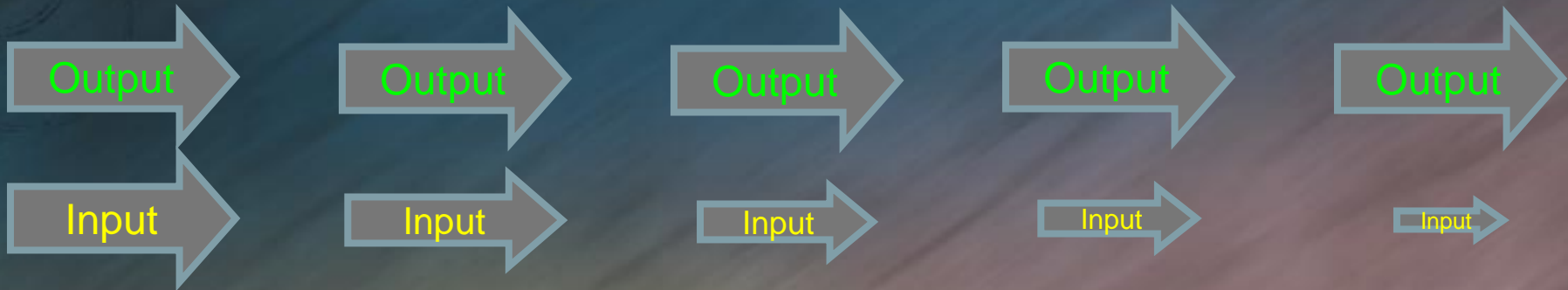


- Idea-to-product processes
 - Translate customer needs into software
 - Do you really understand customers?
 - Manage the development portfolio
 - Do you limit work to actual capacity?
 - Deploy complete solutions
 - Are you fully invested in your customer's success?
 - Manage the lifecycle
 - Do you design for maintainability?

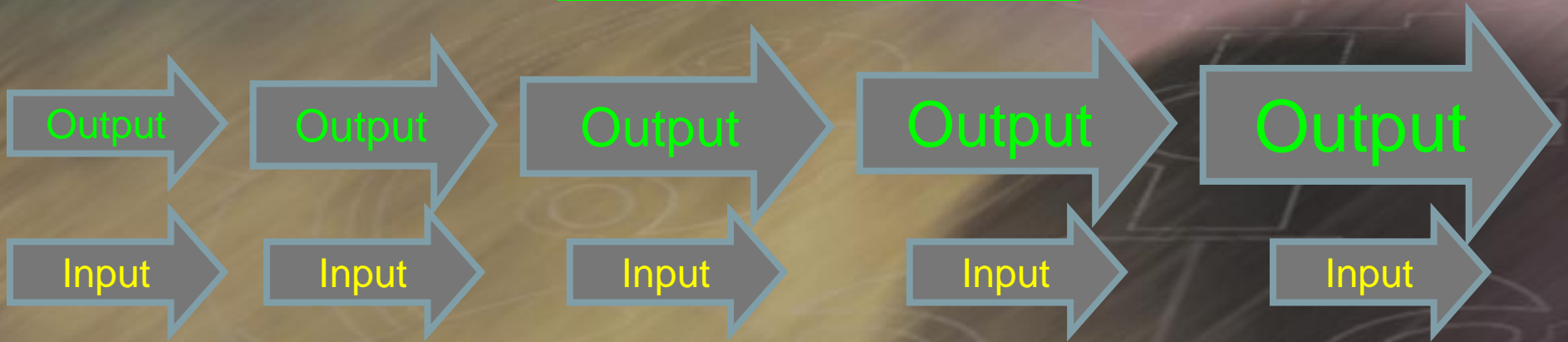
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Increasing Productivity

Do Less Work

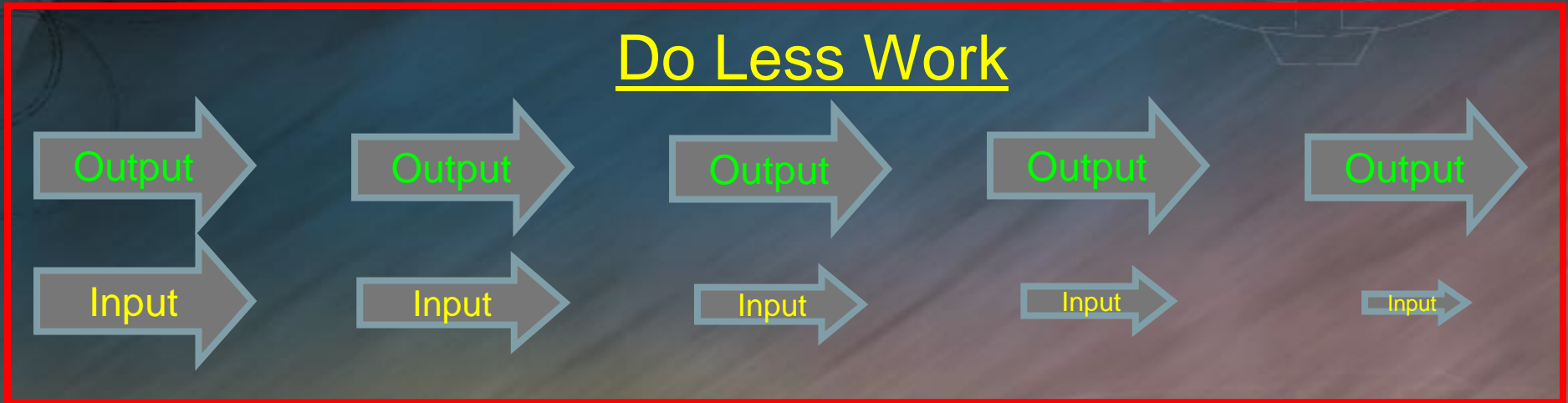


Create More Value



Increasing Productivity

Do Less Work



1. Reduce Direct Cost

- Provide only what the customer will pay for

2. Reduce Indirect Cost

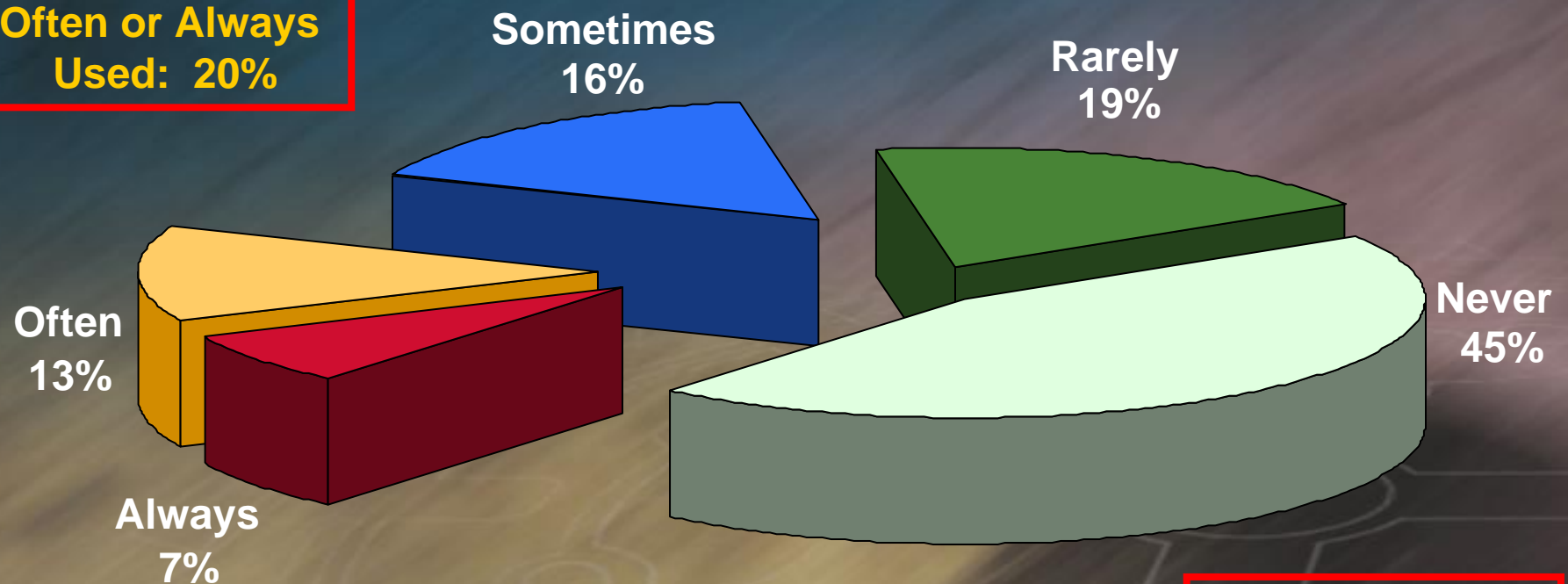
- Streamline processes and eliminate waste



Reduce Development Effort

Features and Functions Used in a Typical System

**Often or Always
Used: 20%**



**Rarely or Never
Used: 64%**

Standish Group Study Reported at XP2002 by Jim Johnson, Chairman

Overproduction of Features

- Ask Customers what they want
(When they really don't know)
- Reward them for thinking of everything
(Call the initial list 'Scope')
- Penalize them for adding things later
(Control 'Scope' aggressively)
- The result is Overproduction of Features
(80% of the value comes from 20% of the features)

The Biggest Opportunity to Increase Productivity

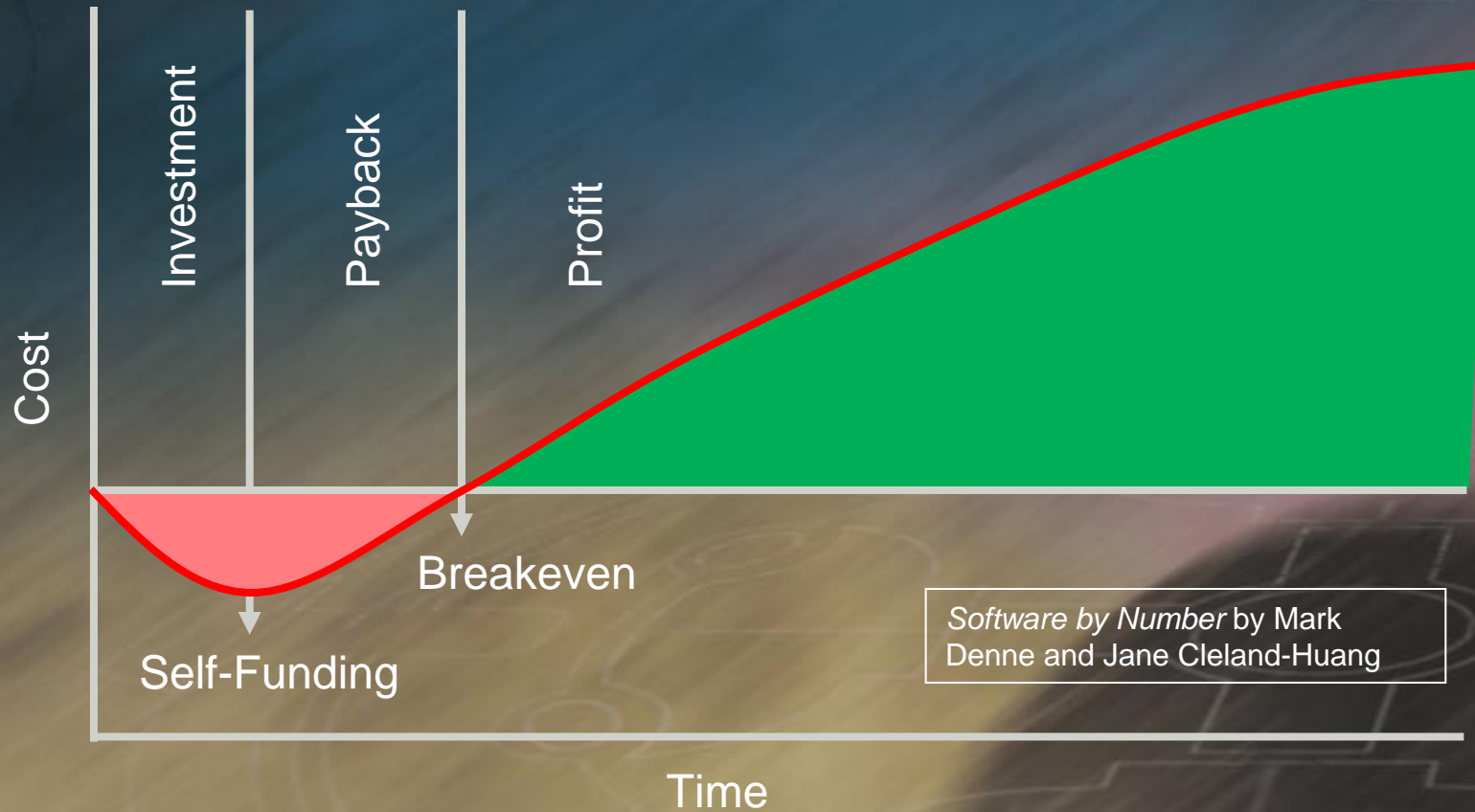
- Develop 20% of the features
- Get 80% of the value

How?

- Define Minimum Marketable Feature (MMF) sets
- Calculate the ROI for each MMF
- Maximize ROI
 - Deploy MMF's with highest ROI first
 - Stop when you run out of justification

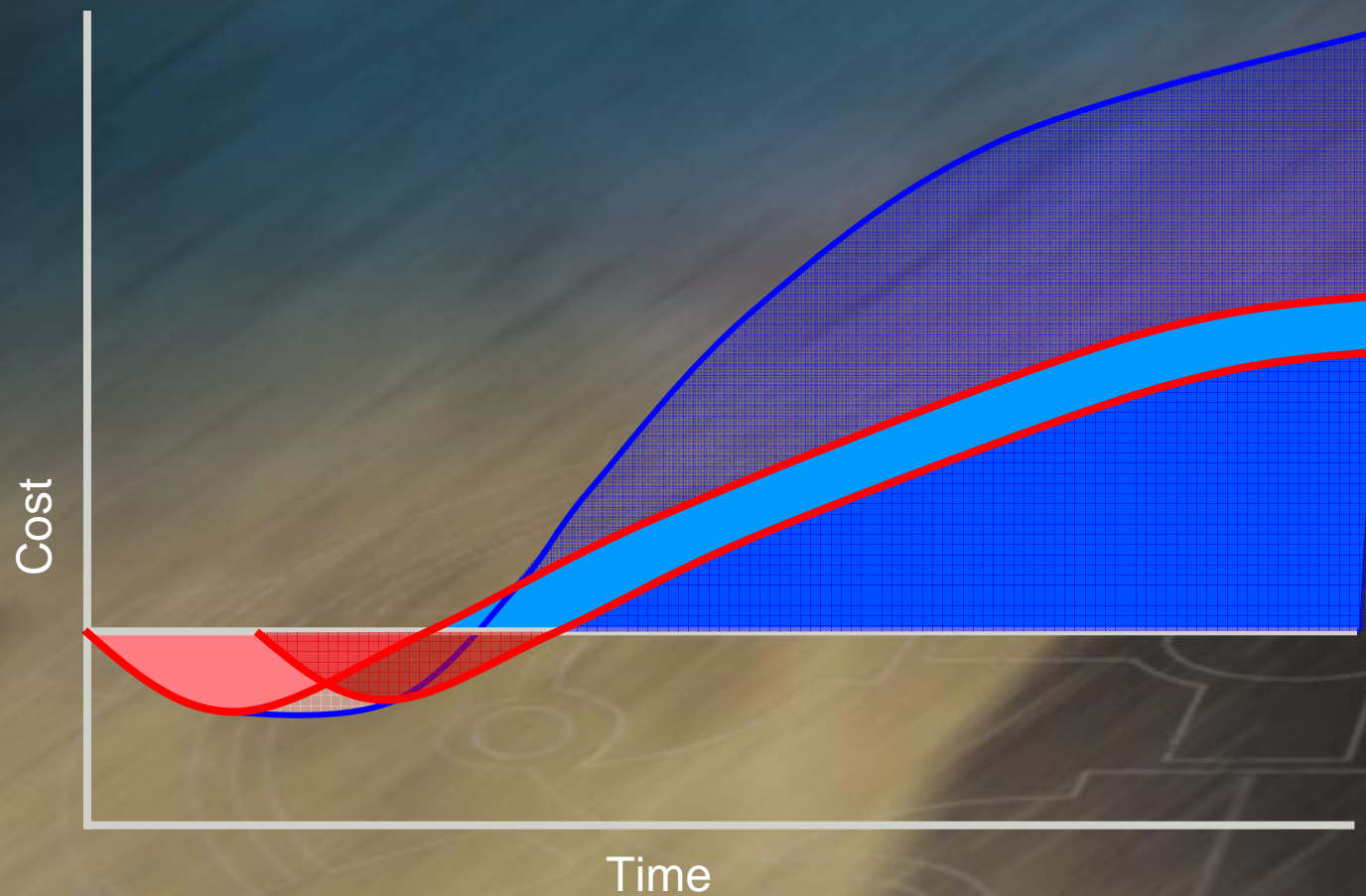
Software by Number
by Mark Denne and
Jane Cleland-Huang

Minimum Marketable Features (MMF)



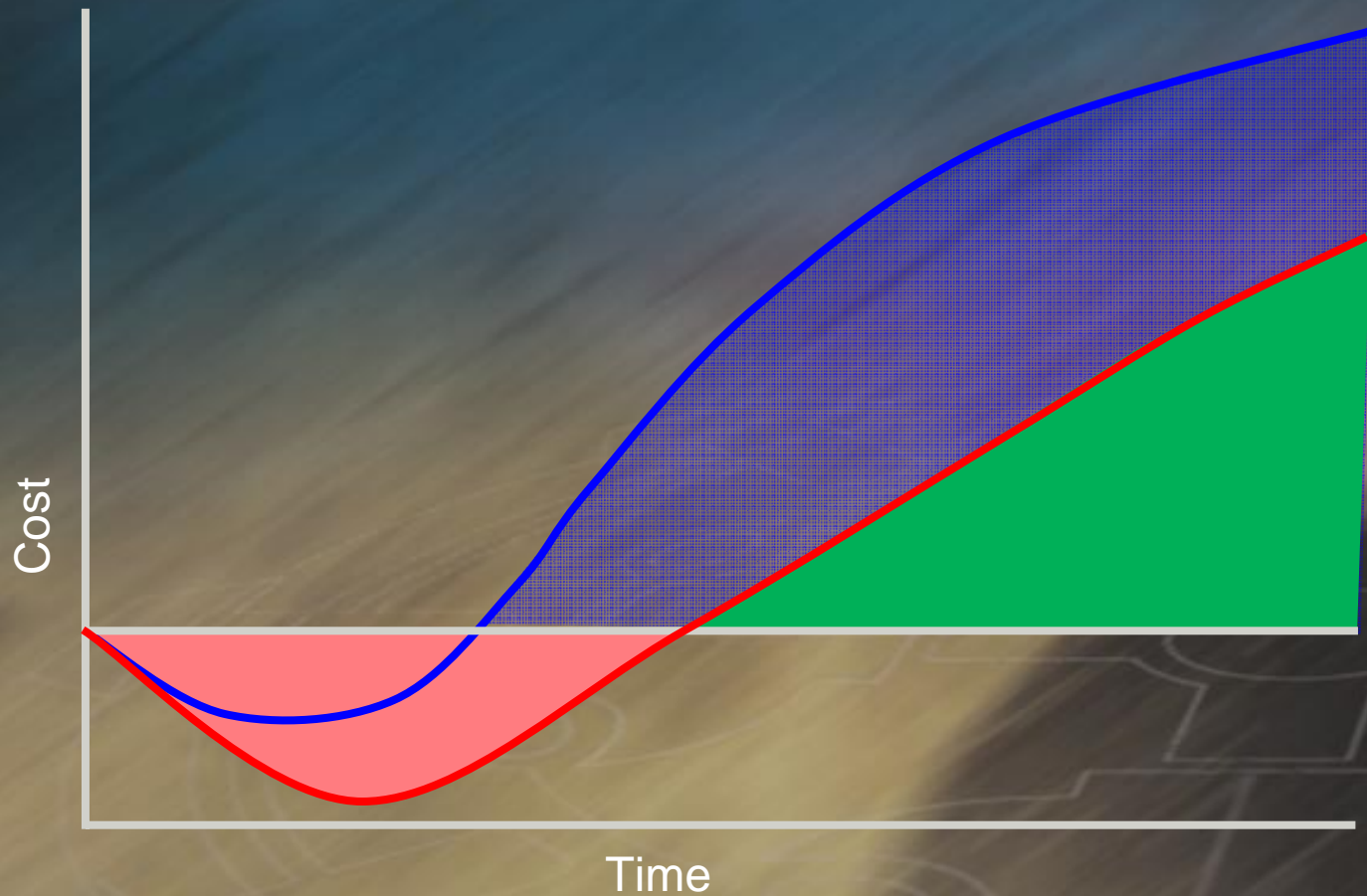
Minimum Marketable Features (MMF)

Deploy Early & Often – Move Profit Forward



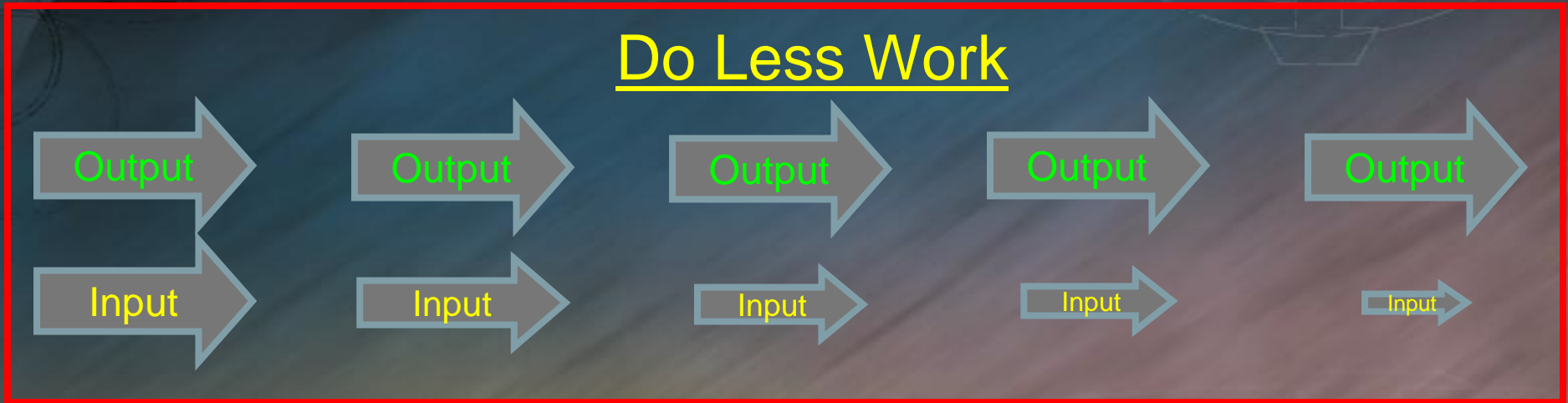
Minimum Marketable Features (MMF)

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- Streamline processes and eliminate waste



Streamline Core Processes

- It's all about rapid delivery of value
 - “Efficiencies” and “cost reductions” that delay or reduce customer value will decrease productivity!
- The Measure of Maturity:
 - The speed with which an organization can reliably and repeatedly execute its key processes.
- Software Development Maturity:
 - The speed with which customer needs are reliably and repeatedly translated into deployed code.

Streamline the Flow of Value

Three Levers

1. Value Stream Mapping

- Find the bottlenecks

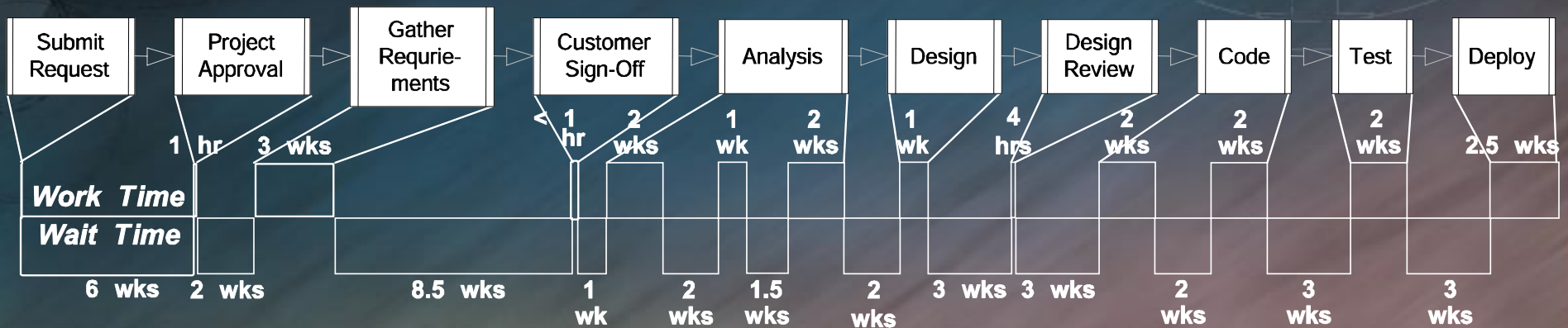
2. Kaizen Events

- Eliminate the bottlenecks

3. Integrated Product Teams

- Streamline Information

Traditional Value Stream



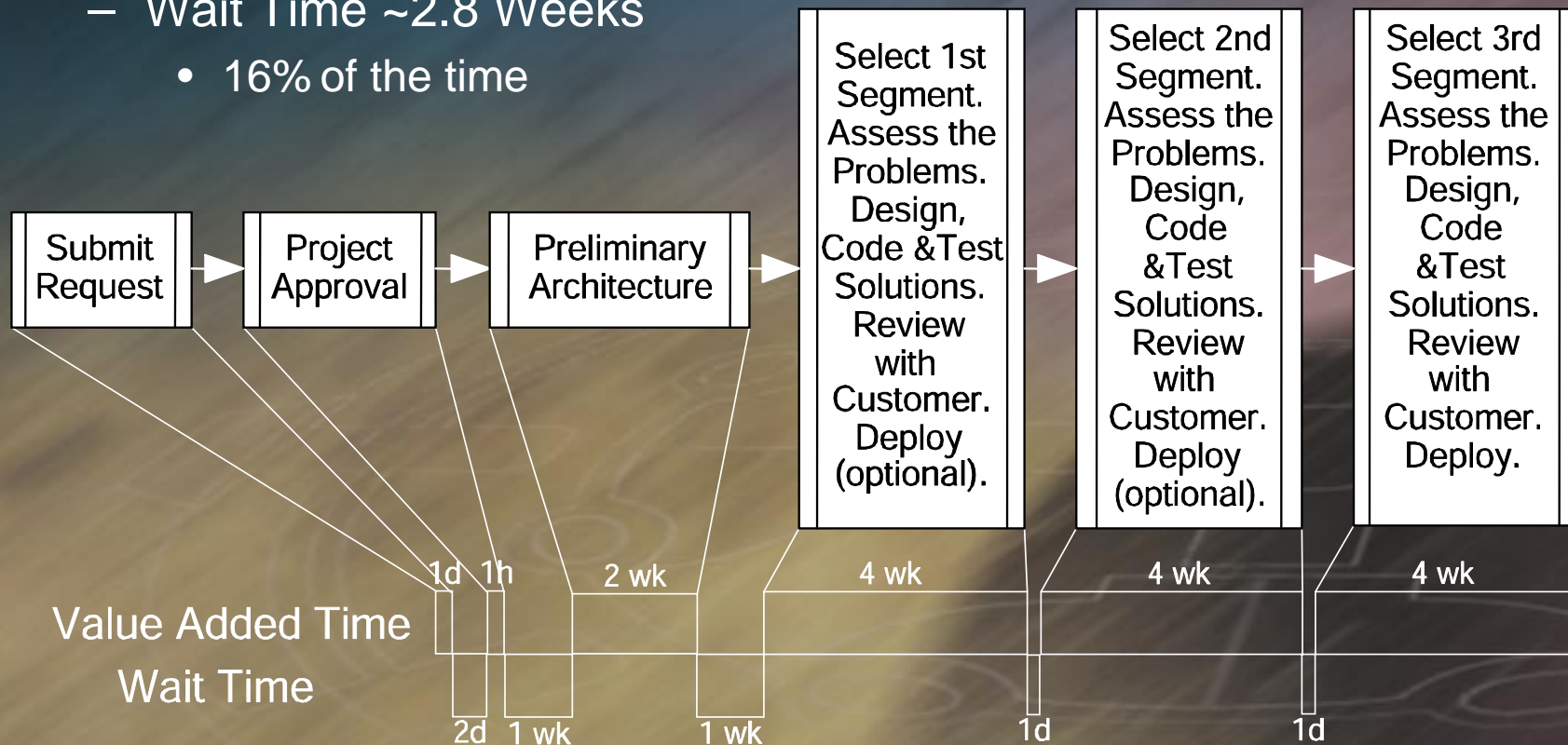
- Total Time: ~55 weeks
 - Work Time ~17.6 weeks
 - 1/3rd of the time
 - Wait Time ~37 Weeks
 - 2/3rds of the time

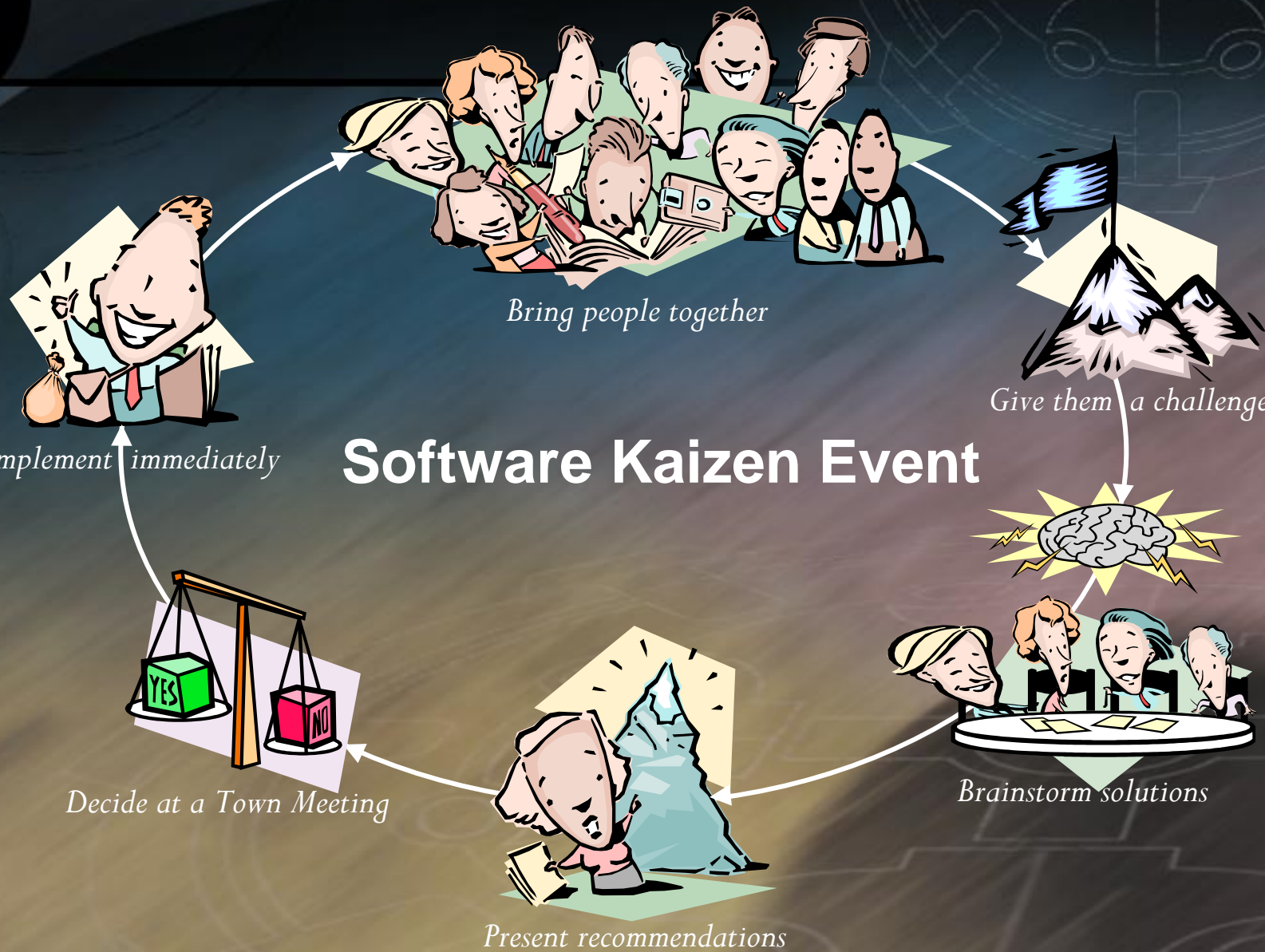
- Bottlenecks:
 - Approvals
 - Sign Offs
 - Design Review
 - Testing
 - Deployment

Lean Value Stream Map

- Total Time: ~17 weeks
 - Work Time ~14.2 weeks
 - 84% of the time
 - Wait Time ~2.8 Weeks
 - 16% of the time

- Levers:
 - Concurrent Development
 - Effective Gating Process





Software Kaizen Event

Bring people together

Give them a challenge

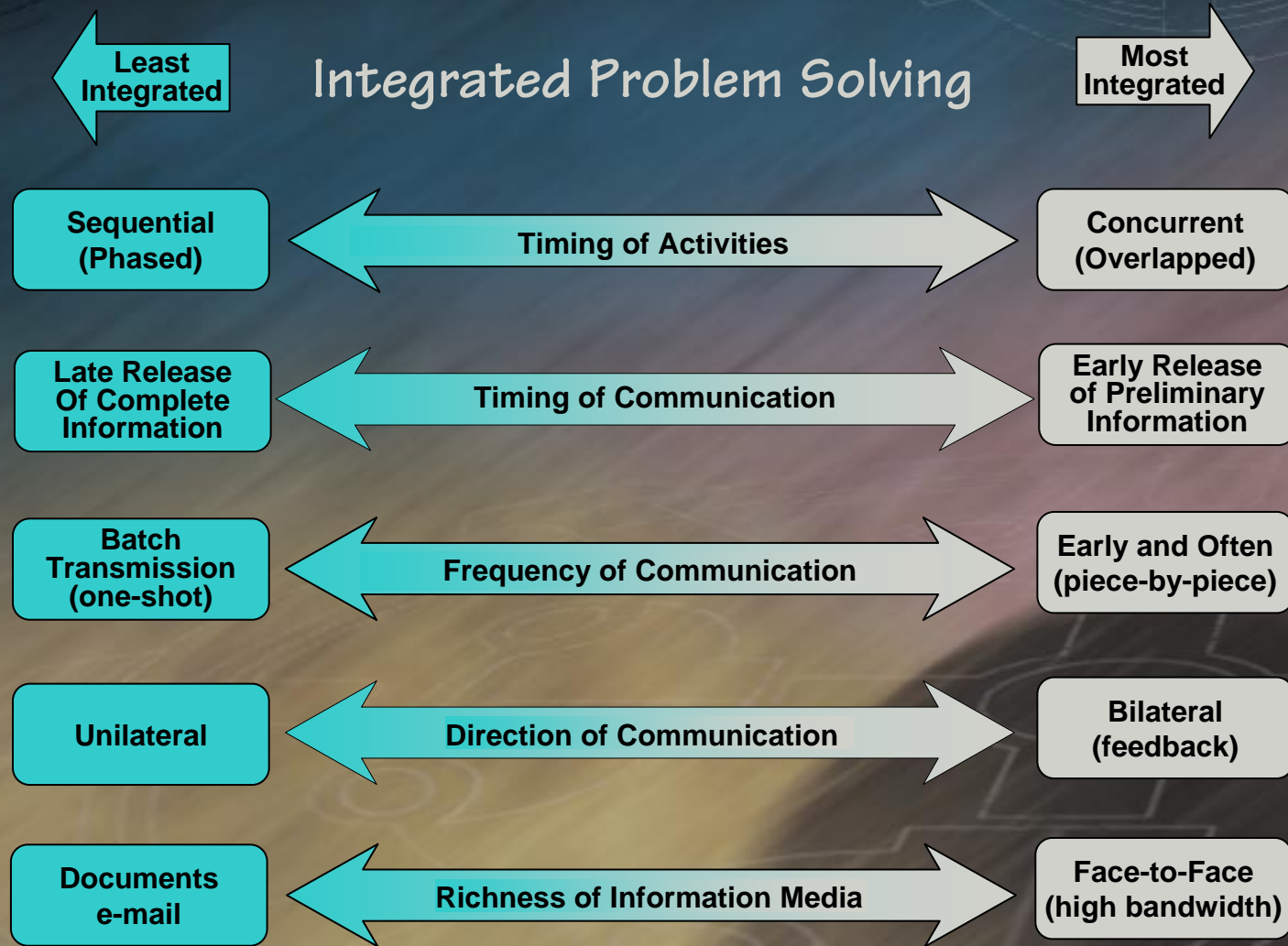
Brainstorm solutions

Present recommendations

Decide at a Town Meeting

Implement immediately

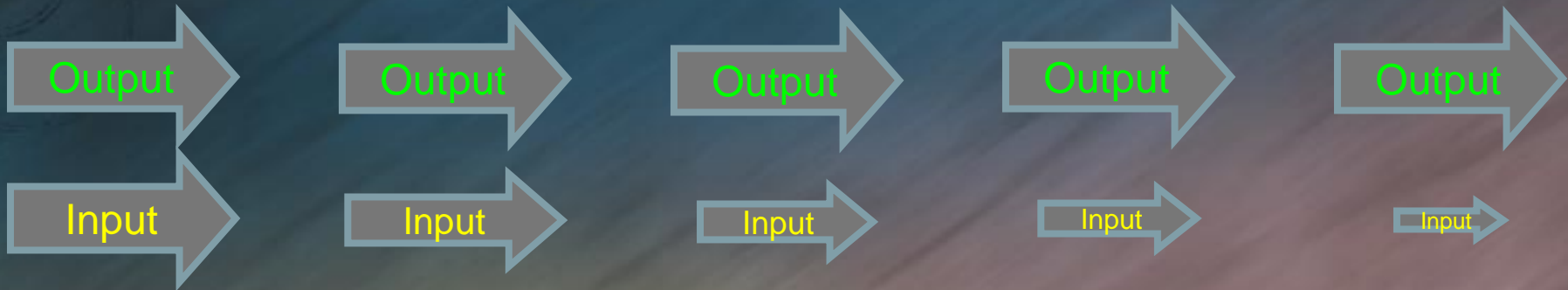
Cross-Functional Teams



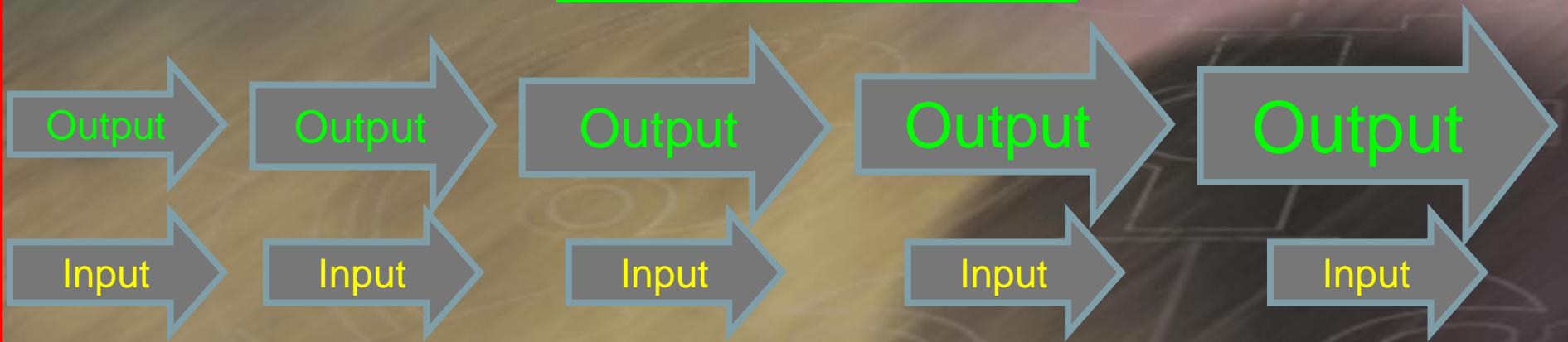
Adapted from *Product Development Performance* by Clark and Fujimoto

Increasing Productivity

Do Less Work



Create More Value



Increase the Value Proposition

Three Levers



1. Shorten the customer feedback loop
 - Iterative development is fundamental
2. Improve your customers' productivity
 - When your customer wins, you win
3. Optimize the entire economic chain
 - Local optimization destroys global optimization

Shorten the Feedback Loop

- Iterative Development
 - Early, small, frequent releases
 - Timebox for cost and schedule control
- Deploy MMF's
 - Maximize ROI
- Integrated Product Teams
 - Offshore development increases the challenge
- Stop when you run out of justification
 - 20% of the features deliver 80% of the value

Improve Customer Productivity

- Michael Dell visits a customer
 - Watches them reconfigure Dell computers
 - Offers to pre-configure computers for them
 - Creates a whole new business line
 - Increased revenue and customer loyalty
- How can you help your customer?
 - Map your customer 's value stream
 - Extend the value you offer your customer
 - This is the best way to increase revenue in a commodity business

Optimize the Economic Chain

- “In every single case, the Keiretsu (*K-ret-soo*), that is, the integration into one management system of enterprises that are linked economically, has given a cost advantage of at least 25% and more often 30%.”*
- *Keiretsu* : a group of affiliated companies in a tight-knit alliance that work toward each other's mutual success.
 - GM: 1920's – 1960's
 - Ownership
 - Sears: 1930's – 1970's
 - Partial ownership, contracts
 - Marks & Spencer: 1930's – ?
 - Contracts
 - Toyota: 1950's – present
 - Contracts, economic incentives

* *Management Challenge for the 21st Century*, Peter Drucker

Optimize The Economic Chain

- Organizations usually focus on their own interests, at the expense of the overall venture.
 - Arms length contracts make collaboration difficult
 - Outsourcing makes supply chain integration difficult
- To increase productivity, focus on performance and results across the entire economic chain
 - Create a software *Keiretsu*
 - Focus on overall, not individual, benefit
 - Expect a 25 - 30% increase in overall productivity

Improve our standard of living:
Increase productivity!



Do Less Work

Create More Value

80-20 Everything!



Thank You!

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