

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.

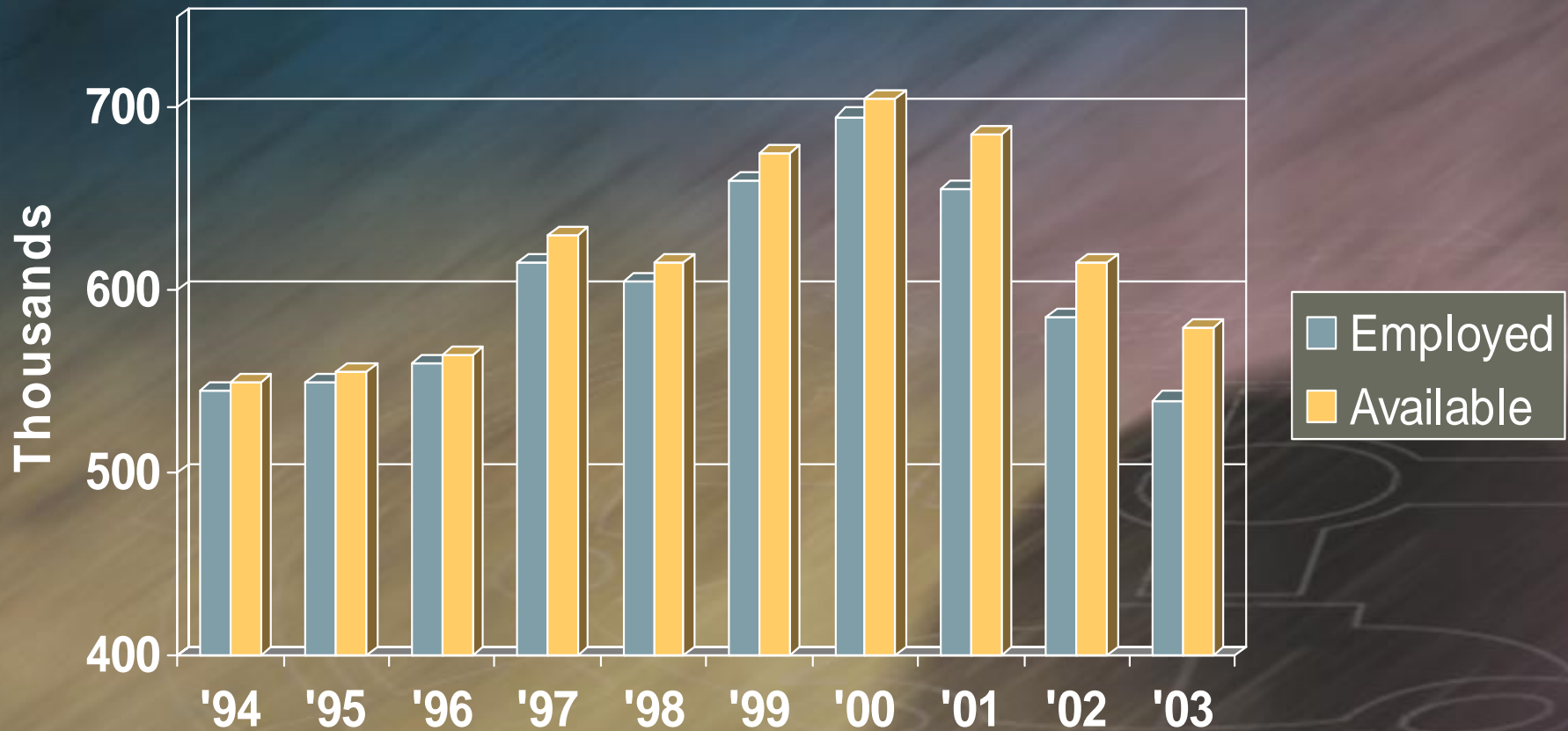
Make More Money

Improve Our  
Standard of Living

Mary Poppendieck  
[www.poppendieck.com](http://www.poppendieck.com)

# Law of Supply and Demand

## US Programmer Employment



December 03

From: US Bureau of Labor Statistics

# 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***

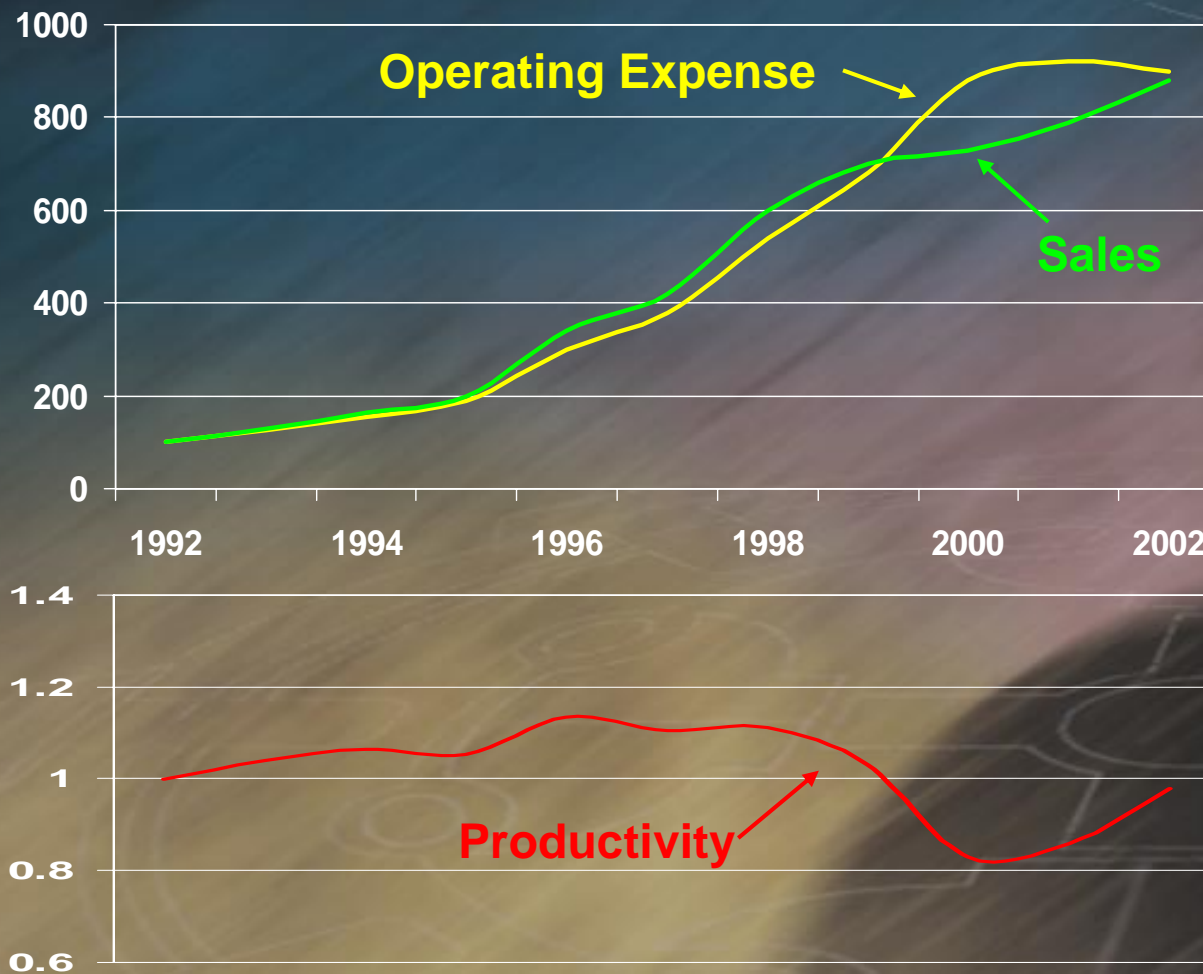
# Productivity



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



# US Software Productivity



December 03

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

# Software Productivity

## 1990's

Intense Customer Demand

Rapidly increasing technical capability



## 2000's

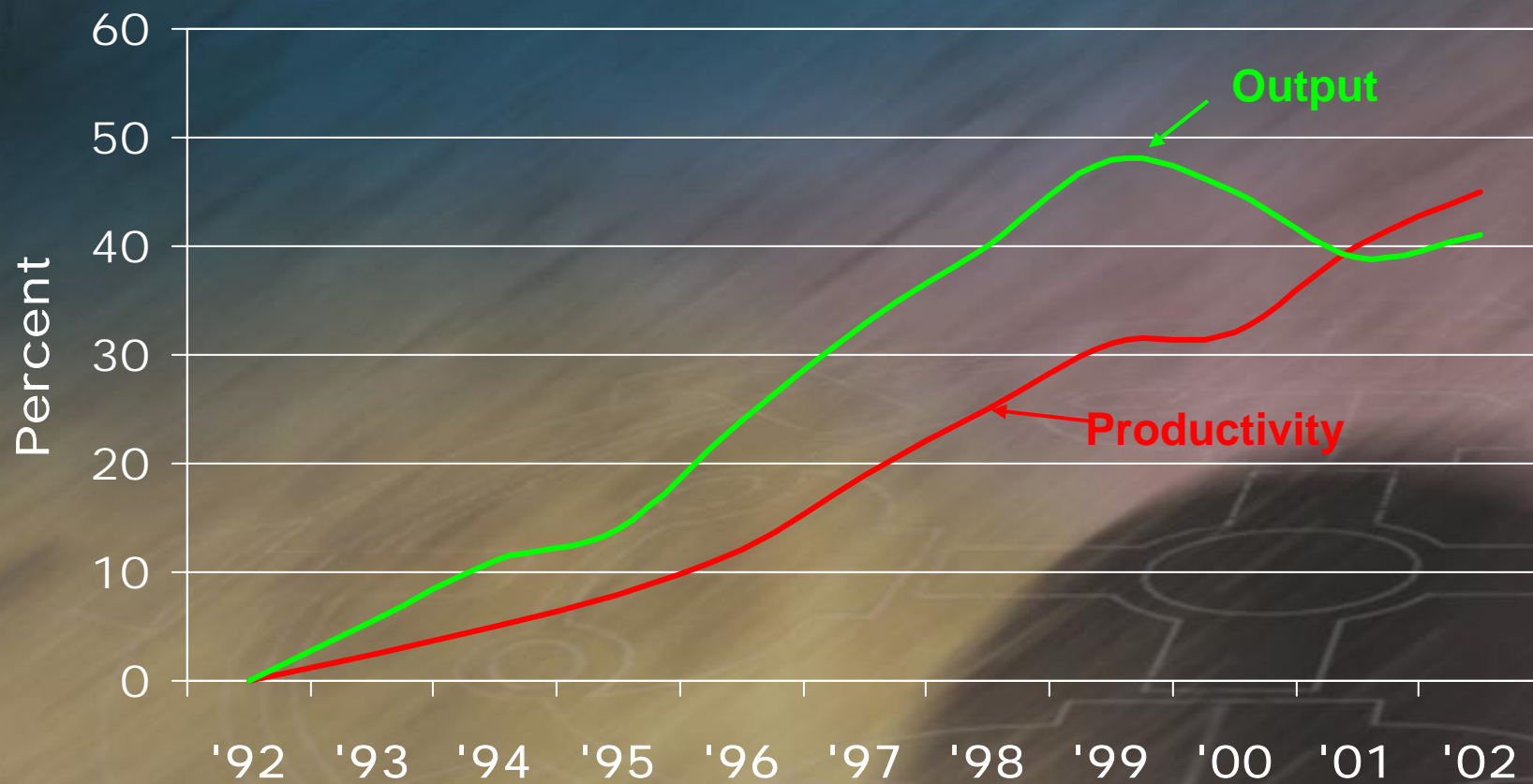


December 03

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6

# US Manufacturing Productivity



December 03

From: US Bureau of Labor Statistics, Federal Reserve Board

# 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

Productivity Levers



- 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?

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

# Productivity Metrics

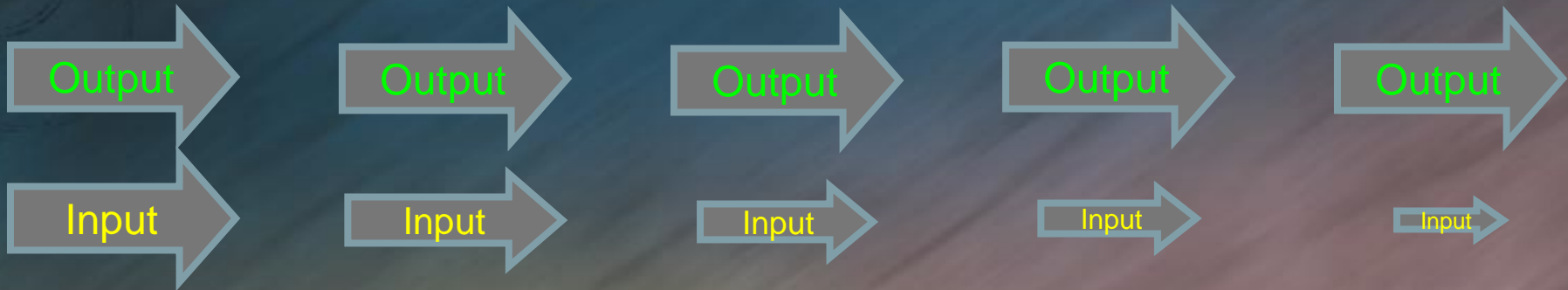
- Lines of Code per Developer?
  - Are lines of code proportional to revenue?

## Alternatives

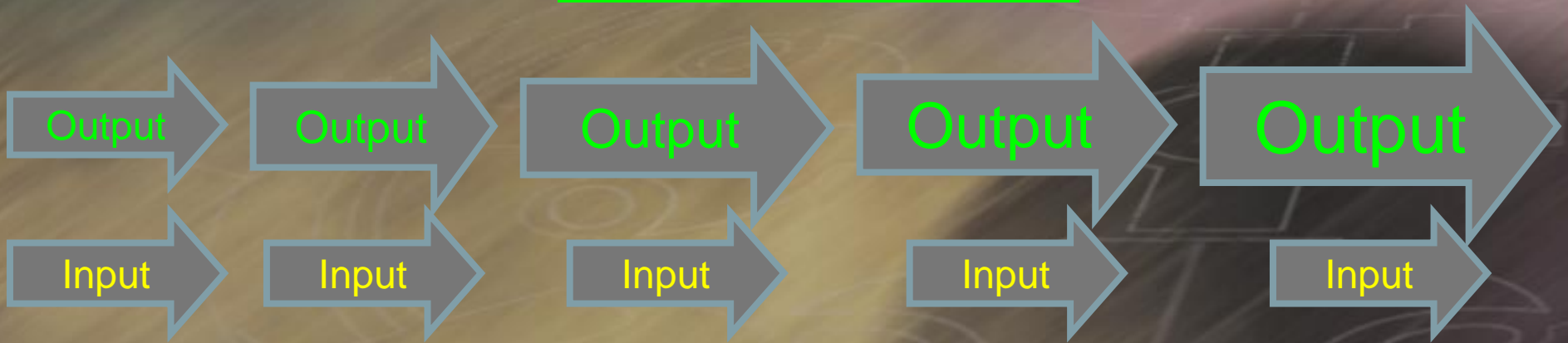
- If you sell software
  - Revenue per employee
- If you have a support organization
  - Increased revenue in the supported business per dollar spent by the IT organization

# Increasing Productivity

## Do Less Work

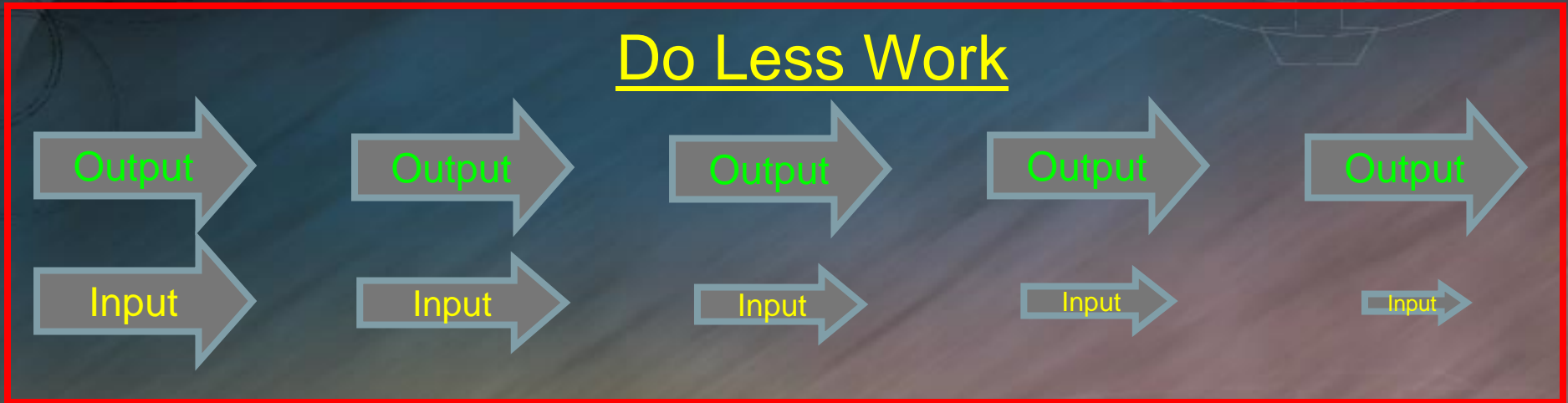


## Create More Value



# Increasing Productivity

## Do Less Work



## 1. Reduce Direct Cost

- Provide only what the customer will pay for

## 2. Reduce Indirect Cost

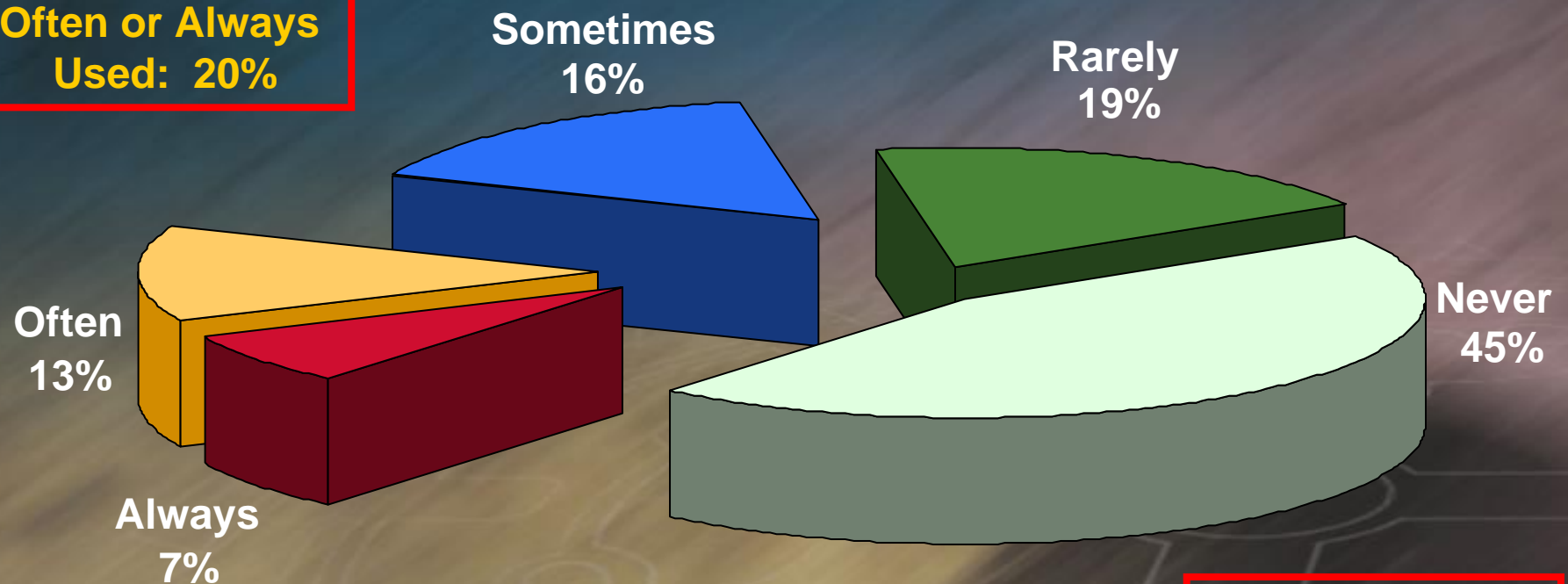
- Streamline processes and eliminate waste

**Productivity Levers**

# 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

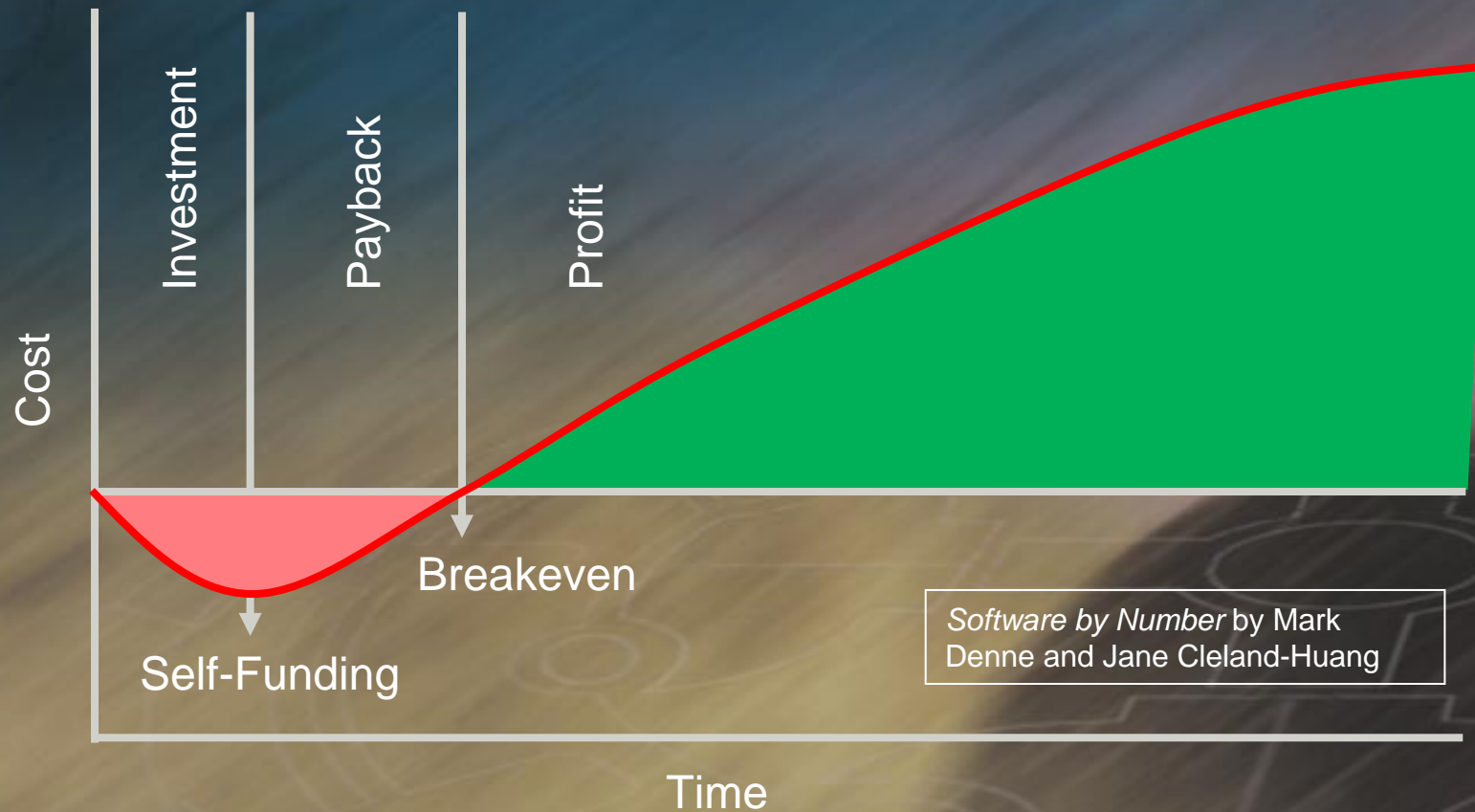
## How?

- 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)

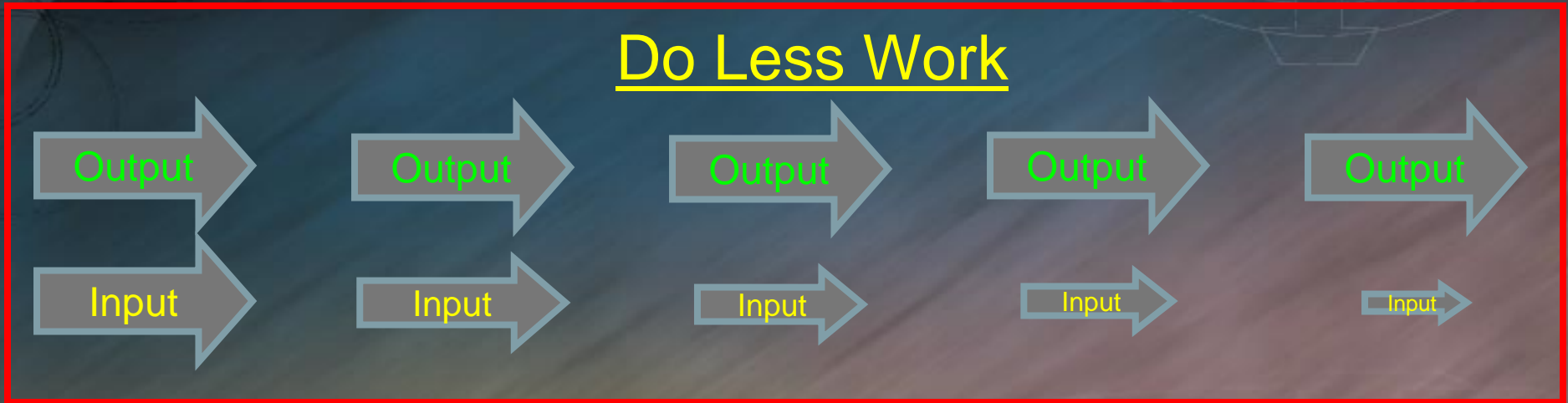
Deploy Early & Often – Move Profit Forward





# 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**

# 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

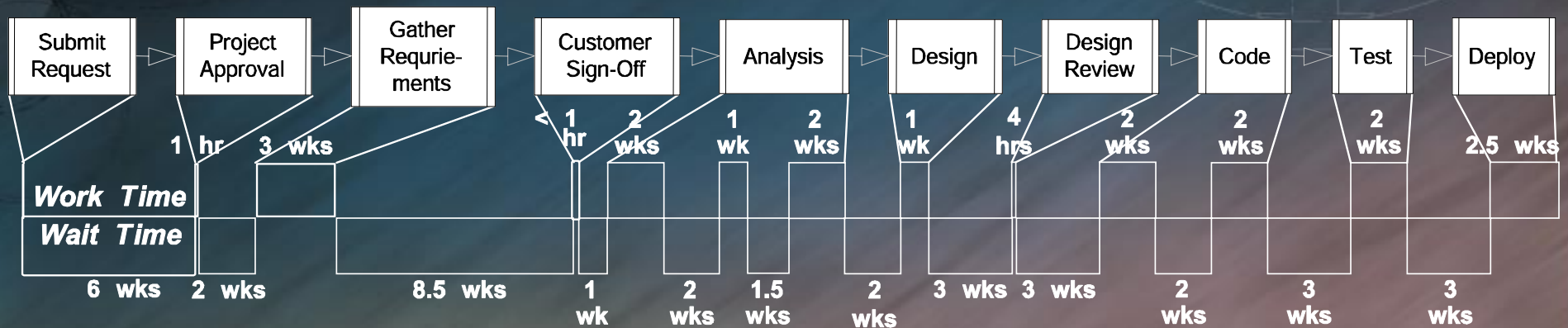
### 2. Kaizen Events

- Eliminate the bottlenecks

### 3. Integrated Product Teams

- Streamline Information

# Traditional Value Stream



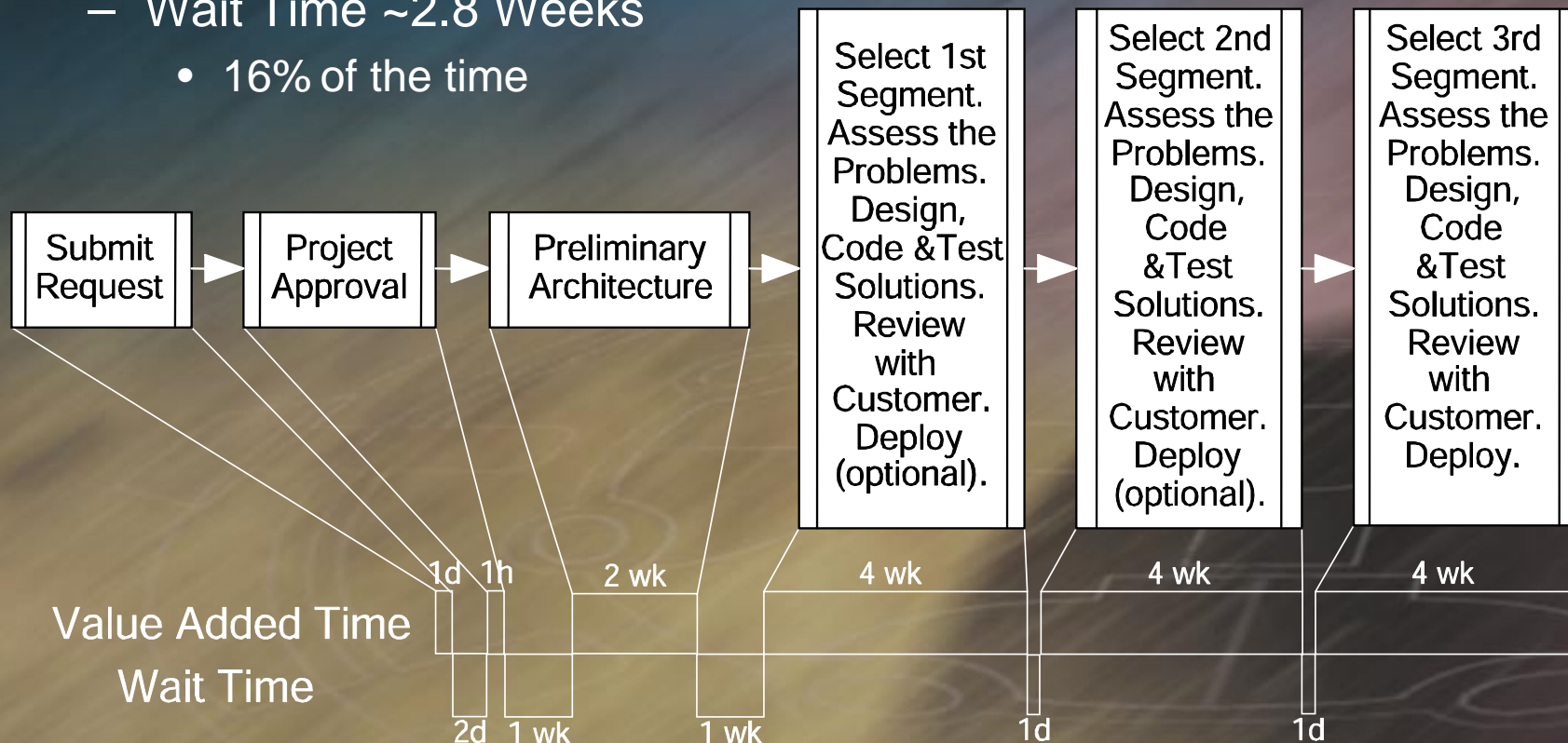
- Total Time: ~55 weeks
  - Work Time ~17.6 weeks
    - 1/3<sup>rd</sup> of the time
  - Wait Time ~37 Weeks
    - 2/3<sup>rd</sup>s of the time

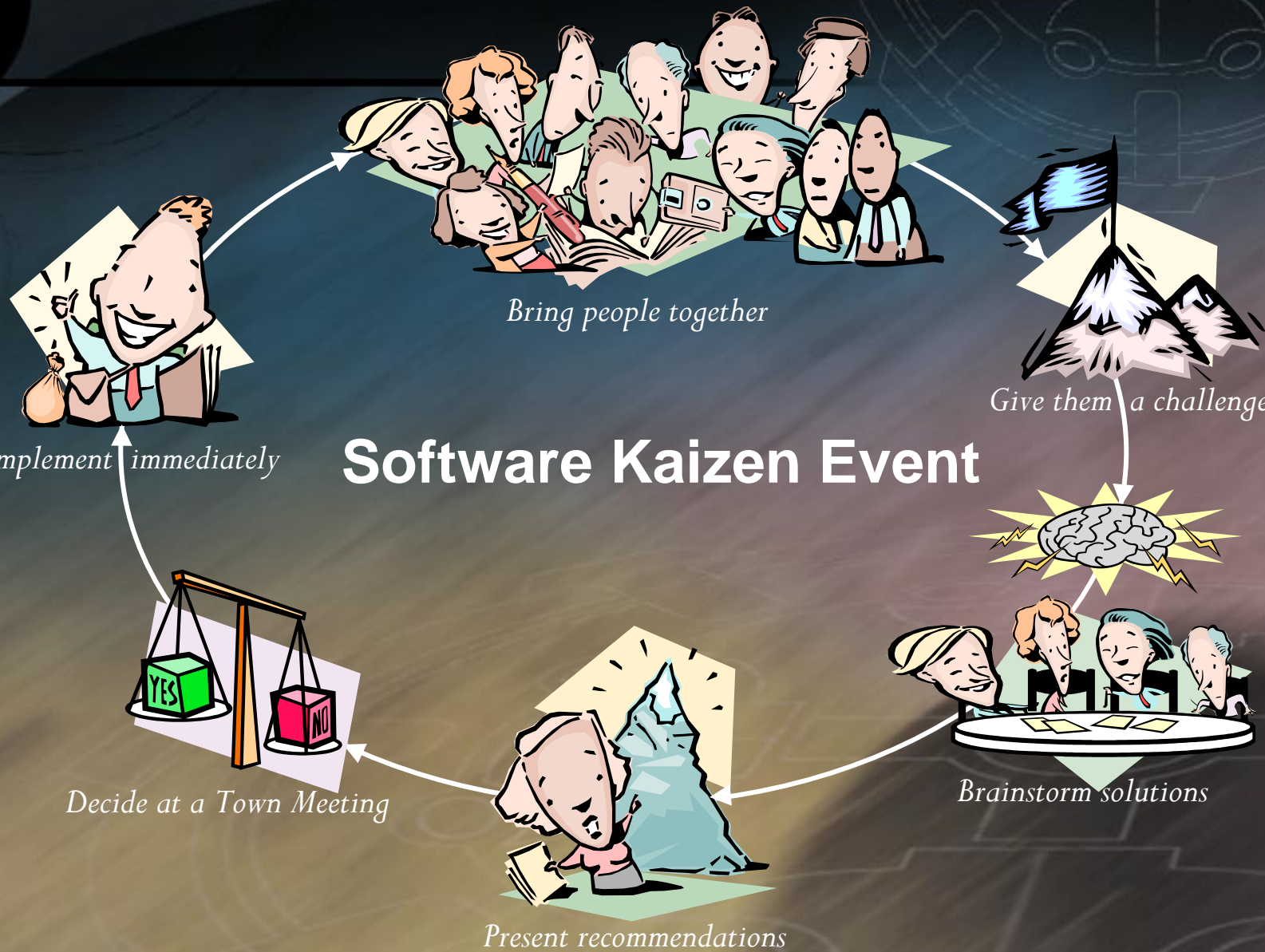
- Bottlenecks:
  - Approvals
  - Sign Offs
  - Design Review
  - Testing
  - Deployment

# 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

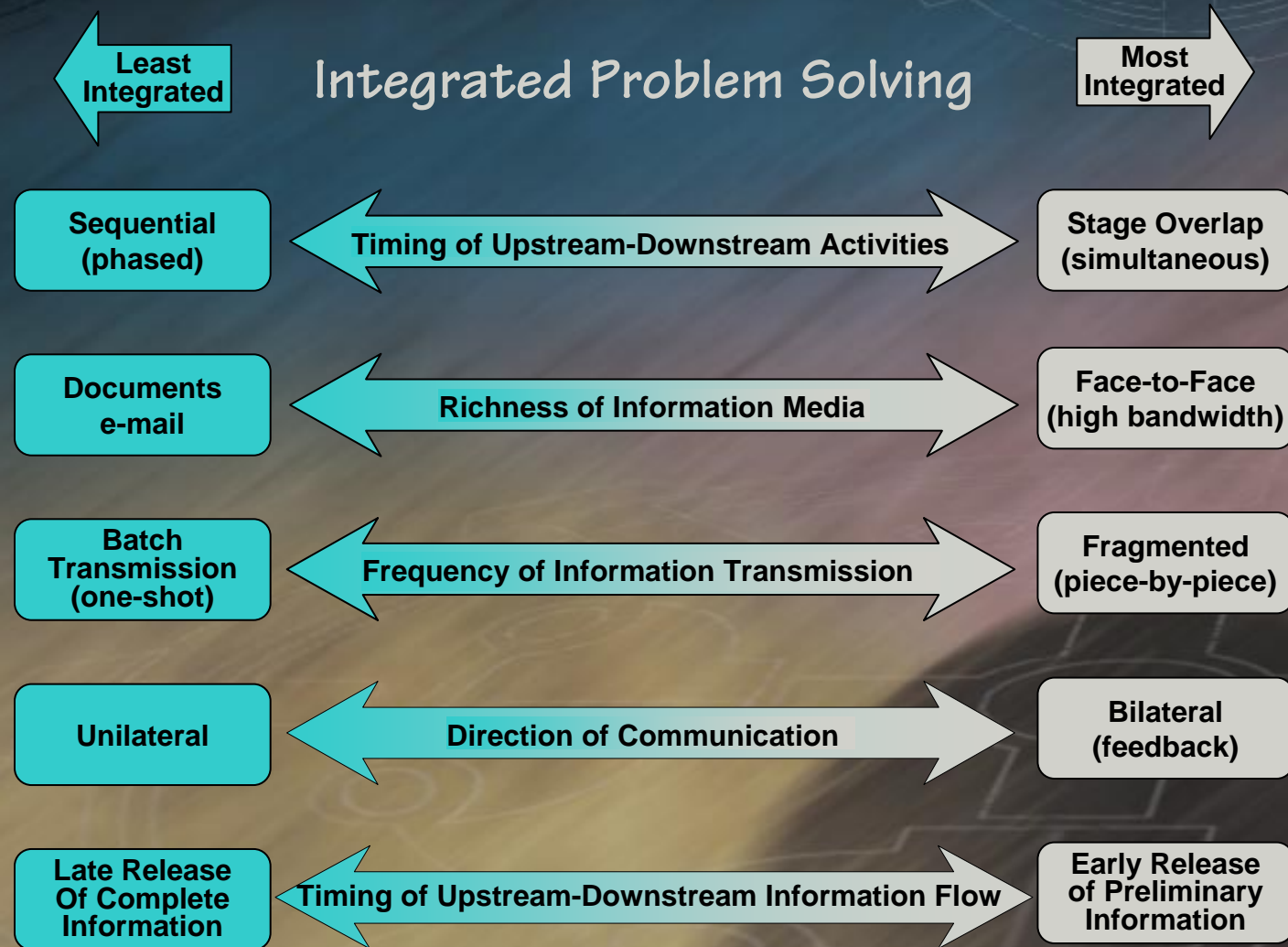
- Levers:
  - Concurrent Development
  - Effective Gating Process





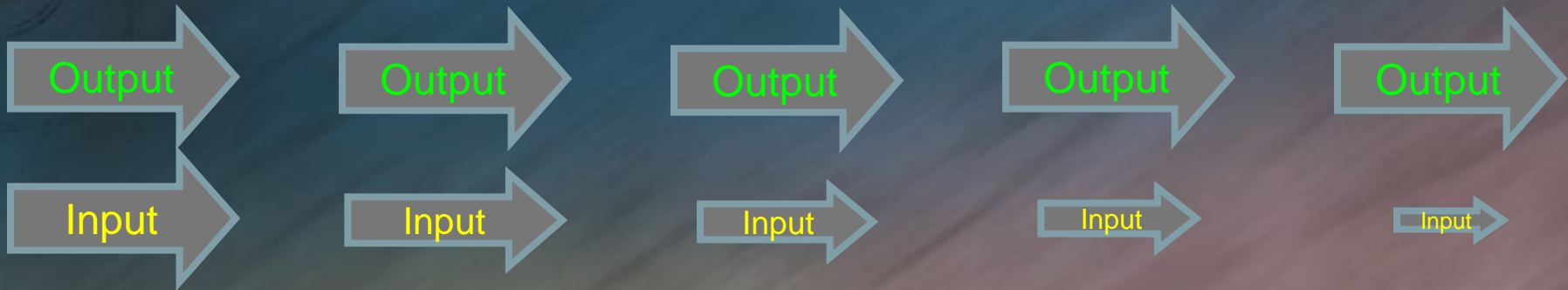
# Software Kaizen Event

# Integrated Product Teams

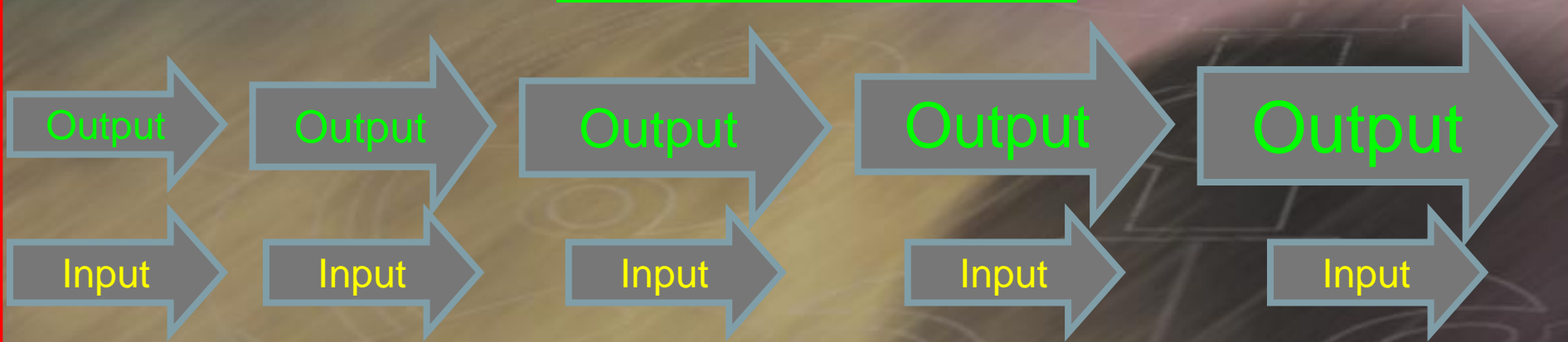


# Increasing Productivity

## 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 21<sup>st</sup> 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!**

**Productivity Levers**



The background features a large, semi-transparent globe in the lower half, with a color gradient from dark blue at the bottom to light yellow at the top. Overlaid on the globe and the upper background are faint, technical diagrams and circuit-like patterns in a light blue or grey color. These diagrams include various geometric shapes, lines, and circular elements, resembling a complex network or a technical drawing. The overall aesthetic is professional and technical.

Thank You!

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