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# Lean Innovation

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# The Impact of a Strong New Product Development Program

# Cincinnati Machine - 1998 OCI Winner


"In the case of Cincinnati Milacron, survival was a primary motivator. The Machine Tool Group's "Wolfpack" development process gets major credit for the company's survival; over two dozen of their competitors were not so lucky. The process has since proven to be a major factor in continued growth and profitability."

# Dead American Machine Tool Companies

# Wolfpack

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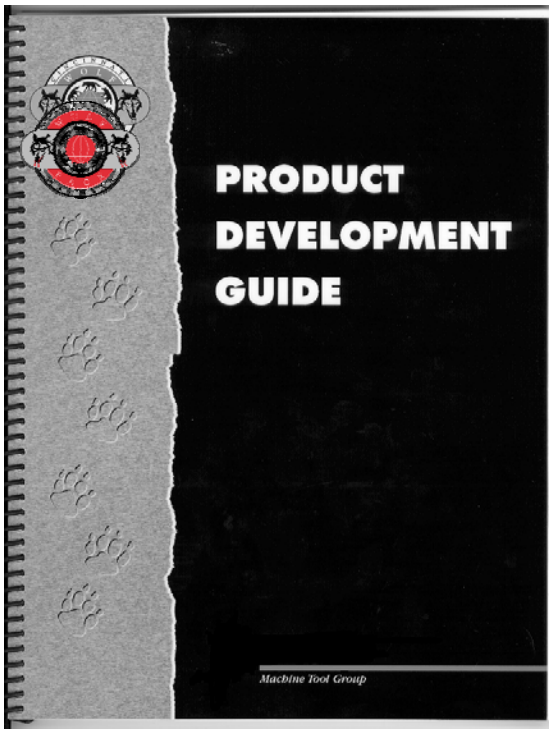
- Product development as a *process*, not a collection of projects

• Aggressive culture: Team leaders as "Killers" (kill or be killed)

• Management plan to re-invent the company



# The Goal

40 % reduction in part count and product costs while developing new product lines in every product category

# Results

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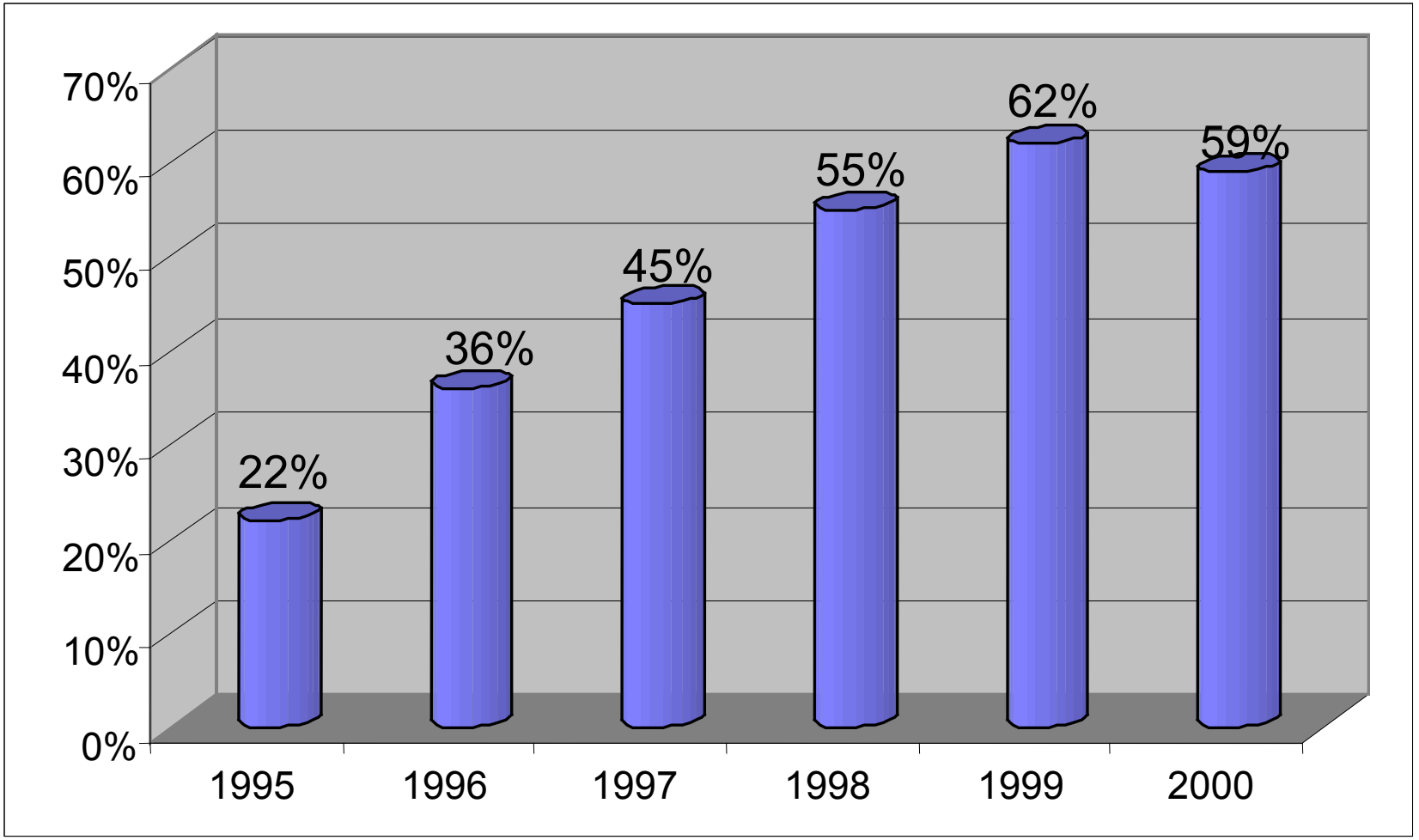
## More New Products



# Results

- In 1990 - $350 in sales and 2,000 machines produced in five factories (3 U.S, 2 Europe).
- By 1998 - $450M in sales and 3,000 machines produced in two factories (1 U.S., 1 Europe) with a 10% PBT.
- Despite the U.S. Machine Tool Industry's Huge Decline (1998 - $7B, 2002 - $2.5B), Remains the 7th Largest Builder in the World.

# Historical Perspective

## Product Development Timeline

| 1887 | 1950s | 1980s | 2005 |
|---|---|---|---|
| Edison's Menlo Park | Critical Path & PERT | Stage Gate, Cross Functionality & Business Process | Lean & Innovation |

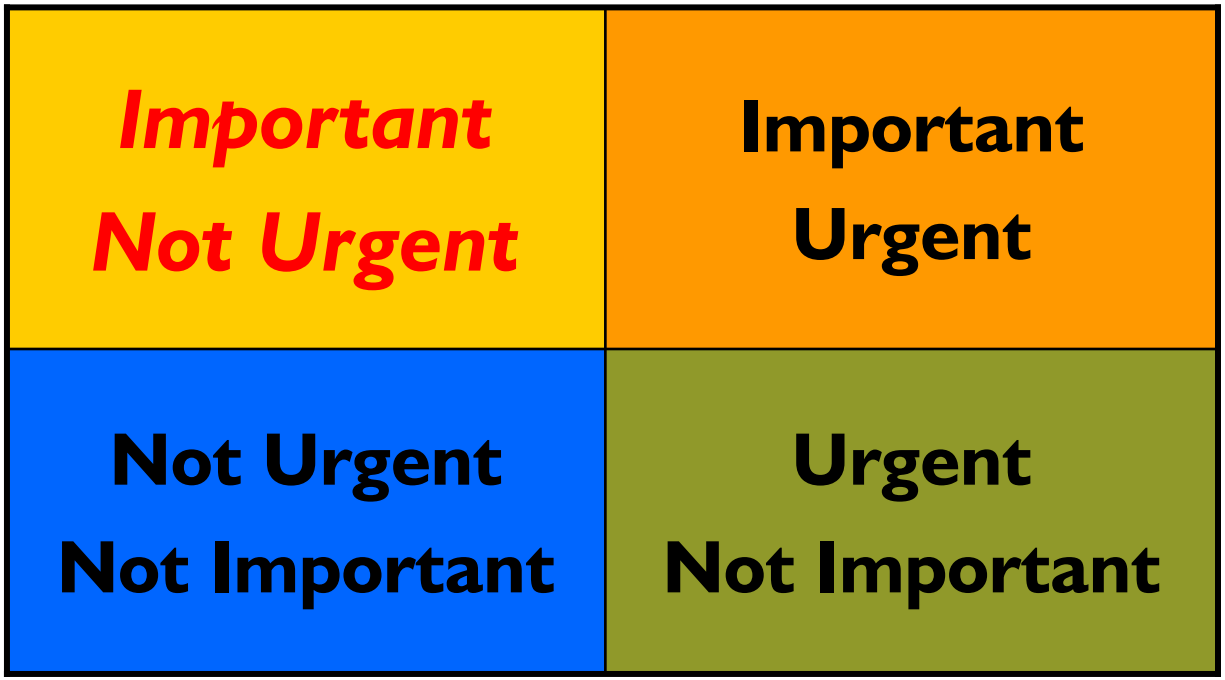
# Current State of NPD

- Poor execution
  - 45% miss profit & ROI objectives
  - 49% are launched behind schedule
  - 43% exceed budget
- Poor product ideas not killed early
  - 46% of NPD resources spent on products that fail
  - 40% of launched products fail
- NPD results not measured by 28% of businesses

*APQC-Product Development Institute -2003 & PDMA CPAS Report - 2004*

# 1. Why So Poor? - Management

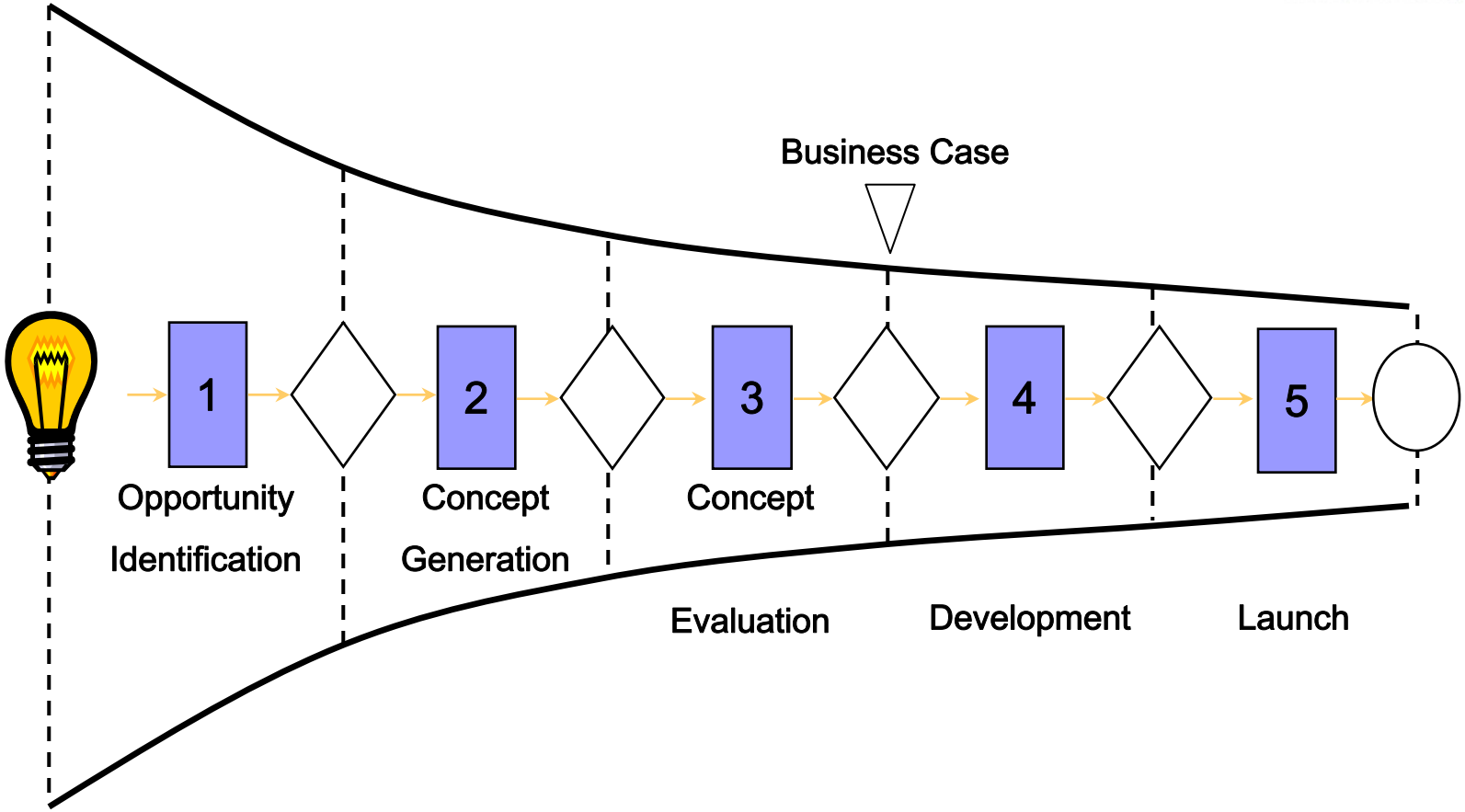
- Management considers product development important but not always urgent



# 1. Why So Poor? - Management

- Management Fails to Support NPD
  - Industry Week Study (2004 - 650 Companies)
    - Product Innovation Ranks Fifth Behind Objectives like Reduced Costs, Increased Revenues, Biz week quote
  - Partnership for Lean Innovation (2005 - 42 Companies)
    - Product Innovation Ranked Fourth Behind Sales & Marketing, Manufacturing and Procurement

# 2. Why So Poor? – Process




Cooper, Robert, *Winning at New Products, 3rd Edition*, Perseus Publishing, 2001

Crawford, Merle & DiBenedetto, Anthony, *New Products Management, 7th Edition*, Chapter 9, Irwin McGraw Hill, 2003

# 2. Why So Poor? – Process

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Positives

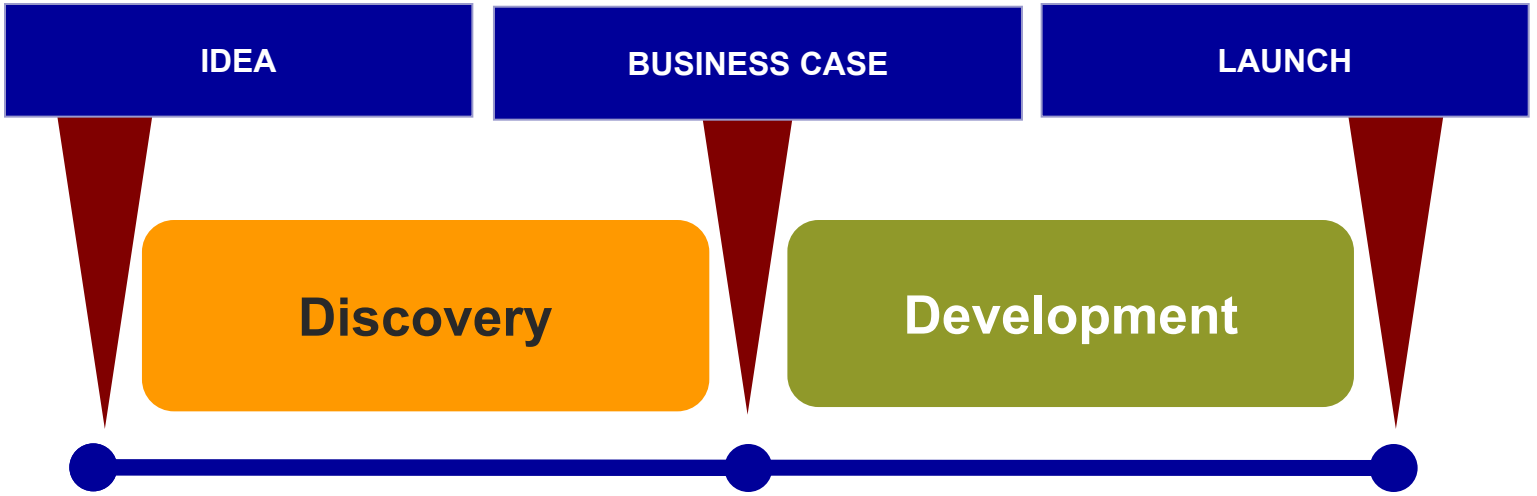
- Process, not collection of projects
- Ownership & accountability
- Management of financial risk

Negatives

- Too sequential
  - Tollgates tie the project to the slowest element
- Large batches
  - Bottlenecks starve downstream capacity
- Slow *AND* Inefficient
- Slave to the process

# 3. Why So Poor? - Innovation

- Too Little Effort Spent in Discovery



# 3. Why So Poor? - Innovation

- Industry Week Study (2004 - 650 Companies)
  - 56% of Respondents “Correct Identification of Customer Needs is a Major Challenge”

- What Percent of Your Time and Money is Spent in Discovery?

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# *However…*

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# NPD Delivers Financial Success

- PDMA Study (2004 = 416 Companies)
  - Profits from new products = 49.1% v. 21.2%
  - Top quartile v. lower three quartiles
- McKinsey Study (2002 = 427 Companies)
  - Profits before taxes = 9% v. 3%
  - Invest in innovation = 10% v. 4%

# and Market Leadership

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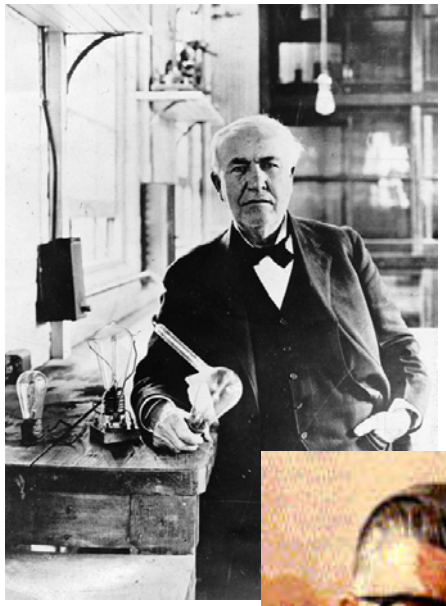


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# What Do We Do?

# Partnership for Lean Innovation

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# Lean Innovation

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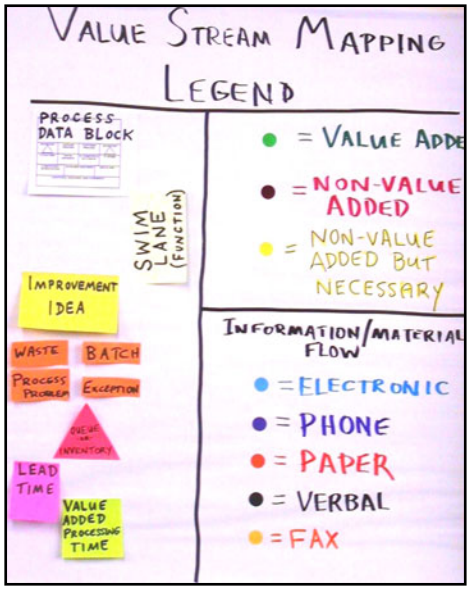
## Innovation

Ideation, Voice of Customer, Product Concept

***What to Develop?***




## Lean

Flow, Value-Add, Continuous Improvement, Pull, Value Stream Mapping

***How to Develop***

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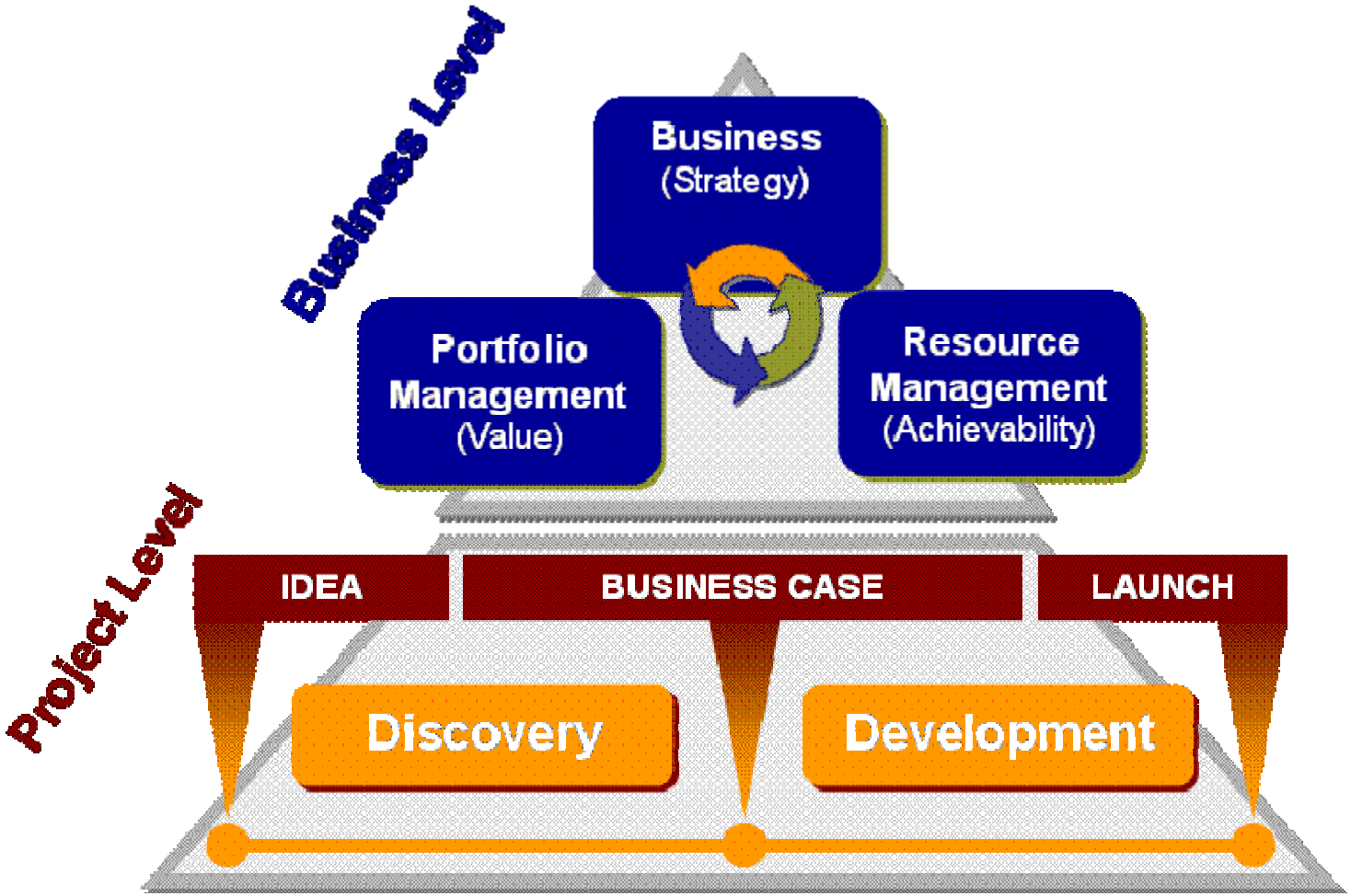
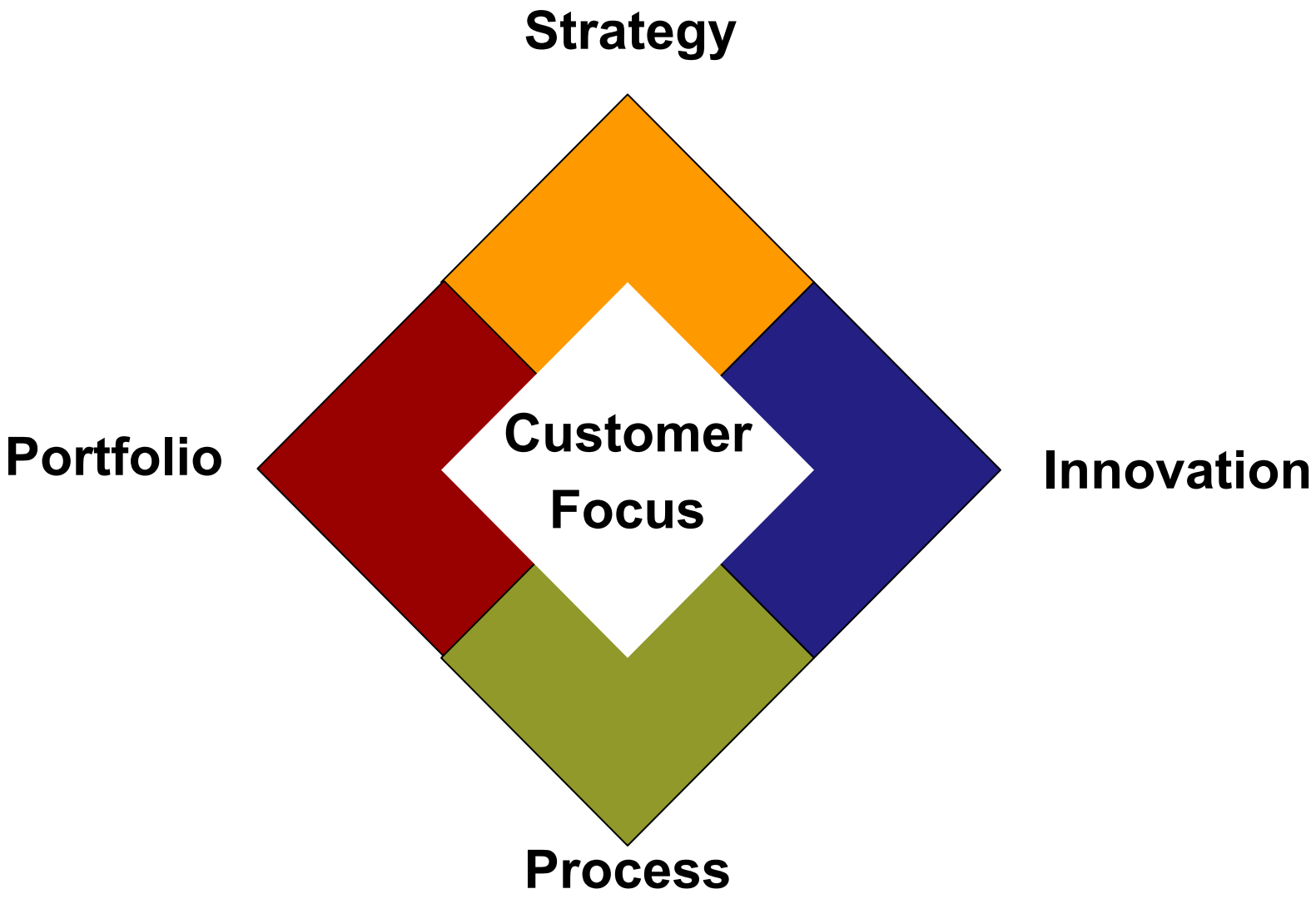
# Lean Innovation Principles

- Engage Management
  - Business Strategy
  - Portfolio & Resource Management
- Lean Out the Process
  - Eliminate Waste and Build Value
- Emphasize Innovation
  - Discovery – the “What to Develop”
  - Invest Early and Get it Right

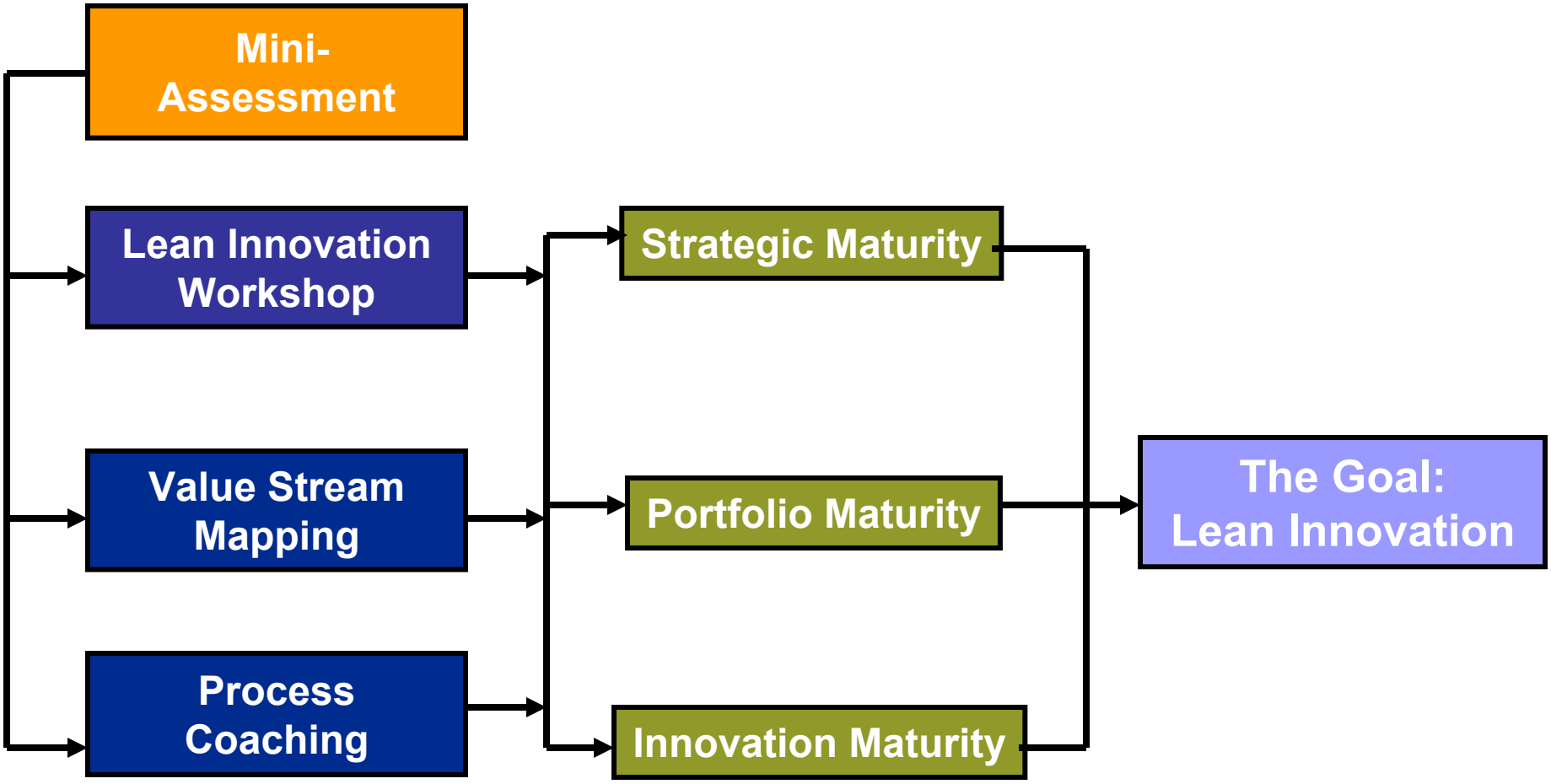
# Lean Innovation Framework



# Lean Innovation Competencies



# Lean Innovation Competencies



# Lean Innovation Goals

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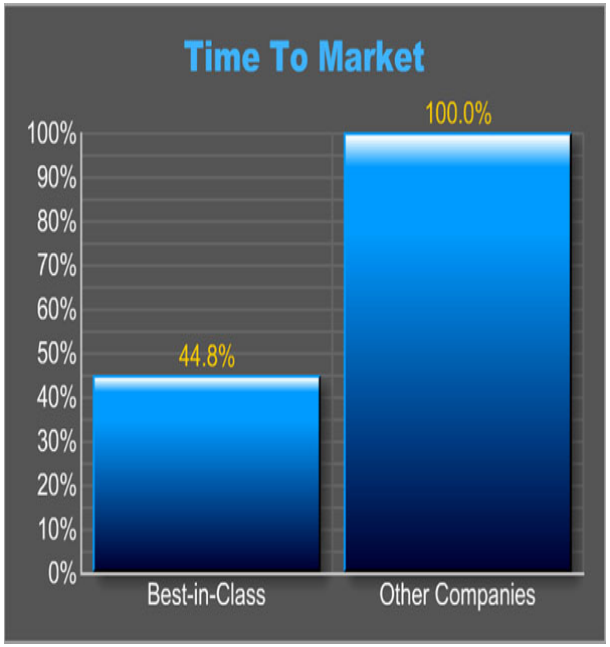
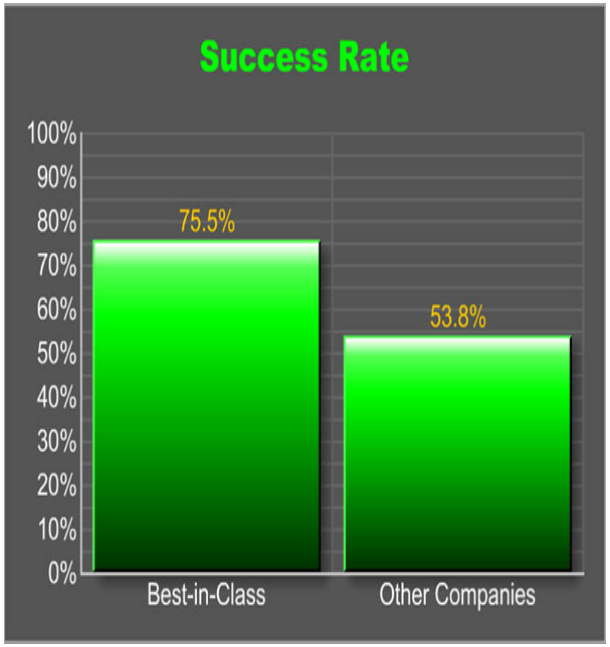
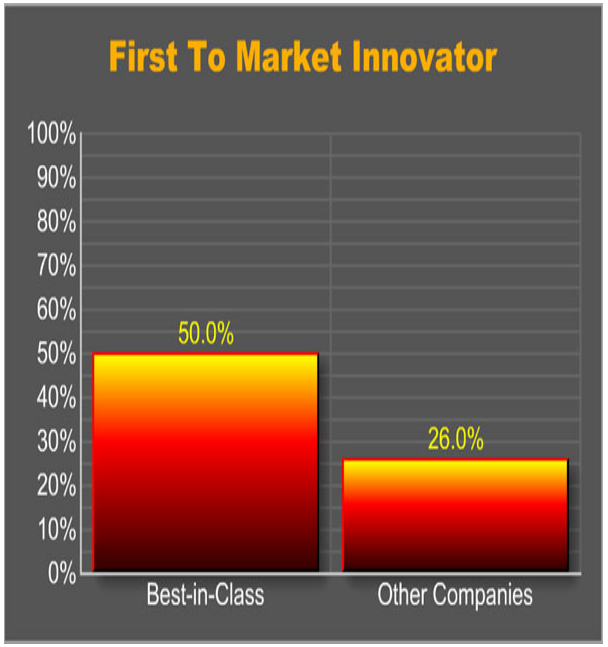
| Reduce Time To Market by 50% | Increase Success Rate by 50% | Increase First To Market by 100% |
|---|---|---|




PDMA Foundation's 2004 Comparative Performance Assessment Study

# Lean Innovation:

# Economic Impact

| | Number of Projects Annually | Typical Duration (Months) | Average Annual Sales per Project ($M) | Typical Margins | Success Rate | Cannibalization Rate (includes higher NP sales) | Annualized Revenues | Annualized Gross Margin$$ |
|---|---|---|---|---|---|---|---|---|
| **Current State** | | | | | | | | |
| Breakthough | 1 | 48 | $5.0 | 50% | 30% | 20% | $1.2 | $0.6 |
| Platform | 1 | 36 | $5.0 | 40% | 40% | 15% | $1.7 | $0.7 |
| Derivative | 5 | 18 | $2.0 | 30% | 60% | 10% | $5.4 | $1.6 |
| Support | 10 | 6 | $0.0 | 10% | 100% | 5% | $0.0 | $0.0 |
| Total | **17** | | | | | | **$8.3** | **$2.9** |
| **Future State** | | | | | | | | |
| Breakthough | 4 | 24 | $10.0 | 50% | 45% | 20% | $14.4 | $7.2 |
| Platform | 4 | 18 | $5.0 | 40% | 60% | 15% | $10.2 | $4.1 |
| Derivative | 5 | 9 | $1.0 | 30% | 90% | 10% | $4.1 | $1.2 |
| Support | 10 | 3 | $0.0 | 10% | 150% | 5% | $0.0 | $0.0 |
| Total | **23** | | | | | | **$28.7** | **$12.5** |

**Company's Current Performance**
**Lean Innovation Results**
**Lean Innovation Impact**