Innovation Performance:
The Good, The Bad, and The Worthy

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The Ugly

- Urban Legend: New products failure rate = 80% or More!

- No. Not true. Not even close.
  - But the myth is well established
  - You may need to counter this perception with facts

Eli Wallach as Tuco
RareGallery.com

Castellion, George; Markham, Stephen; *New Product Failure Rates: Influence of Argumentum ad Populum and Self-Interest*, Journal of Product Innovation Management, 2013:30(5):976-979

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The Ugly

- Sources of the Myth
  - Castellion/Markham cite 15 published sources, and estimate 100+
  - Including:
    - Harvard Business Review
    - Wall Street Journal
    - US Department of Commerce
    - and many more books, journals, and magazines
- Why?
  - self-interest of practitioners, consultants, research providers, etc.
  - perhaps people are counting *ideas*, not projects, particularly for Phase-Gate-style processes

Castellion, George; Markham, Stephen; *New Product Failure Rates: Influence of Argumentum ad Populum and Self-Interest*, Journal of Product Innovation Management, 2013:30(5):976-979

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The Bad

- The true average failure rate is about 40%
  - Clearly, this is not good.

- This has been consistently verified in many studies
  - Crawford, C.M. (1977, 1987)
  - Cooper, R.G. (1979, 1980, 1986, 1993)
  - PDMA (1997, 2003, 2009, 2013)

Lee Van Cleef as Angel Eyes
RareGallery.com

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The Bad

- Not good, and not improving

	2012	2004	1995	1990
Number of firms	453	416	383	189
Successes	61.0%	59.0%	59.0%	58.0%
Success-profits	56.2%	54.2%	54.6%	N/A
Sales from new products	31.1%	28.0%	32.4%	32.6%
Profits from new products	30.8%	28.3%	30.6%	33.2%
Number of ideas for one success	8.7	7.2	6.6	11.0

N/A, not available.

Successes = Launched product succeeded in the market
Sales from new products = sales of products introduced in past five years as percent of total company sales
Profits from new products = profits of products introduced in past five years as percent of total company profits

Markham, S., Lee H., *Product Development and Management Association's 2012 Comparative Performance Assessment Study*, JPIM, 2013

The Bad

- Why 40%?
  - This is real, validated performance on measurements of success
  - These are actual projects that get introduced to the market
  - It is very difficult to be successful on all attributes of market success

- My observations
  - Development is not a normal business process
  - It is a complex system with long lead times and slow feedback loops
  - Such a system is very difficult to manage with high performance

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The Good

- The Best and The Rest
  - It is clear that some firms are good at development

Project Metric	Average Companies	Best Companies
Percent Launched On Schedule	51%	79%
Percent Completed On Budget	57%	79%
Percent Meeting Sales Objectives	55%	74%
Percent Meeting Profit Objectives	56%	77%
Percent Commercially Successful	60%	79%

Clint Eastwood as
The Man with No Name
RareGallery.com

Cooper, R., Edgett, S., *Benchmarking Best Practices: Performance Results and the Role of Senior Management*, 2003

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The Good

- The Best and The Rest
  - more evidence of firms that are good at development

	2012	
	The Best	The Rest
Number of firms	88 (24.6%)	270 (75.4%)
Successes	82.2%	52.9%
Success-profits	78.2%	47.9%
Sales from new products	47.9%	25.4%
Profits from new products	48.5%	25.0%
Number of ideas for one success	4.5	11.4

Markham, S., Lee H., *Product Development and Management Association's 2012 Comparative Performance Assessment Study*, JPIM, 2013

The Good

- So why do The Best do better?

Companies with a reputation for innovation

Various Source Lists, https://www.forbes.com/innovative-companies/list/#tab:rank , https://www.fastcompany.com/90603436/the-worlds-most-innovative-companies-2021, https://www.bcg.com/publications/most-innovative-companies-historical-rankings, Most Widely Known Firms

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The Good

- My observations
  - as a complex process, innovation requires a good leadership system
  - innovative firms seem to lead with good methods
    and simple countermeasures to manage complexity

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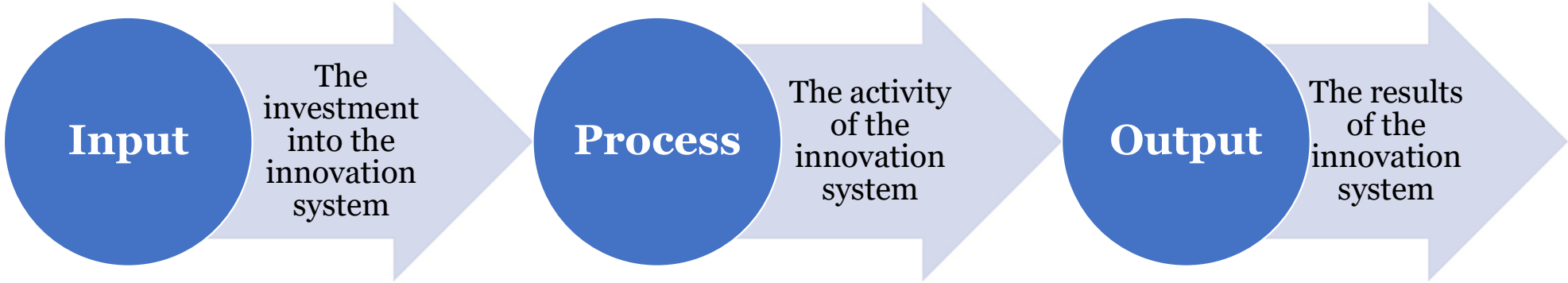
The Worthy

- Categories of Innovation Performance



Navarre, L. (ed), Innovation Development Excellence, 2018-2023

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The Worthy

- Input Metrics (Investment)
  - Percent of Sales Budget
    - Most firms budget development expenses by as a percent of sales
    - 2-4% of sales for a typical industrial firm
    - Up to 10+% for high-tech firms with short product life cycles
  - Development is not investment!
    - At least to accountants
    - The temptation to cut R&D to improve short-term profit is hard to resist

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The Worthy

- Process Metrics (Project Management)
  - Project Budget and Expense Variance
  - Schedule Task Completion
  - Schedule Adherence
  - Project Cycle Time
  - Completion of Deliverables (Project Plan/Goal)
  - Benefits of Deliverables (Post-Project Tracking)

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The Worthy

- Output Metrics (Sales Revenue)
  - Percent of Sales from New Products
    - The most common measure of new product sales performance
    - 10% - 80% of Sales
    - Depends on the company, industry, definition, etc.
    - Very challenging to maintain consistent performance
- Output Metrics (Profit)
  - Breakeven Period
    - Number of months of sales margin necessary to payback development expense
  - Gross Margin
    - Price is typically determined by market
    - Cost is determined in design, and must be evaluated throughout development
  - Return on Investment (ROI)
    - Financial measurement to estimate overall financial success

Navarre, L. (ed), Innovation Development Excellence, 2018-2023

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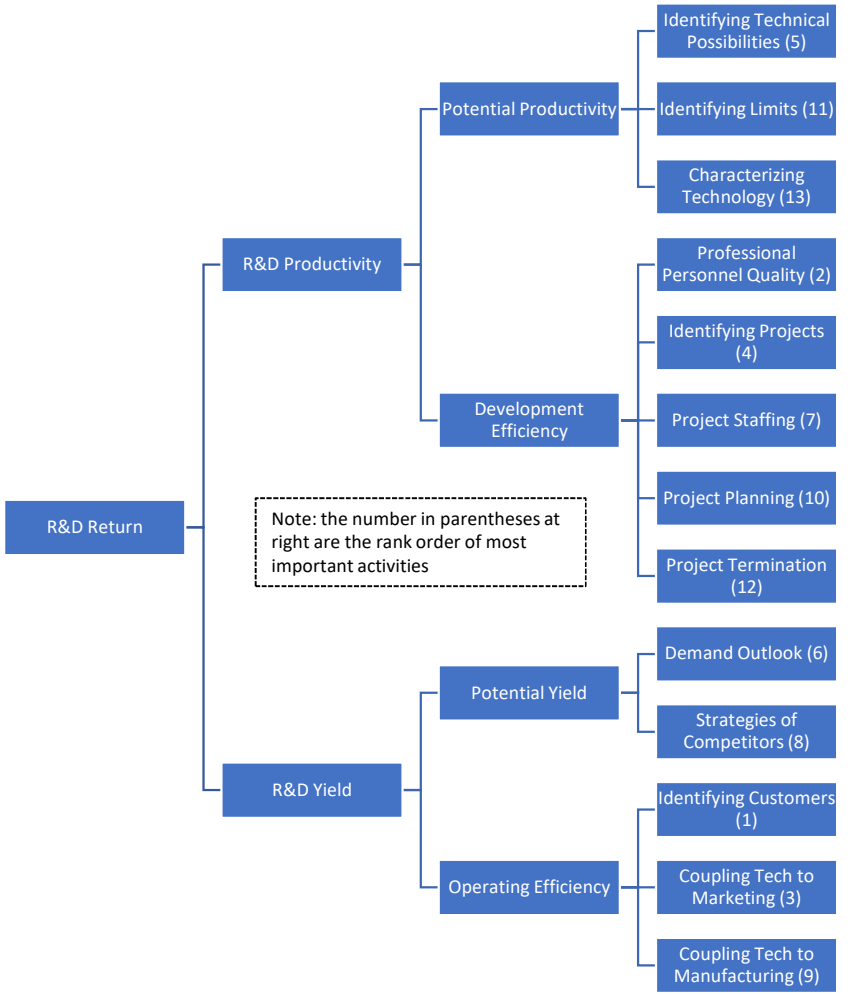
The Worthy

- How do we demonstrate value in Innovation?
  - Research and experience consistently demonstrate two basic themes:
    - Efficiency
    - Effectiveness
  - We should measure the innovation system accordingly



Adapted from: Foster/Linden/Whiteley/Kantrow, *Improving the Return on R&D - II*, R&D Return Framework – High Return Activities, The Journal of Science Policy and Research Management, Vol.2(4), (1987)

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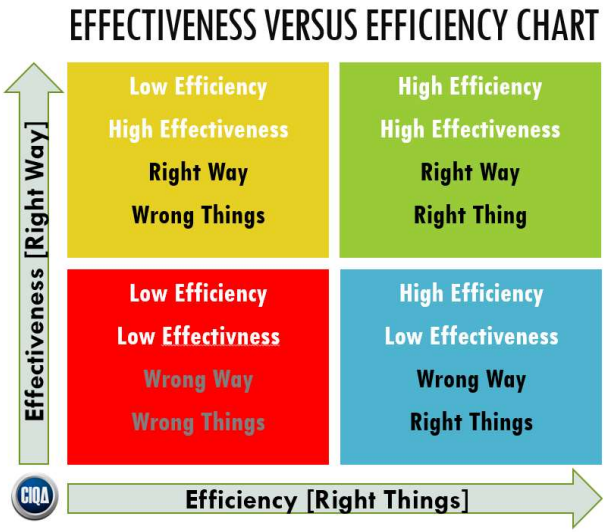
The Worthy

- Efficiency Defined
  - Classic Economics:
    - Using the least amount of inputs to achieve highest amount of output
  - Innovation:
    - From Dantar Oosterwal: The amount of change an organization can affect in a period of time. This is generally measured as the number of projects of a particular type an organization can deliver in a year.
- Effectiveness
  - Classic Marketing:
    - Increasing revenue while decreasing customer acquisition cost
  - Innovation
    - From Dantar Oosterwal: The 'lift' a company realizes from development as measured in terms of revenue, profit, market share, etc. What ever 'lifts' the organization.

$$Efficiency = \frac{Output}{Input}$$



https://ciqa.net/what-is-effectiveness-versus-efficiency-according-to-lean-six-sigma/

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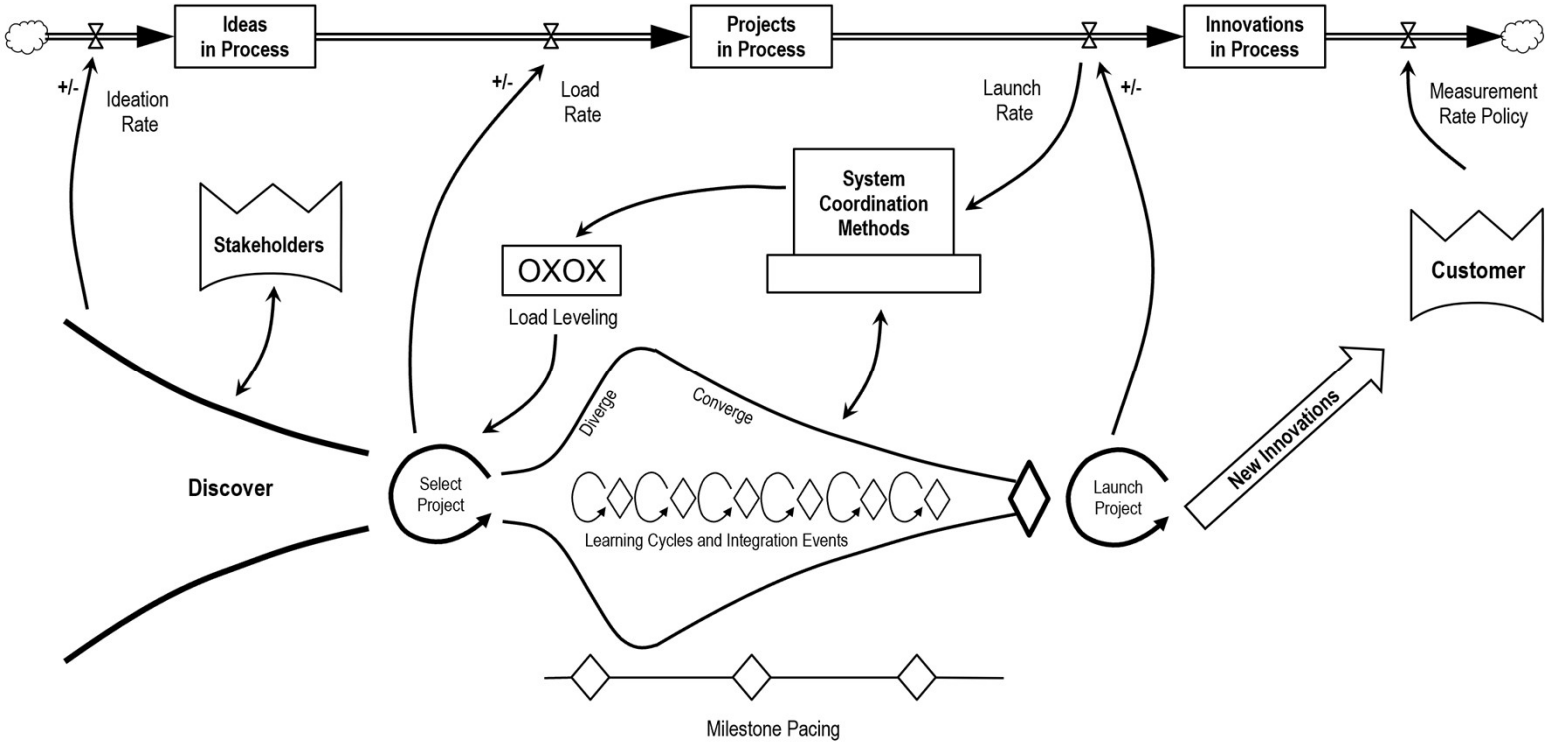
The Worthy

Viewing the Innovation System as a Dynamic System



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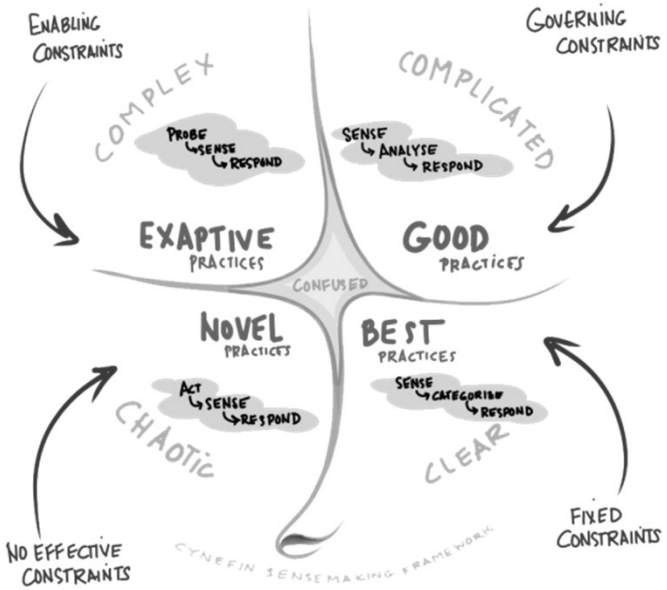
The Worthy

- Asymmetric Gains in Innovation

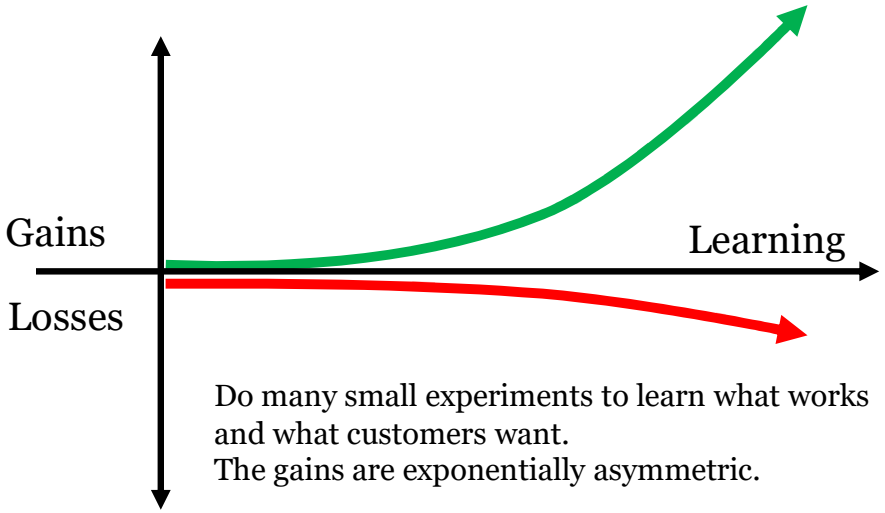
"People aren't dumb. The world is hard."
– Richard Thayler, behavioral economist

Cynefin



https://thecynefin.co/about-us/about-cynefin-framework/

Convexity



Do many small experiments to learn what works and what customers want.
The gains are exponentially asymmetric.

Adapted from: https://www.edge.org/conversation/nassim_nicholas_taleb-understanding-is-a-poor-substitute-for-convexity-antifragility

The Worthy

- Development performance must improve

Innovation is not an altruistic activity to be done as an end in itself.

Adequate investment is the fundamental leadership activity…
…then, follow up with expectations for high performance.

The innovation system must deliver high performance but,
operating a high-performing system is very challenging.

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Workshop: Thursday 1pm-4pm

Innovation Performance:

The Good, The Bad, and The Worthy

This workshop will guide the development of a system to improve Innovation Performance. Attendees will actively define measurements, structure a measurement process, and plan implementation of the system.

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Summary

1. The Ugly – No. New product failure is NOT 80%.
2. The Bad – We can, and must, do better.
3. The Good – Exceed an 80% success rate.
4. The Worthy – Demonstrate the value of innovation.

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