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15.912 Technology Strategy

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Strategy and Product Development at Medtronic

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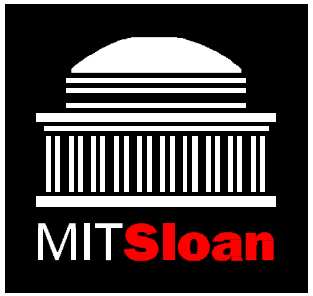
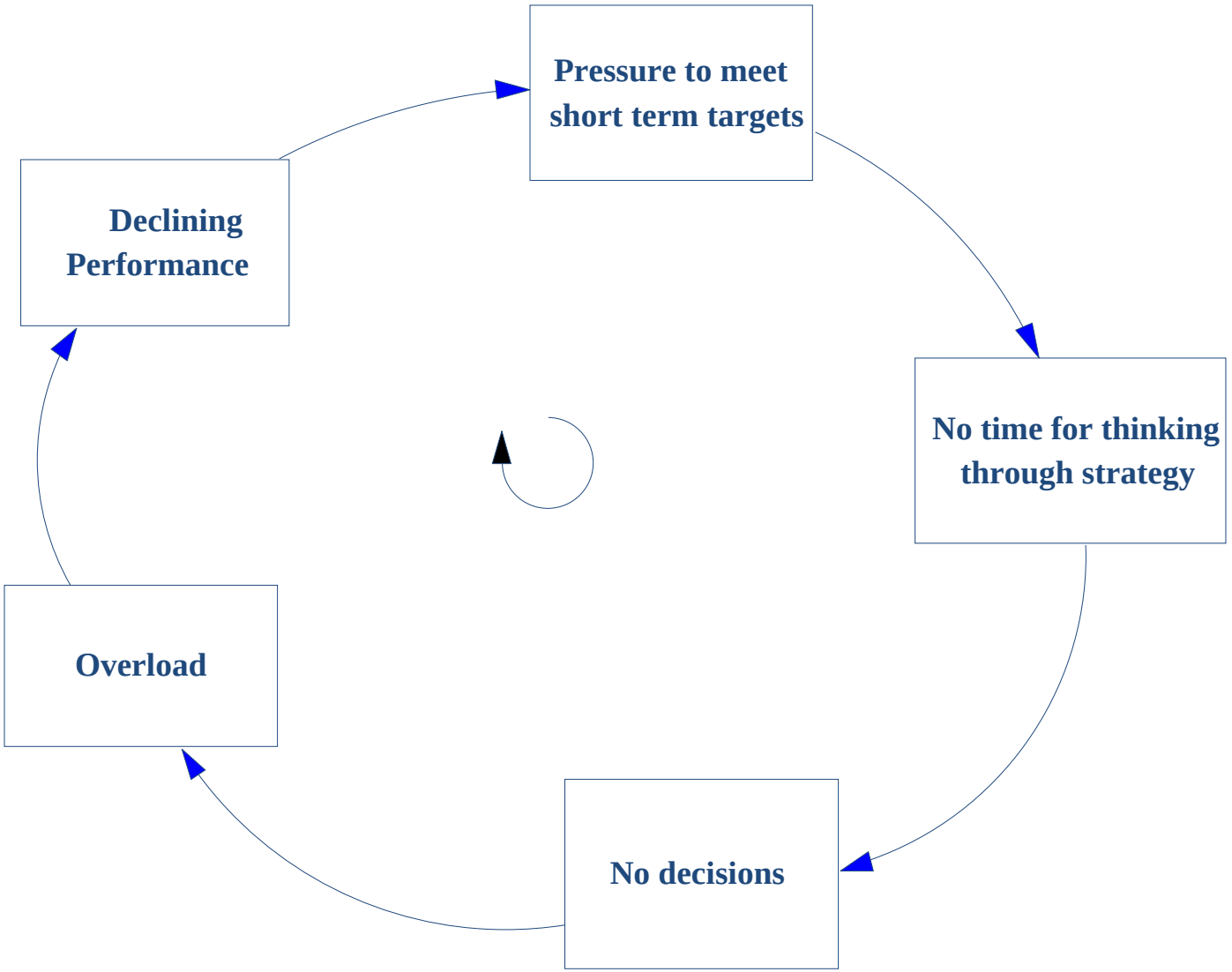
MIT Sloan School of Management



What went wrong?

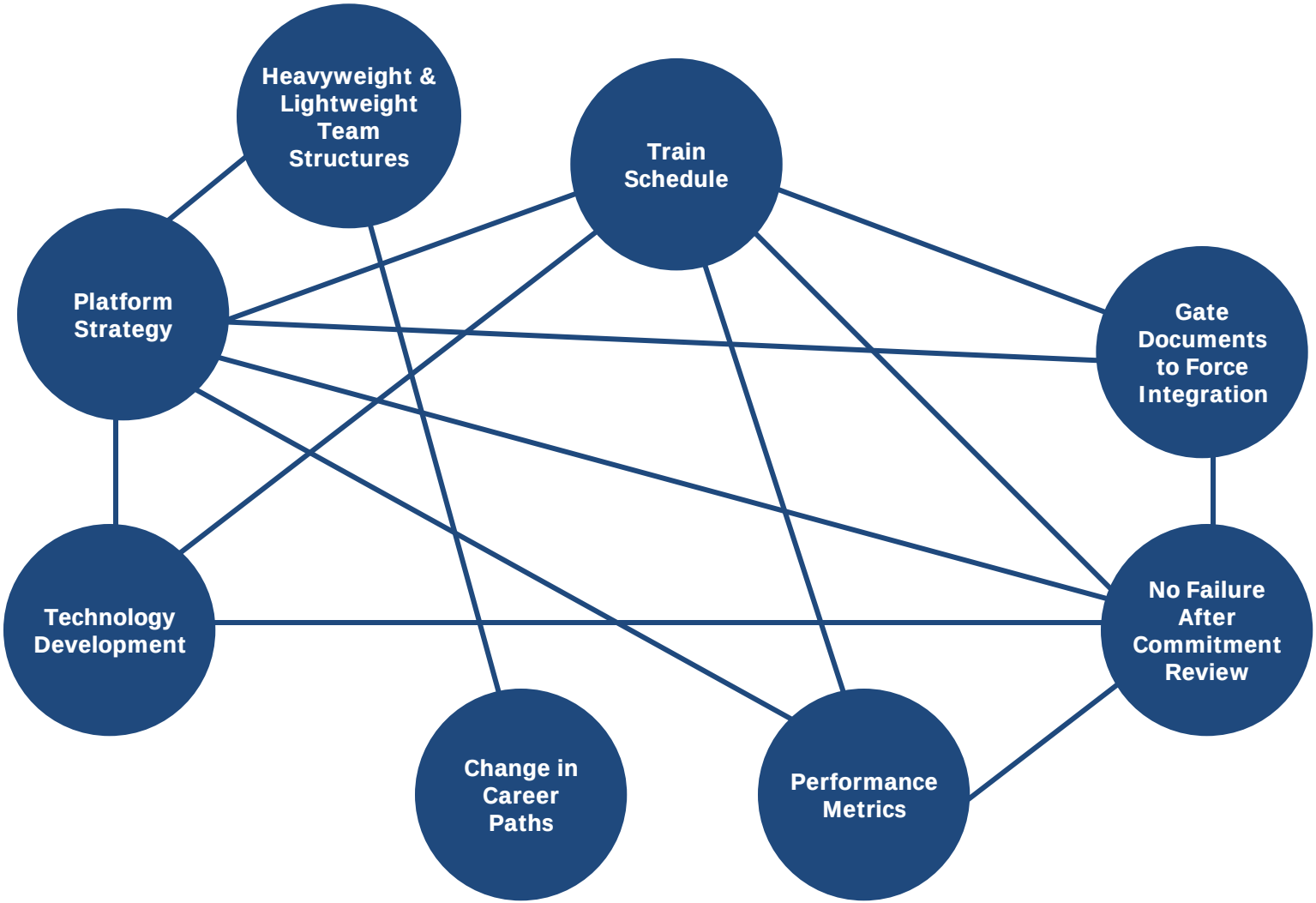


How was it fixed? “Best Practice”

- Clear, committed leadership
- Well articulated strategic goals
  - “He cleaned up the front end…”
- Coherent management philosophy
- Measures and incentives
- Processes and practices
- A sense of urgency

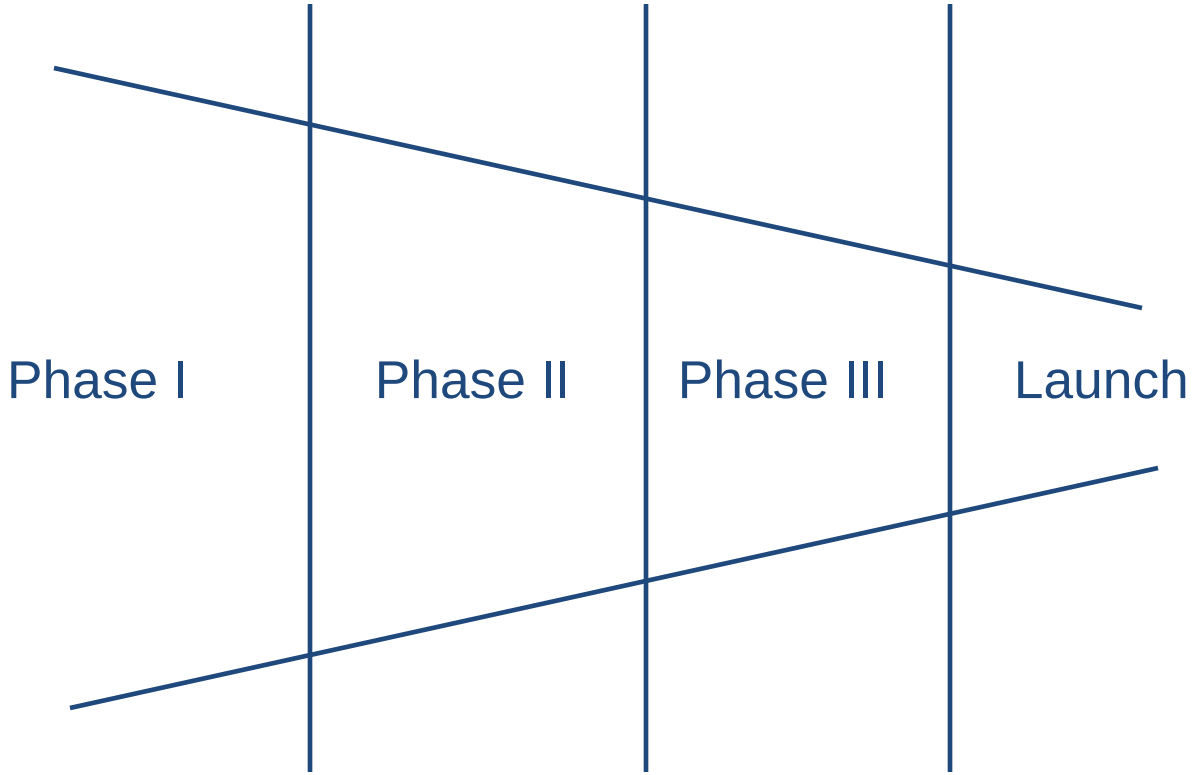
- <u>That reinforce each other</u>

Medtronic's Activity System

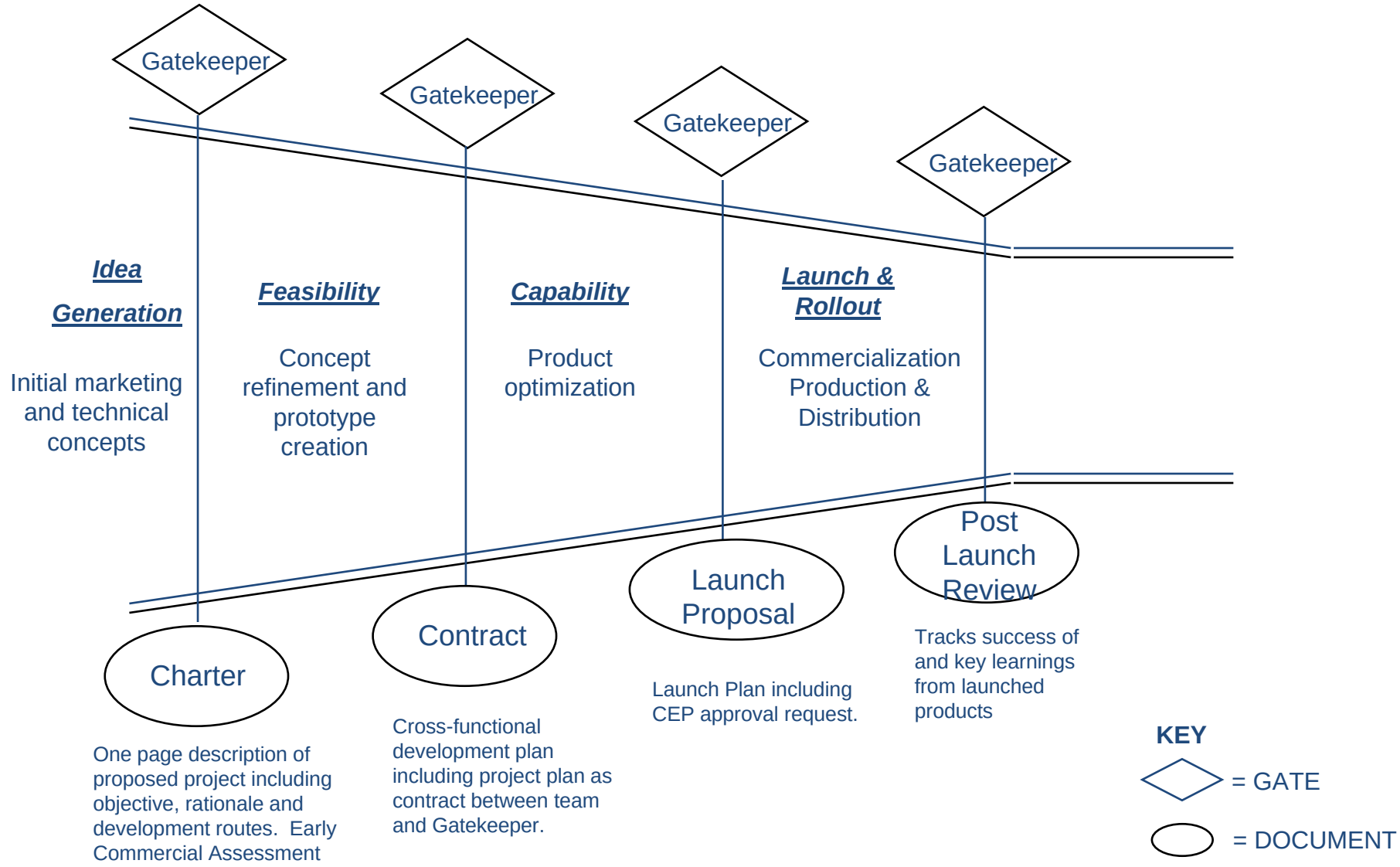


Funnels & Project Plans

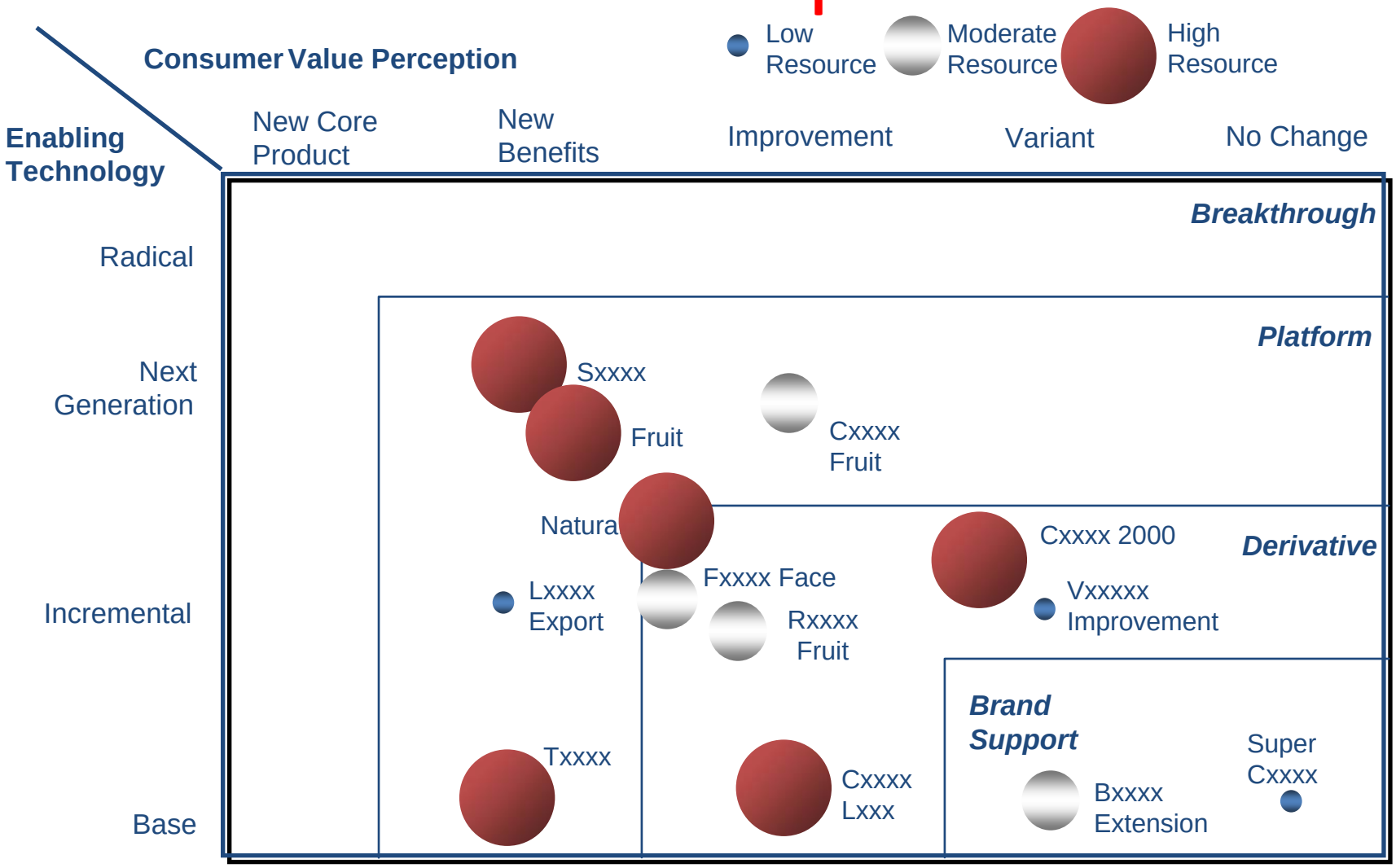
The innovation funnel



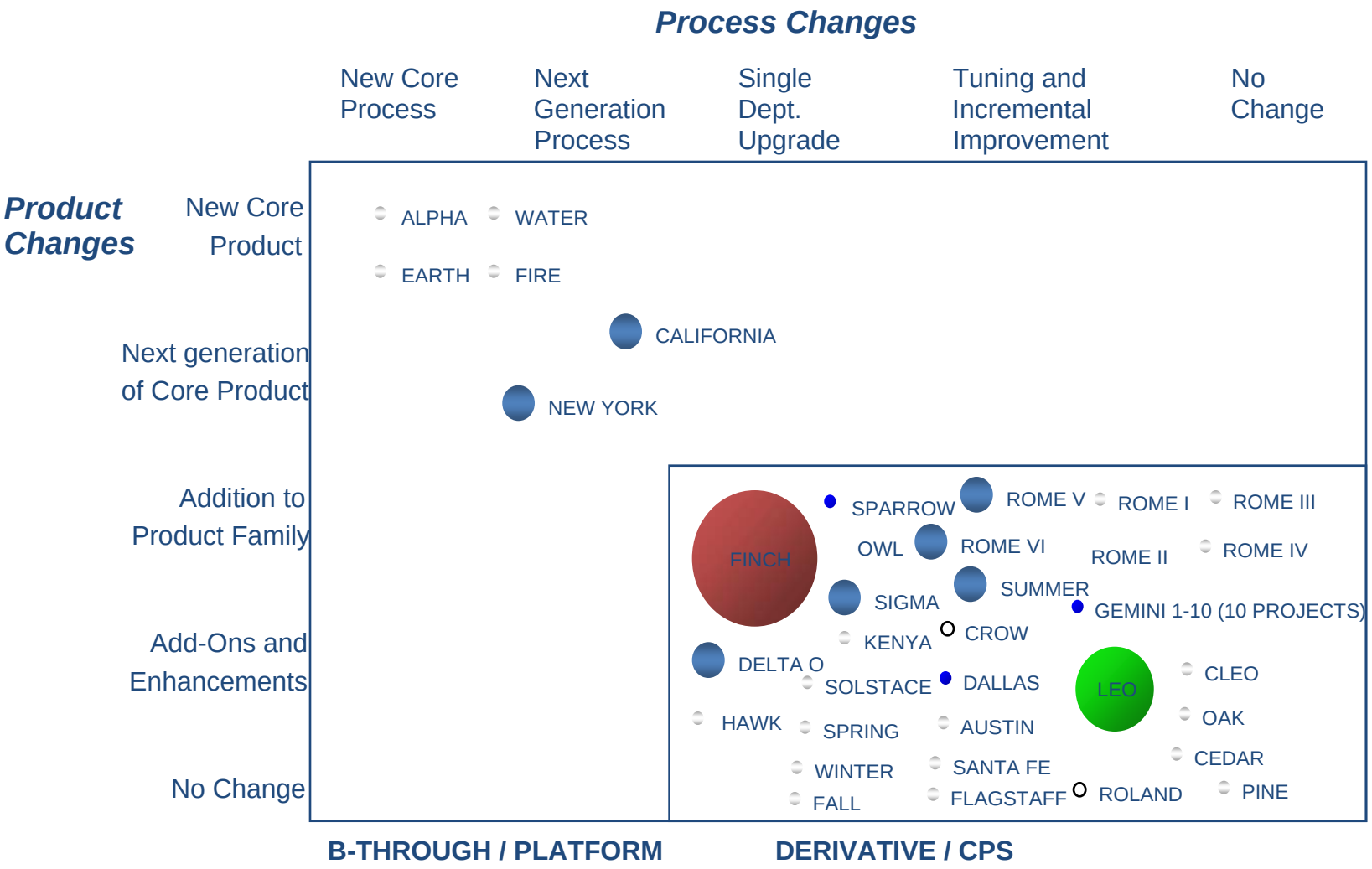
An Innovation Funnel Example



An Example


Consumer Value Perception
Enabling Technology
Low Resource
Moderate Resource
High Resource
New Core Product
New Benefits
Improvement
Variant
No Change
Radical
Next Generation
Incremental
Base
Breakthrough
Platform
Derivative
Brand Support
Sxxxx
Fruit
Cxxxx Fruit
Natura
Cxxxx 2000
Lxxxx Export
Fxxxx Face
Rxxxx Fruit
Vxxxxx Improvement
Txxxx
Cxxxx Lxxx
Super Cxxxx
Bxxxx Extension

Before: Medical Products Co.

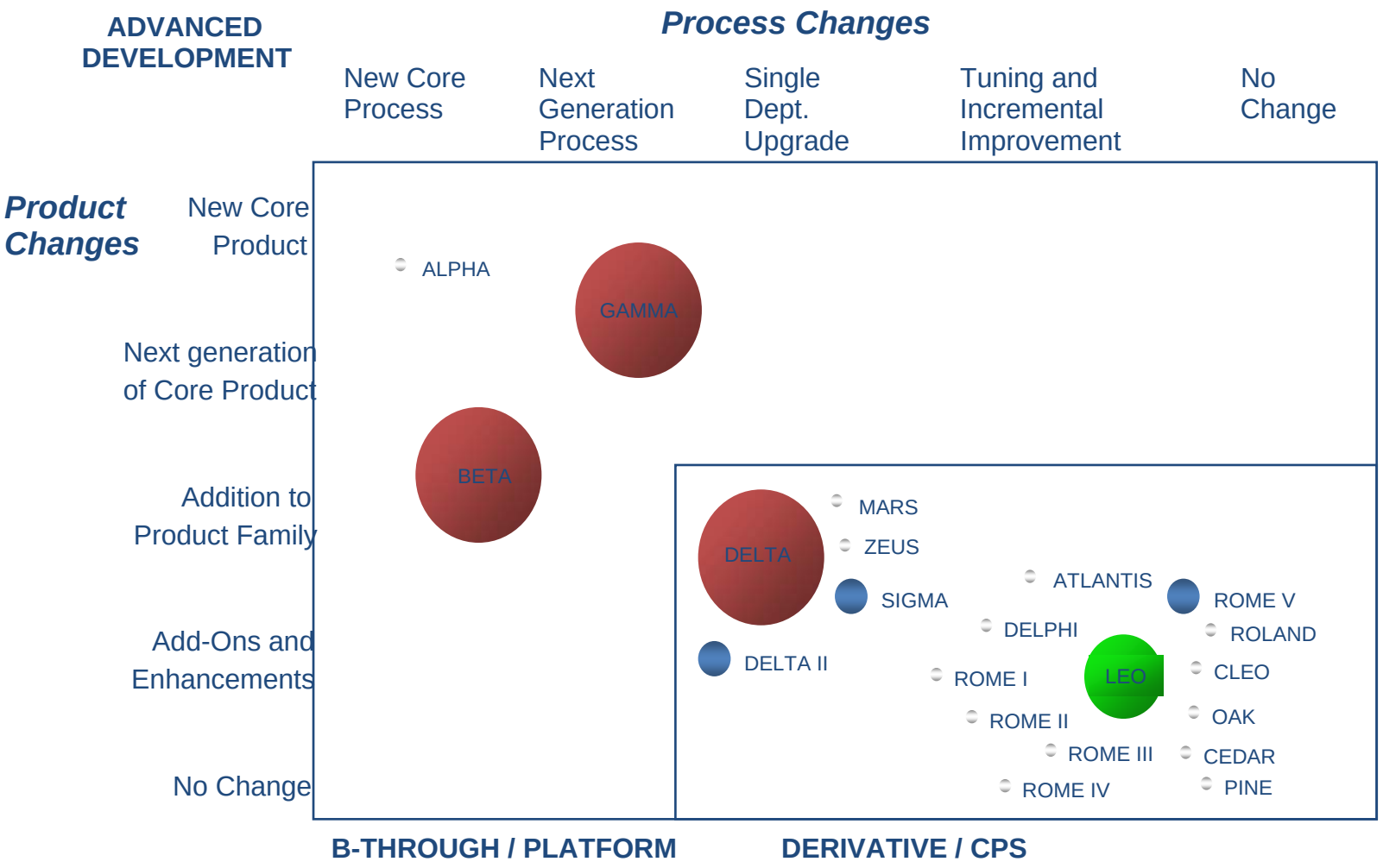


Before: Medical Products Co.

- Company makes an automated diagnostic system that
  - contains three components - electro optical hardware, software and a disposable panel for bio material.
- A lot of derivatives ¯ all small, on all three system components.
- Derivatives character was aimed at increased functionality and features, which was counter to what the customer wanted. They were giving them "more bells and whistles".
- Not a single new platform in 7 to 8 years.
- Had four very small efforts designed to explore "next generation" 21st Century technologies - while competitors were investing 100s of millions of dollars.

Within one year of implementing, the company's product development restructuring process had the following effects...

After: Medical Products Co.



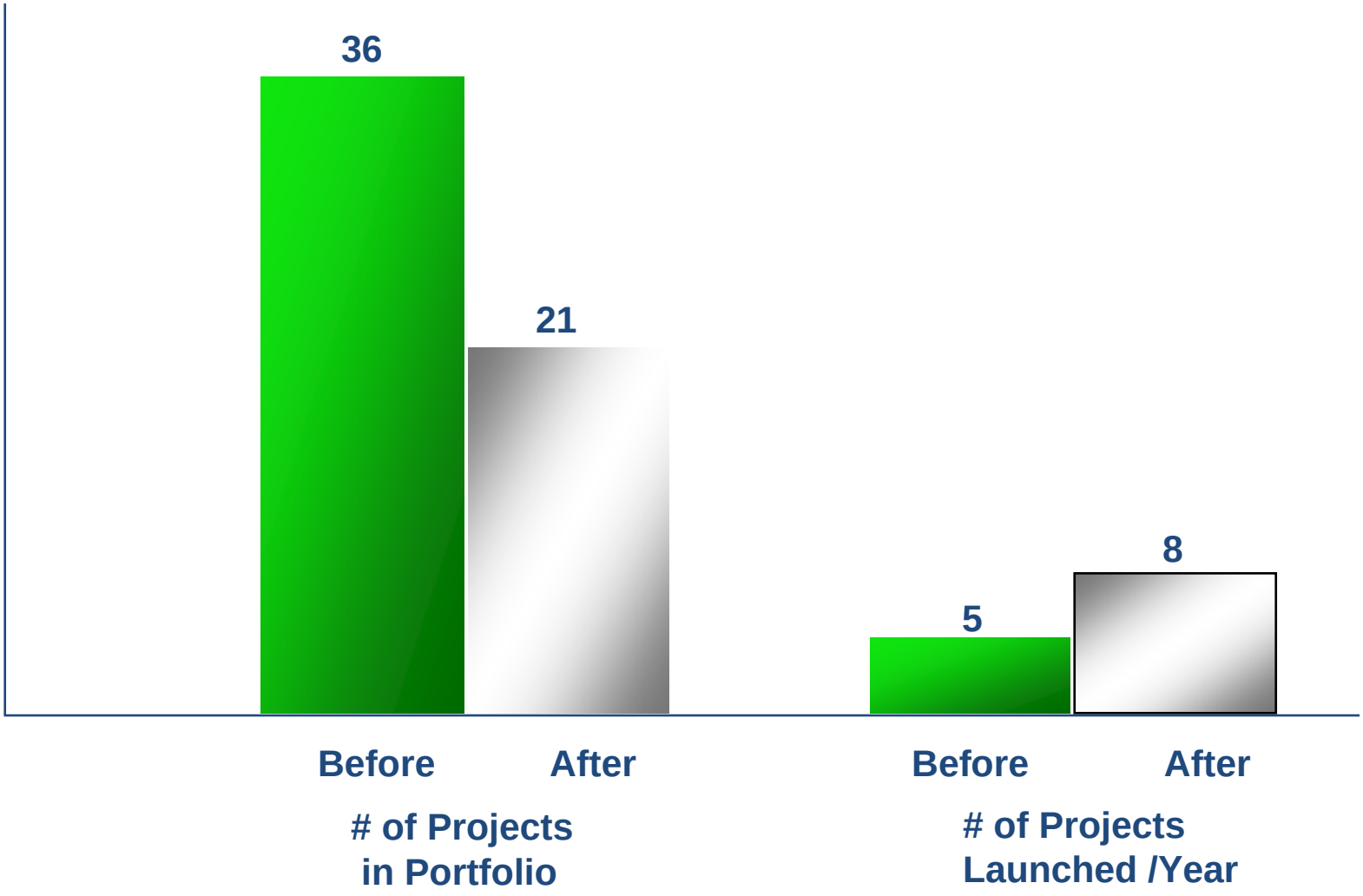
After: Medical Products Co.

- Eliminated all but one of the breakthrough projects, and subsequently eliminated all breakthroughs.
- Joint ventures between corporate parent to share development resources.
- Part of a joint corporate effort to think about next generation technologies.
- Eliminated a lot of derivatives and feature enhancements that weren't adding value to customers.
- New partnered platform project:
  - Outside companies are doing the hardware and software components.
  - The client company is doing the bio components.
  - Sufficient amount of resources have been allocated to ensure that the project is adequately staffed to meet all project requirements.
- Focus Development efforts to be in line with core competencies and establish alliances to do all other tasks outside their own business.

Results:

- Cut R&D spending from $65mm to $35mm.

Less Is More:
Medical Products Co.



Measures

Focus	Measure
• Speed	• Cycle time
• Cost	• Fully allocated product costs
• Innovativeness	• Product performance relative to competitors
• Product Quality	• Field performance

Note that measures are balanced against each other. Note also that other measures may be appropriate to capture each “focus point” in other contexts.

Processes and Practices

- Speed
  - "Being fast eliminates so many other problems…"
  - Clear product definition process, rooted in strategy
- Platform strategy
  - Leverage technology across the range
  - Clearly differentiate technology development from product development
- Project documentation
- Phase definition
- Rhythm
- Market inputs

Why does it all matter? For Medtronic?

- Because all the growth would be in differentiation:
  - Cochlear Implants
  - Insulin Pumps
  - Etc.
- Specific S-curves and Market Diffusion Curves can taper, and business models can be imitated, but these Organizational Competencies remain:
  - Best practice product development mostly generalizes to other product platforms
  - Similar customer relationships: doctors and baby boomers

The Bottom Line…according to the mangers…is commitment

- “People ask us what the secret is, to make a development organization work effectively. I tell them there aren’t any magic bullets that kill the problems. It’s just discipline. You need to do what you say needs to be done. You need to be in it for the long haul. There are no quick fixes.”

- “ It’s interesting how many people leave these conversations and then go off in search of an easier answer from some guru somewhere. It’s amazing that the obvious isn’t so obvious”

Looking forward

- **Next session: Launching Toyota Prius**
  - **Decision Making in Real-Time**