



Overview of New Product Development

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Structure of presentation

1. Product development in the context of innovation
2. Product development processes
3. Management issues – getting back to basics



Why is the AIC talking about PD?

- **The AIC delivers services using its networks and experience that:**
 - **facilitate collaboration**
 - TechFast, Technology clinics
 - **enhance innovation**
 - market research, IP management advice, Commercialisation Bootcamps
 - **accelerate the commercialisation of IP** that our clients have created
 - ICT commercialisation brokerage
- **All of these are part of product development!**





What is Innovation?

- Innovation is the practical application of new ideas and concepts into something of value in the marketplace, whether it is a new product, service, process or organisational system.



INPUT
Ideas, Concepts
Observations

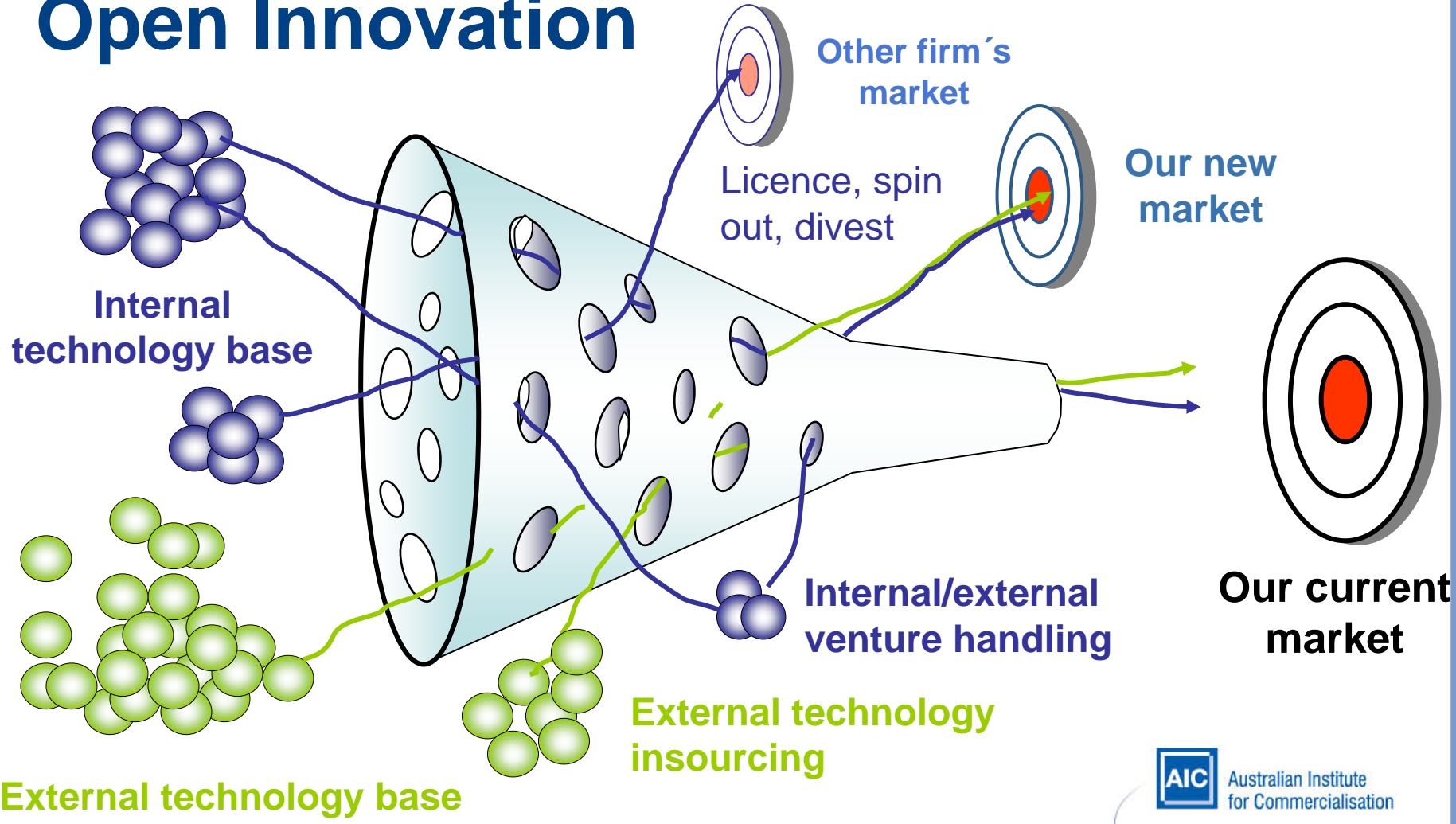
**SCREENING
EVALUATION
IMPLEMENTATION**

OUTPUT
New
Value





Open Innovation



External technology base

Source: Prof Henry Chesbrough UC Berkeley, *Open Innovation: Renewing Growth from Industrial R&D*, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004

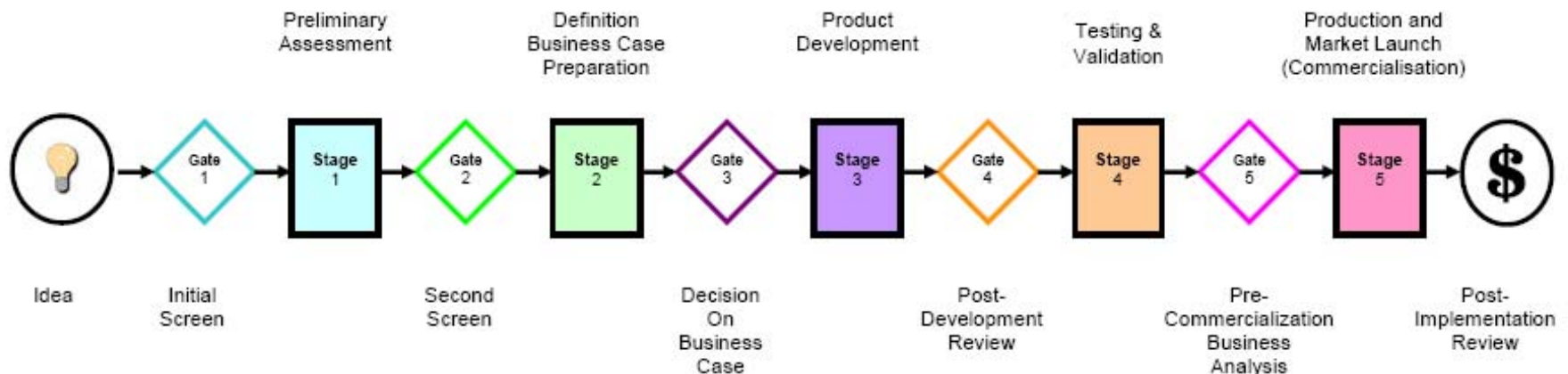




Four Types of Innovation

1 Product Innovation

- New products or services
- Enhancing existing products
- Technological innovation





Four Types of Innovation

② Process Innovation

- improving processes within the organisation-
business process innovation
- e.g. operations, HRM, finance, better way of
communicating, knowledge management system
- focus on improving organisational effectiveness and
efficiency



Four Types of Innovation

3 Marketing Innovation

- related to the marketing functions of promotion, pricing and distribution
- product related (eg. packaging, advertising)
- creating a new market or marketing system e.g. Amazon.com
- many products were invented before their time





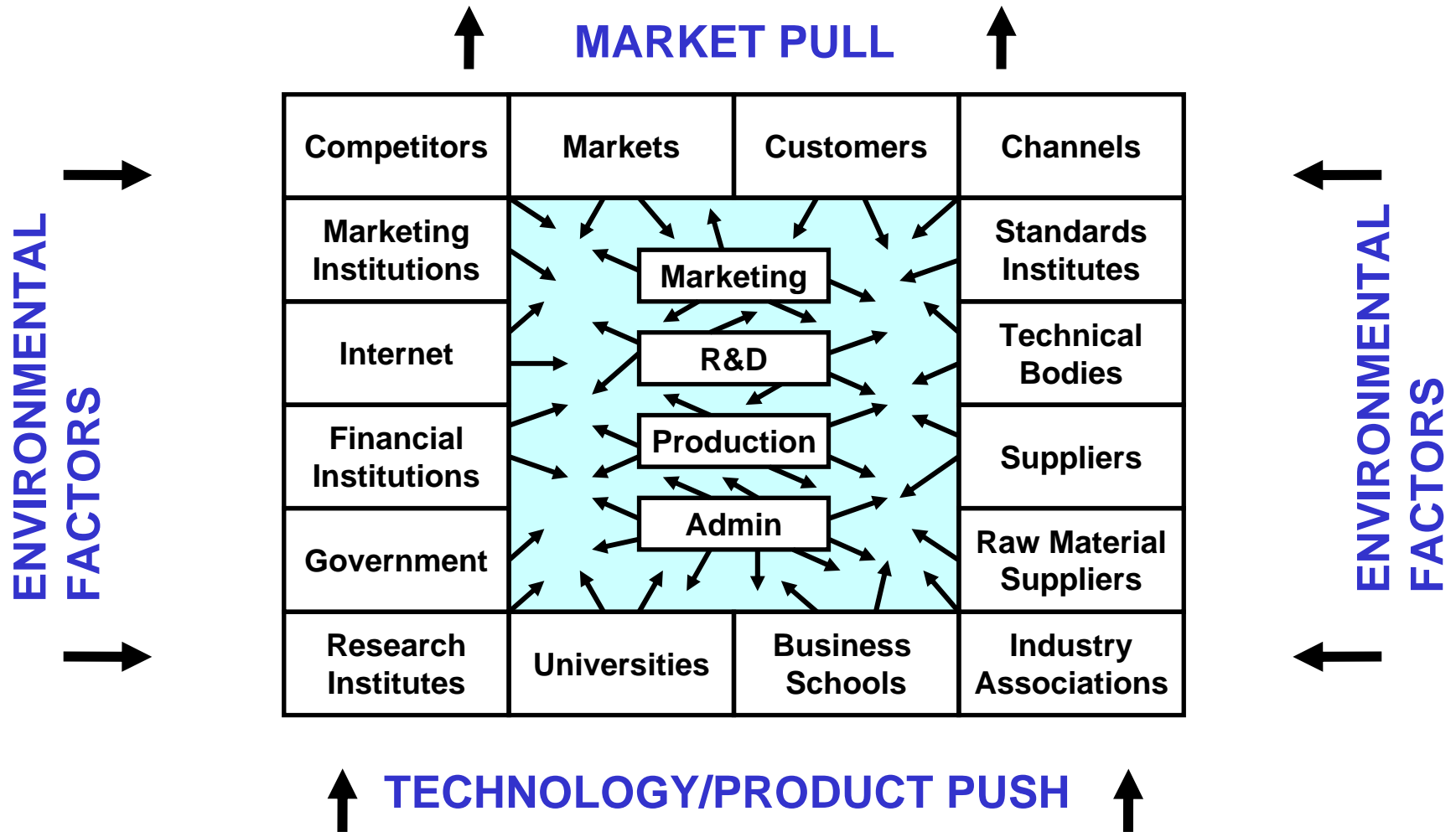
Four Types of Innovation

4 Management Innovation

- the way the organisation is managed
- e.g. organisational structure, leadership, work environment, culture
- cross functional work teams - team-based decision making approach
- Business Model Innovation

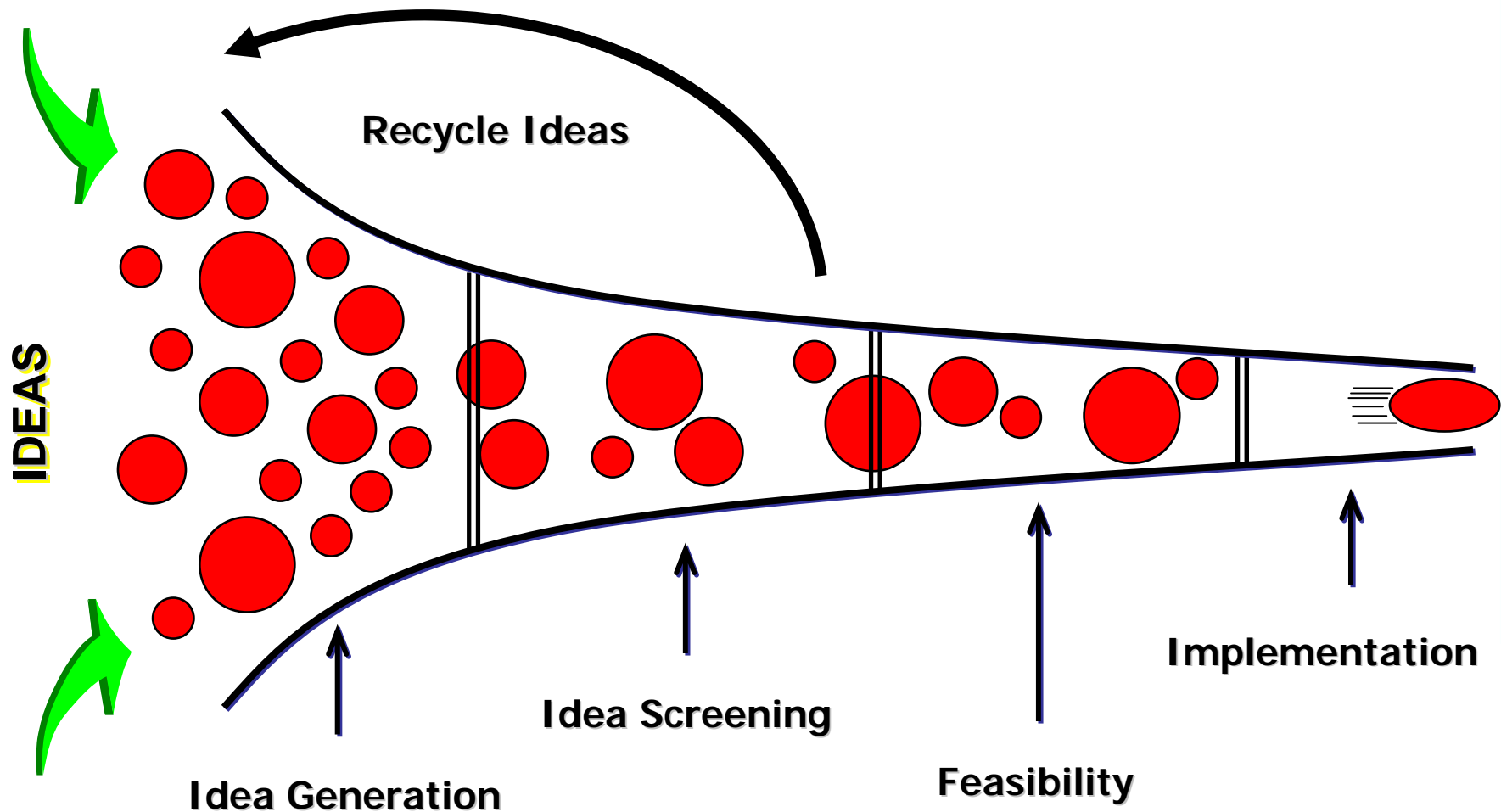


Sources of Product Opportunities



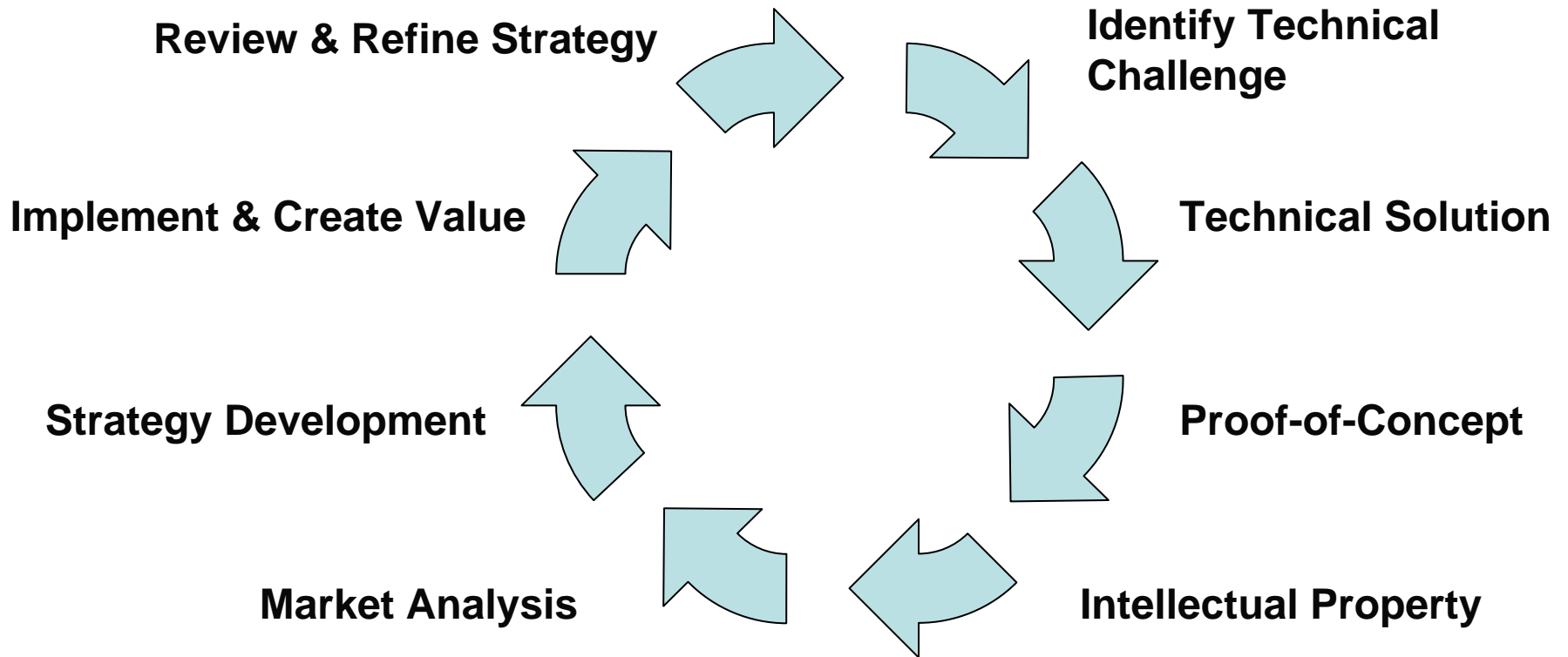


Idea Funnelling



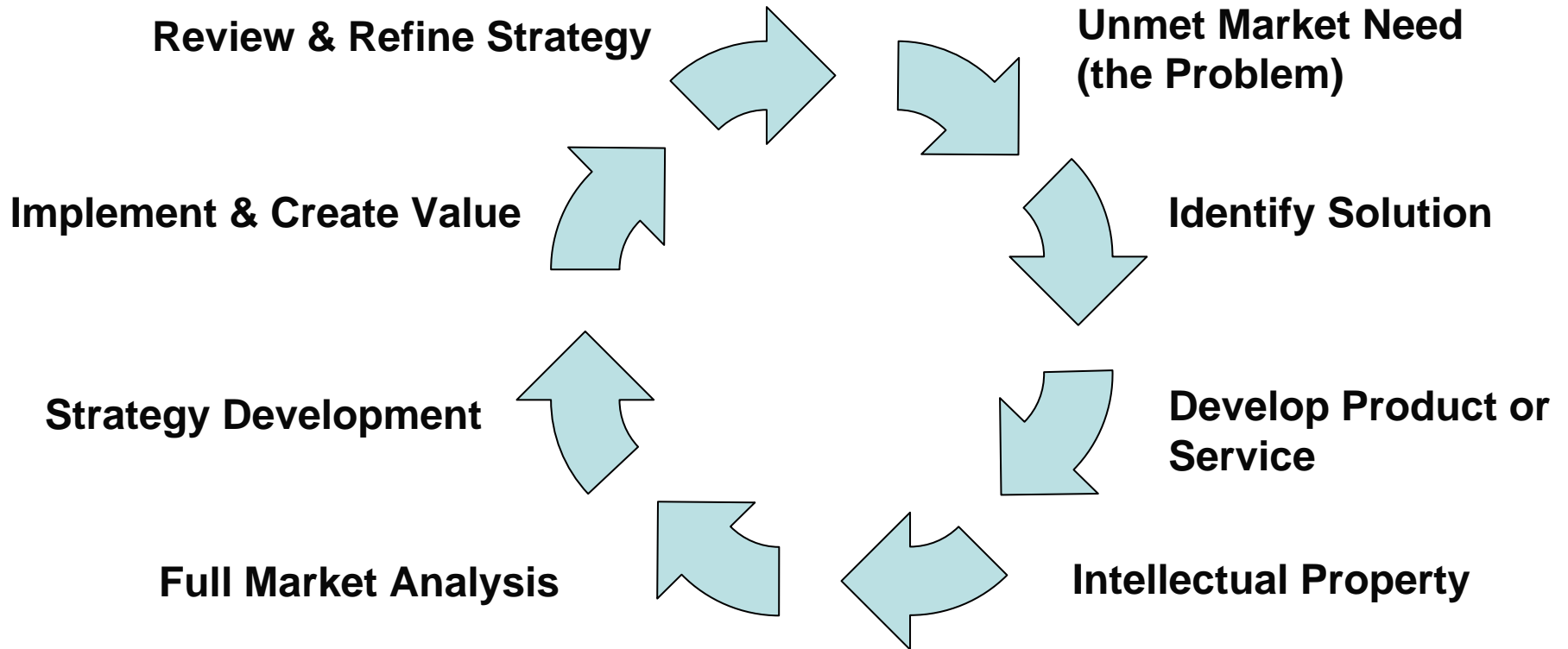


Technology Driven





Market Driven





Importance of New Product Development (NPD)

- Critical to the growth and survival of organisations
- Source of steady stream of cashflow for organisations
- Satisfies the needs and wants of customers
- Provides a competitive advantage
- Allows organisations to adapt and diversify

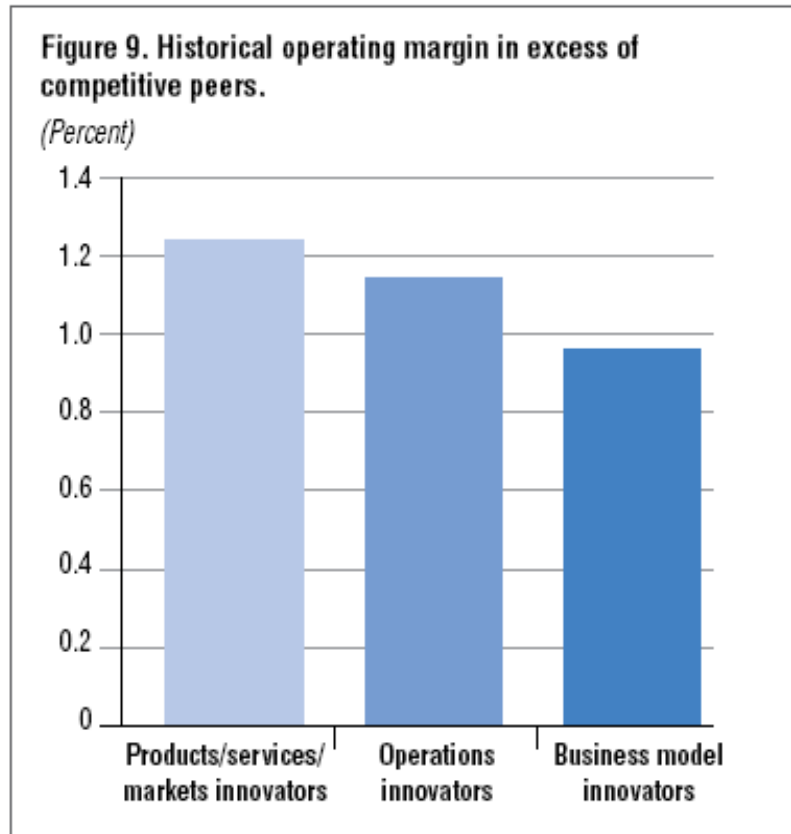


The importance of innovation to the firm

- **Australian data (IPRIA)**
 - The 30 of the top 50 R&D spenders for whom 5-year data was available spent four times the national average on R&D per revenue. Their return on shareholders funds was 17.1% compared with 7.7% for Australia's top 1000 enterprises.
- **Global data (Boston Consulting Group Innovation Survey)**
 - The 25 most innovative companies had a median annualised return of 14.3% from 1996 through 2005, a full 300 basis points better than that of the S&P Global 1200 median
 - Innovators increased median profit margins by 3.4% per year over ten years, compared with 0.4% for the median



Innovation matters!



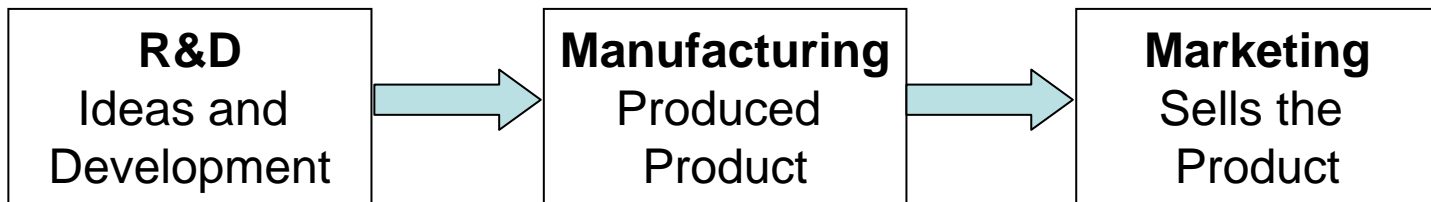
Source: IBM Global CEO Survey, "Expanding the Innovation horizon" July 2006



Product Development Processes

1. First Generation Processes

- NASA's Phased review process – activities broken down into different phases
- Similar to the departmental staged model – “pass the parcel”



- Independent functions – no integration
- Can still be successful if customer needs are understood and met



Product Development Processes

2. Second Generation Processes

- Staged based models
- Functions integrated across the process
- Examples include:
 - Booz-Allen Hamilton's simple 6 step NPD process
 - Crawford's 6 step process
 - Cooper's 7 stage model
 - Cooper and Kleinschmidt's stage gate





Examples of Second Generation NPD Processes

Booz-Allen Hamilton Process

1. Exploration

2. Screening

3. Business Analysis

4. Development

5. Testing

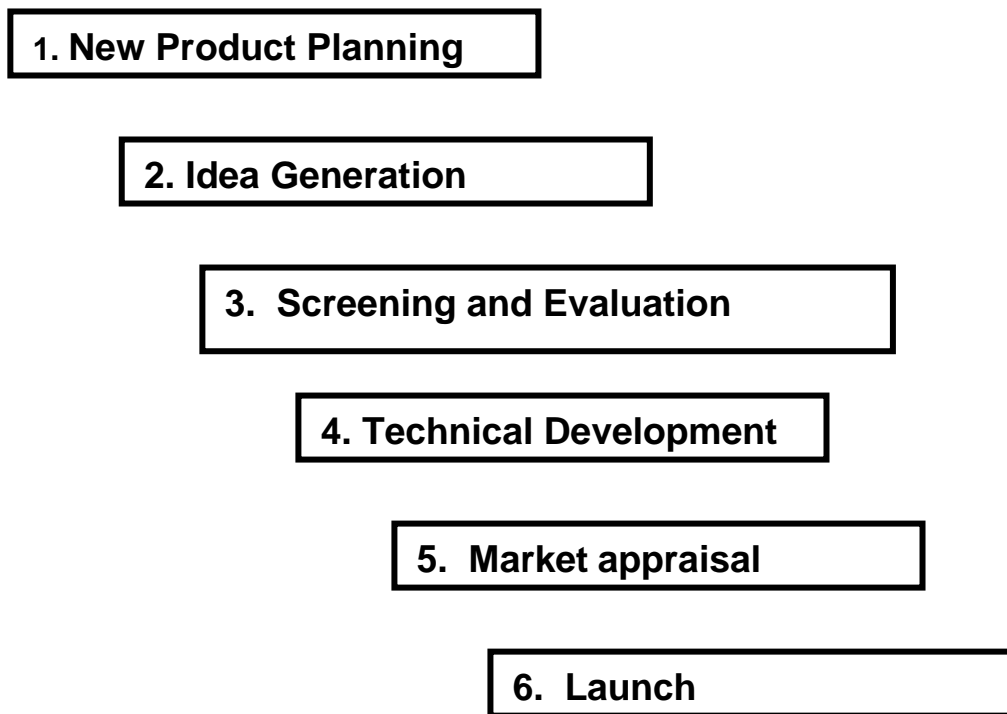
6. Commercialisation





Examples of Second Generation NPD Processes

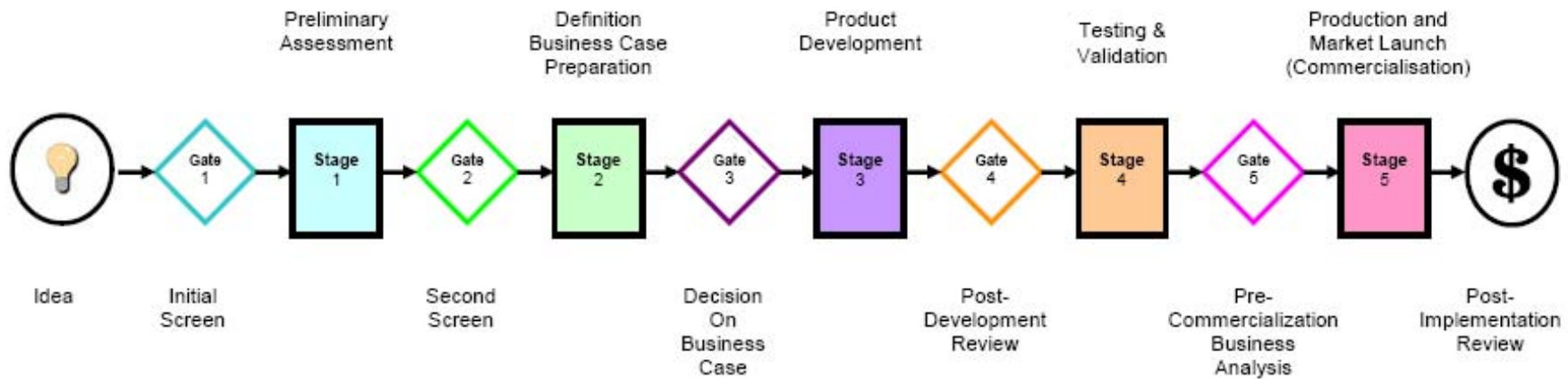
Crawford's Process





Examples of Second Generation NPD Processes

Cooper and Kleinschmidt's Stage Gate process





Product Development Processes

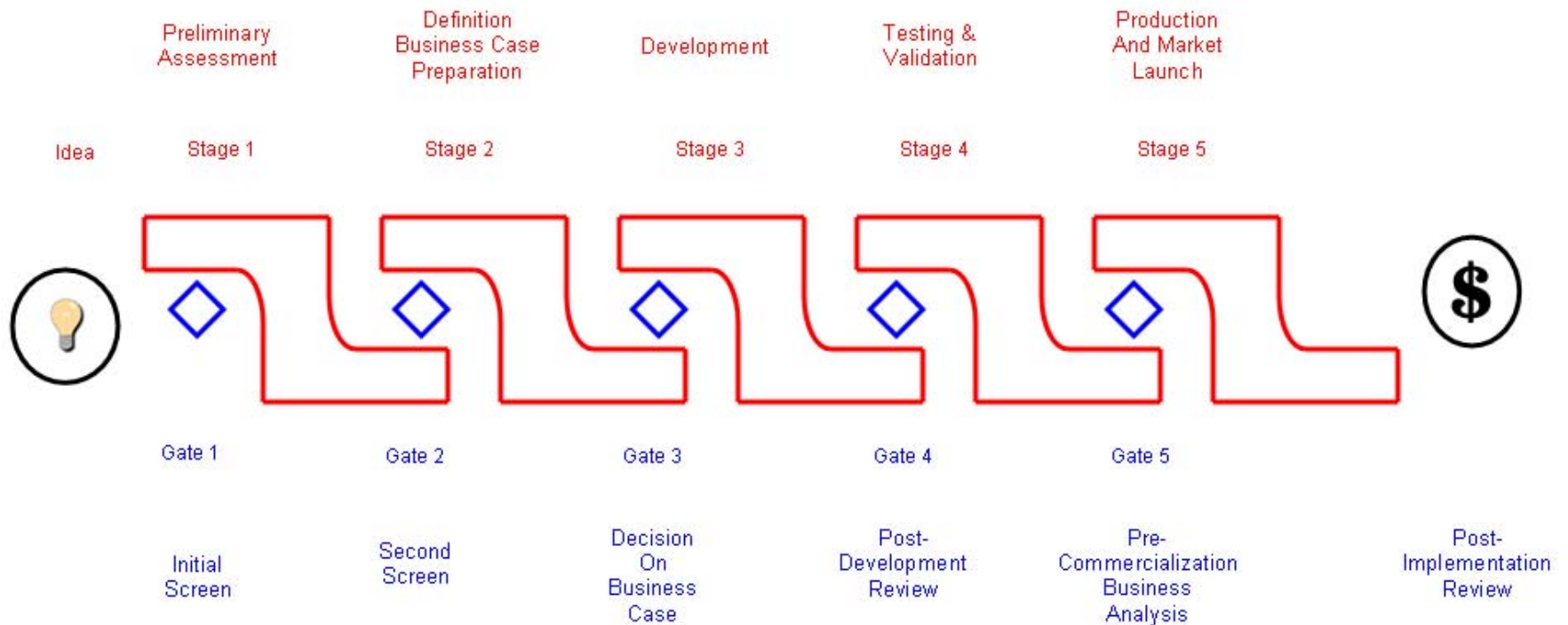
3. Third Generation Processes

- Balancing speed to market with the thoroughness of information
- Concurrent engineering or rapid prototyping processes
- Characteristics include:
 - Fluidity in the stages, often overlapping
 - Fuzzy gates
 - Focused resources on most promising products in the portfolio
 - Flexibility to adapt





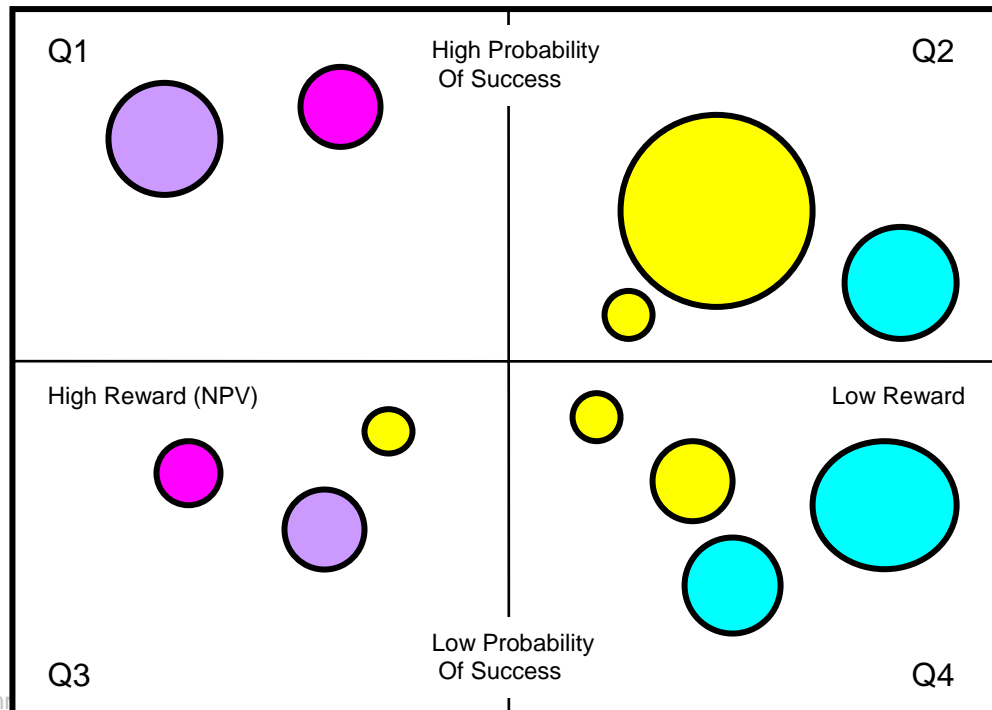
Example of Third Generation NPD Processes





Portfolio Management

Organisational tool to focus resources on the most promising product opportunities.





Evaluating New Product Opportunities

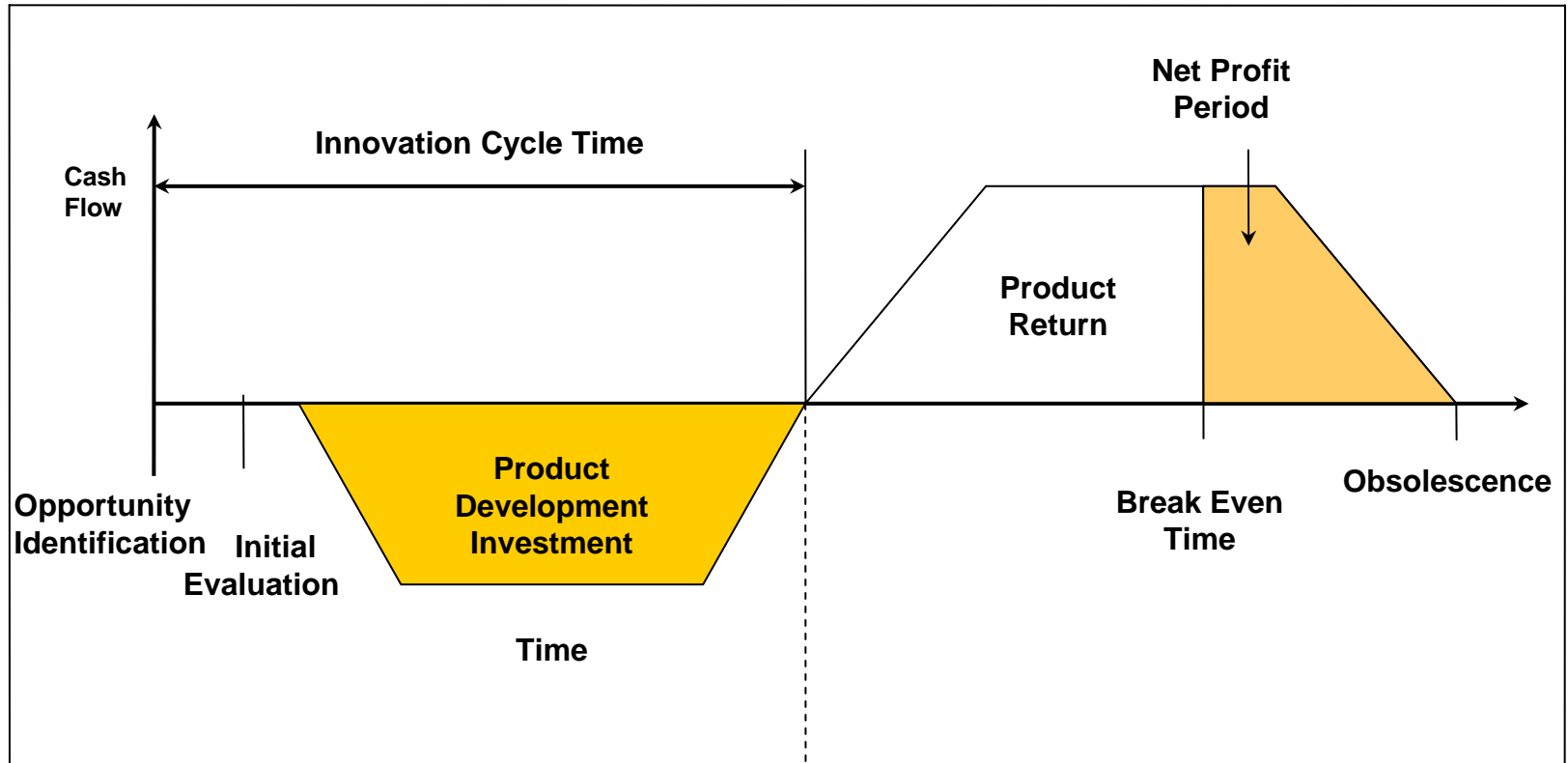
- Parallel activities

Technology/ Product	Intellectual Property	Market
<ol style="list-style-type: none"> 1. Summary of the Invention 2. Literature Review 3. Requirement Specification 4. Research & Development Plan 5. Competitive Advantage 	<ol style="list-style-type: none"> 1. Disclosure 2. IP Ownership 3. Novelty / Patentability 4. IP Search 5. Freedom to Operate 6. Enforceability 	<ol style="list-style-type: none"> 1. Addressable Market Need 2. Industry Structure 3. Customer 4. Competitor 5. Value Proposition





Product Development Lifecycle





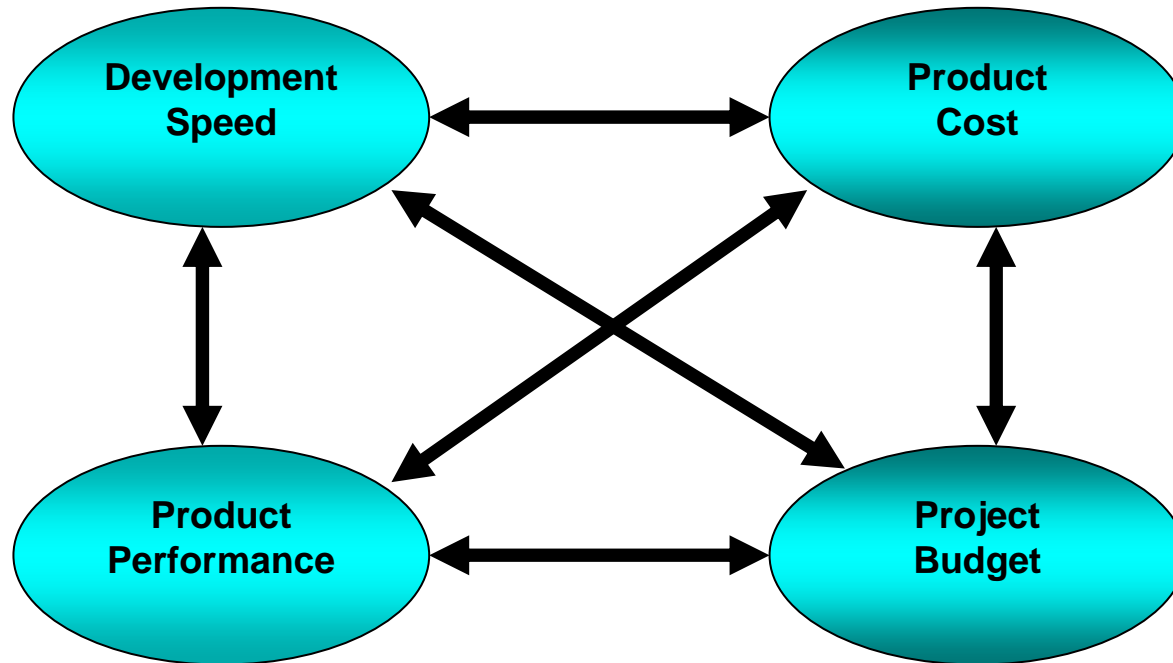
Innovation Speed

- Developing products faster offers a number of advantages
 - Increased profits and sales
 - Beat the competition to market
 - Maintain market leadership
 - Responsive to changing markets, styles and technologies





Product Development Trade Offs



Source: Smith and Reinersten; Developing Products in Half the Time

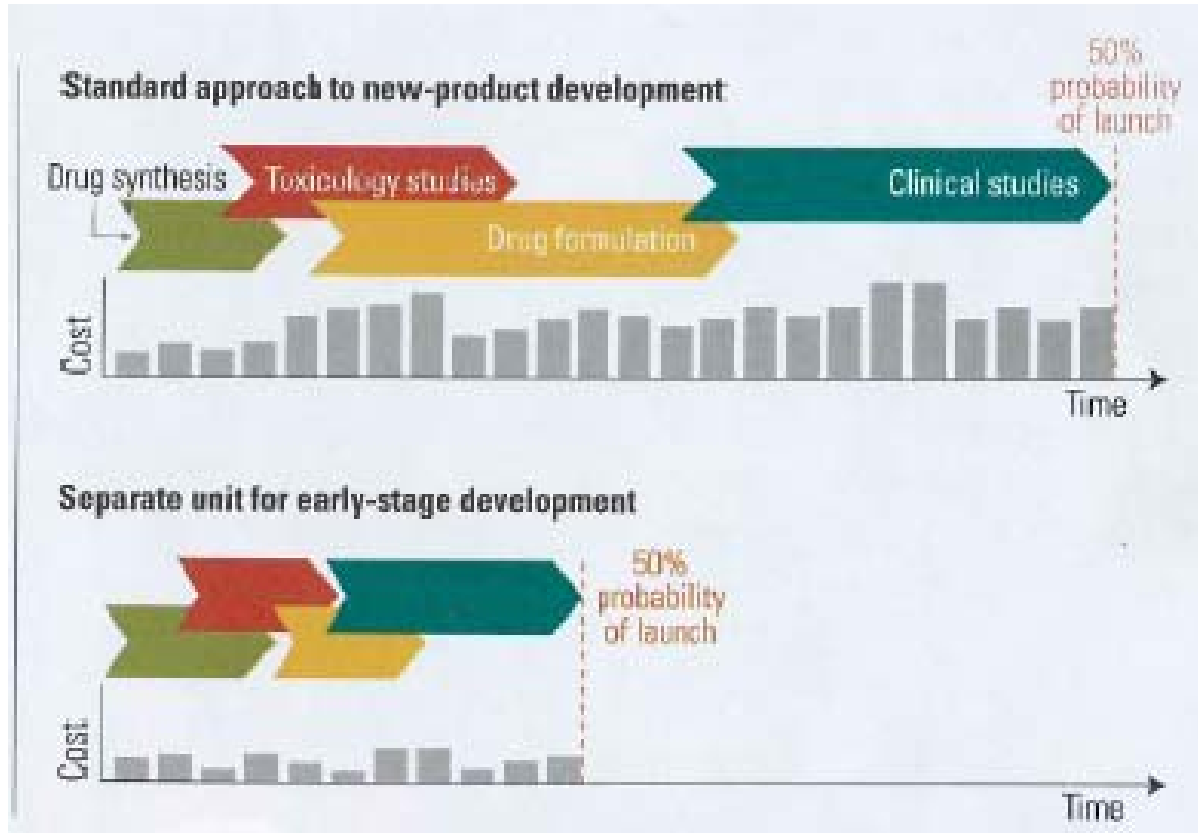


The management dilemma of PD





Experimental design to reduce time to market



Source: Harvard Business Review, E. Bonabeau et al, "A more rational approach to new product development" March 2008

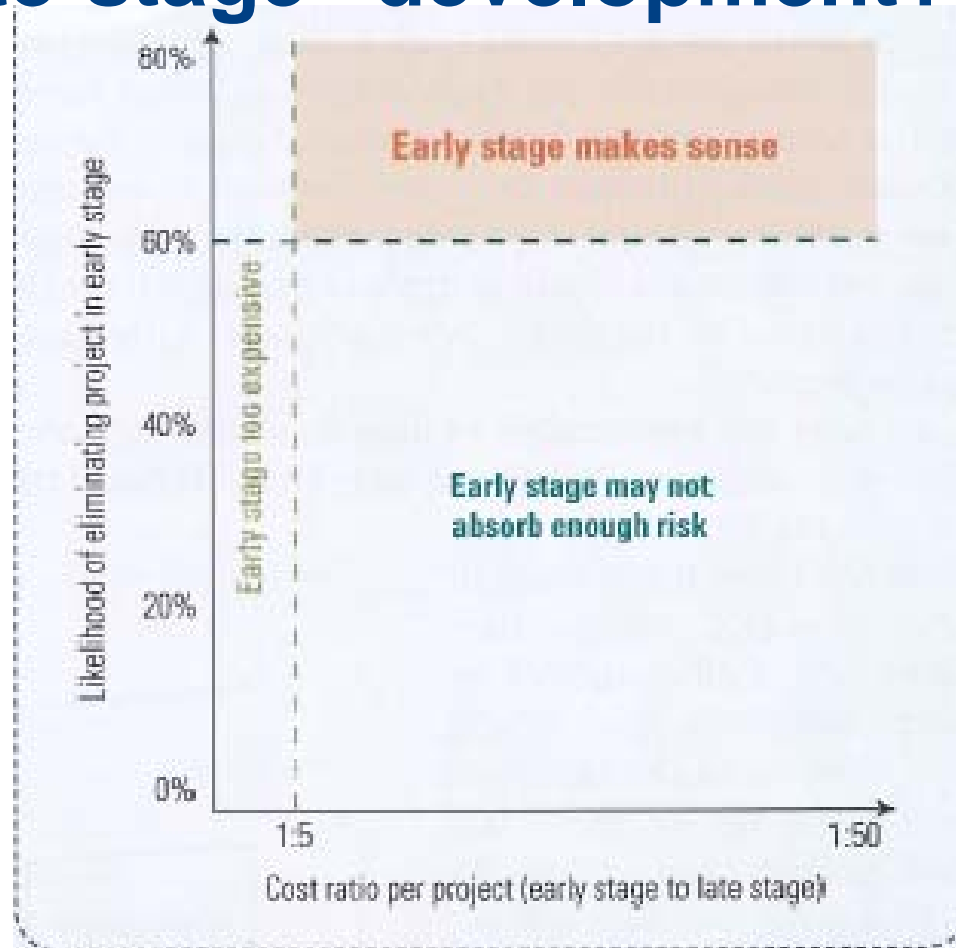


Segmenting PD into “truth-seeking” and “success seeking” phases

Early	Late
Organizational Goal	
Seek truth	Seek success
Organizational Strength	
Establish novel products' promise or lack thereof	Take products to market
Organizational Approach	
Reduce risk	Maximize value
Maintain loyalty to the experiment	Maintain loyalty to the product
Focus on scientific method	Focus on commercialization
Operate with low fixed costs, low capital requirement	Operate with high fixed costs, high capital requirement
Work in small, experiment-based teams	Work in large, product-based teams
Emphasize testing	Emphasize refining

Source: *Harvard Business Review*, E. Bonabeau et al, "A more rational approach to new product development" March 2008

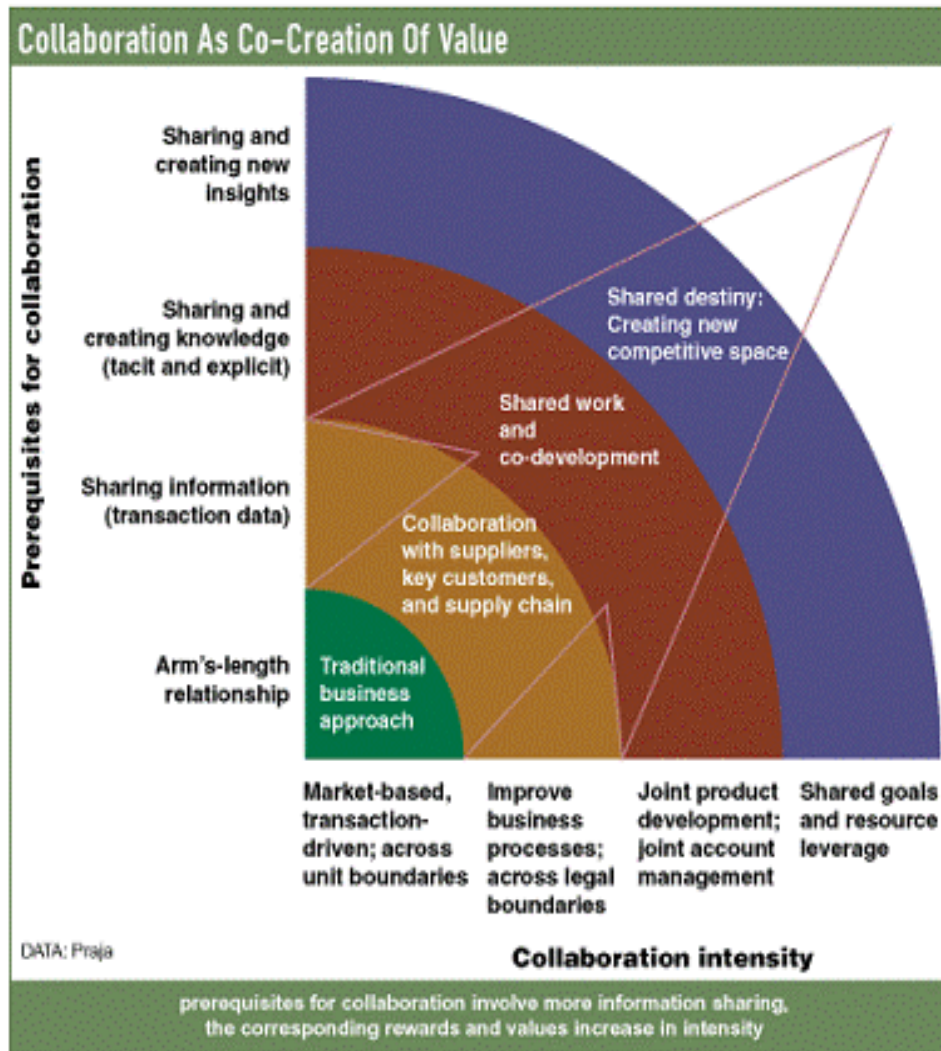
When should “early-stage” be separated from “late-stage” development?



Source: Harvard Business Review, E. Bonabeau et al, "A more rational approach to new product development" March 2008



Collaboration – Driving Speed to Market





Examples of Successful NPD

Innovation	Source
3M Post-It Notes Scotchguard	Art Fry - Failed glue Patsy Sherman – Spill in the laboratory
Velcro	George de Mestral - Observation in nature
Apple iPod	Steve Jobs – Marketing innovation
Microsoft Windows	Bill Gates – standardised operating system





Summary – some take home thoughts

- New product (or service) development is the lifeblood of organisations
 - Innovation requires Board leadership
- Successful product development processes focus on
 - the customer
 - value decision = function (brand, price, performance)
 - time to market
 - fast failure
- Incentive systems need to reward both “truth” and “success” at the appropriate point in the process



Questions?

Our website is www.ausicom.com

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