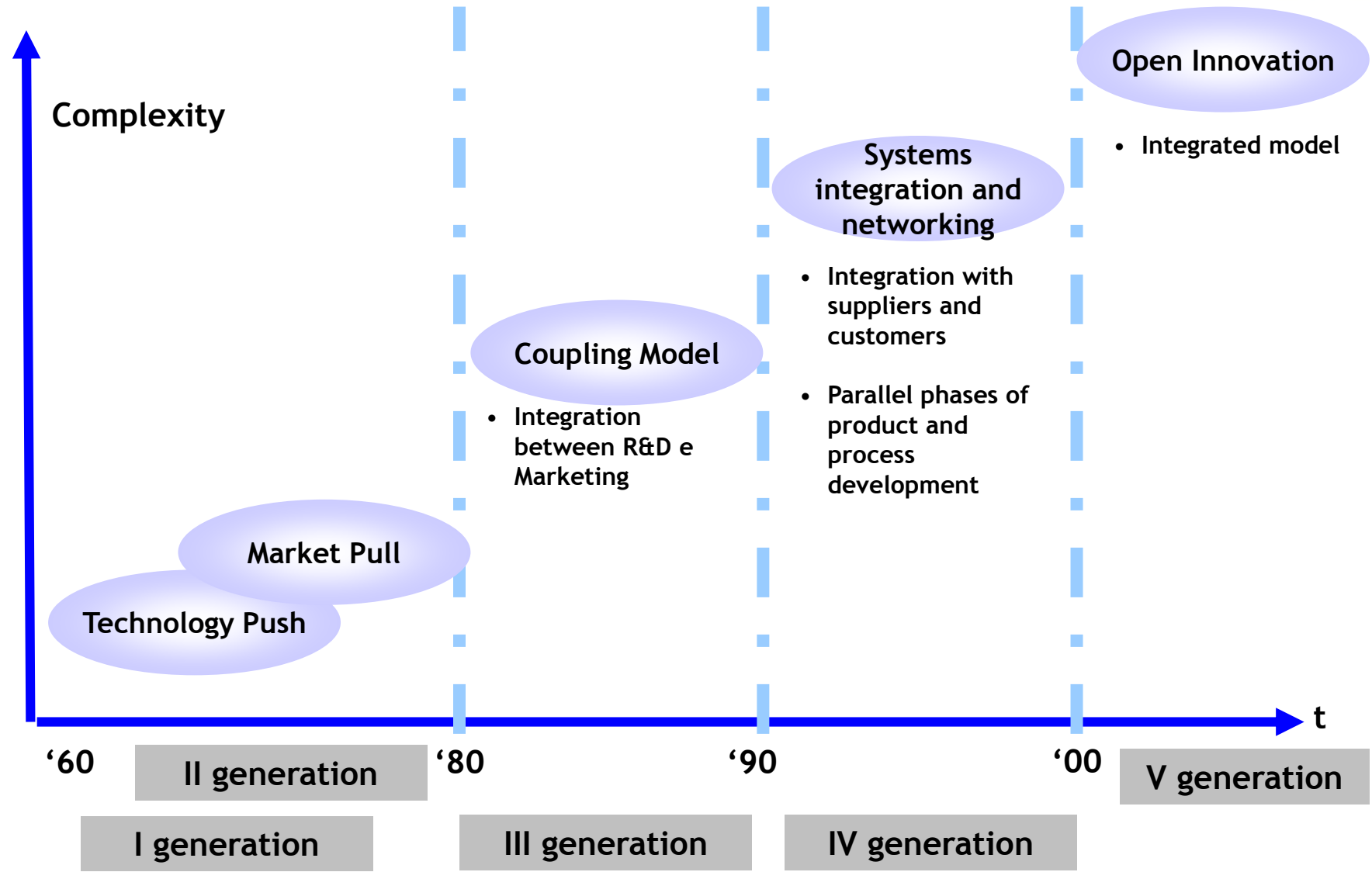


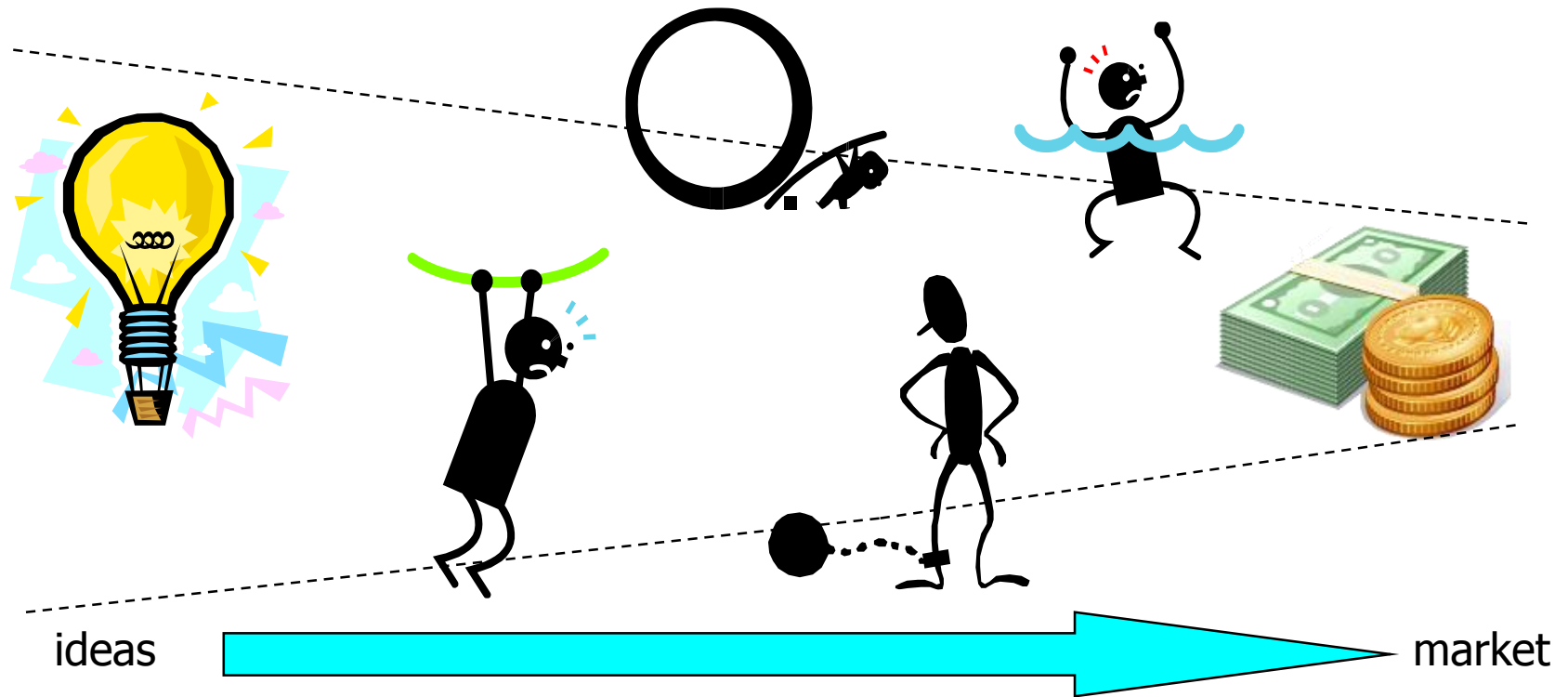
Innovation Management and New Product Development

Innovation process

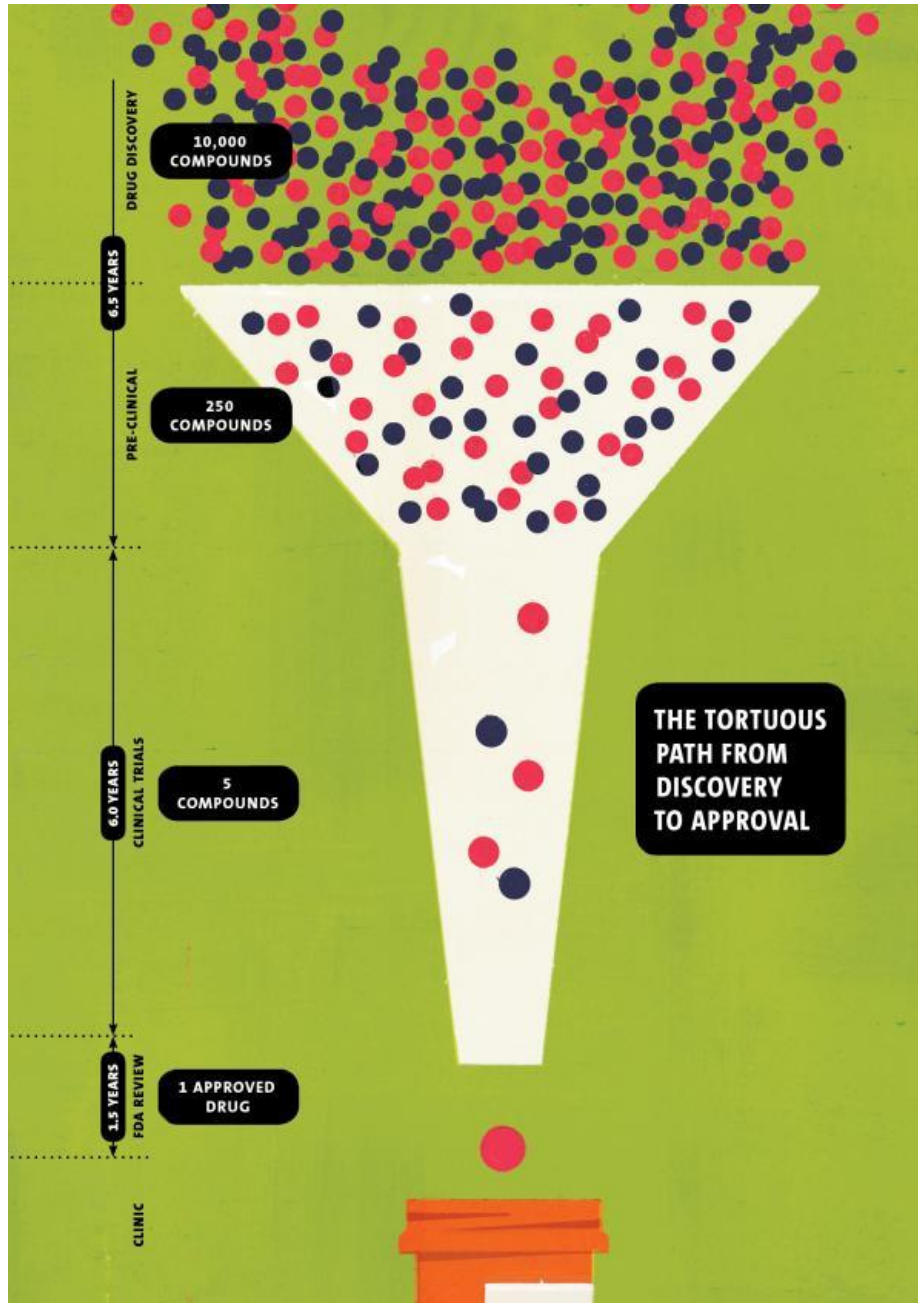
Models of technological innovation



Technological innovation within companies



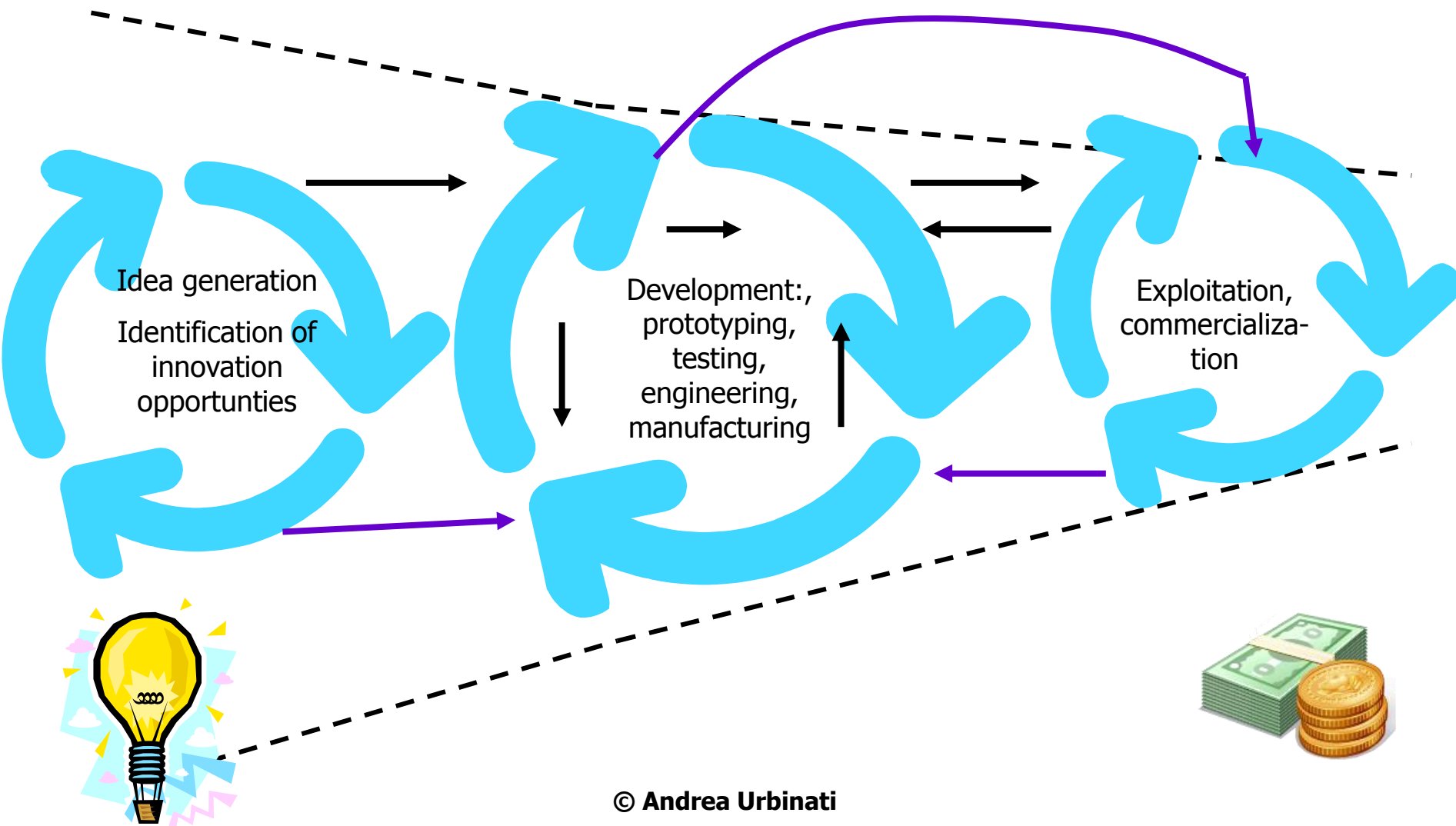
The innovation *funnel*



Source:

<http://www.milkenreview.org/articles/financing-high-risk-medical-research>

The innovation funnel: phases



The process of technological innovation: phases and activities

- The innovation funnel within companies can significantly differ in terms of:
 - Sequence of phases
 - Relations among phases
 - Time
 - Concurrent phases
 - Costs
 - Risks

- Differences can be:
 - Industry-specific
 - Firm-specific

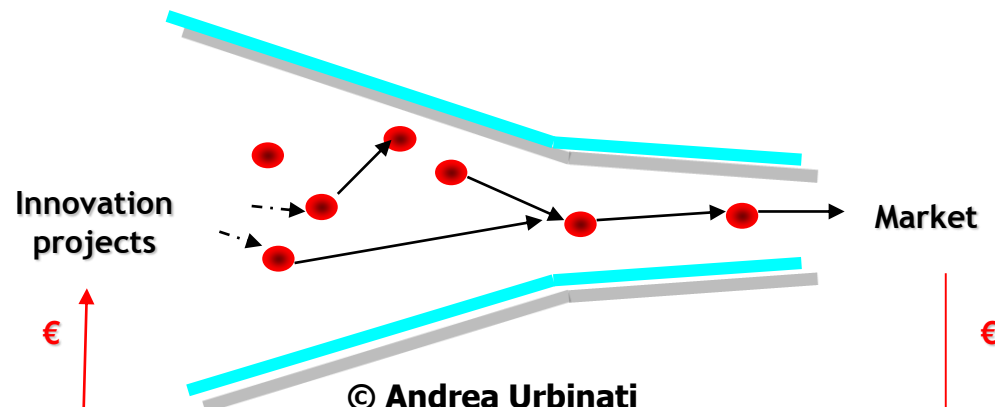
Risk in the innovation process

different levels of risk along the innovation funnel



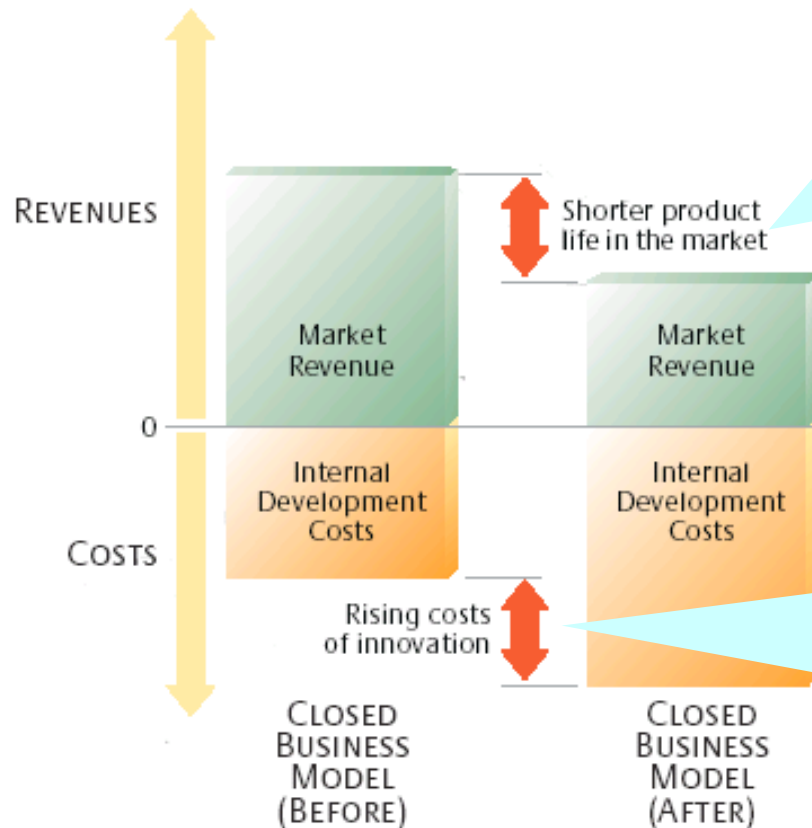
“Traditional” innovation management paradigm

- A constant feature of the “traditional” innovation management paradigm is the way **companies pursued technological innovation within their boundaries**
- They **invested heavily in internal R&D** and **hired the best people**, enabling them to develop the **most innovative ideas** and **bring them to market** in the form of new products and services
- The **generated profit was used to reinvest in internal R&D** in a **virtuous (but closed) circle** of technological innovation



Towards a new paradigm of innovation management

- Since the 1990s, however, **two major factors** undermined this closed model of innovation:
 - the **rising cost of technology development** in many industries
 - the **shortening life cycle** of new products and services



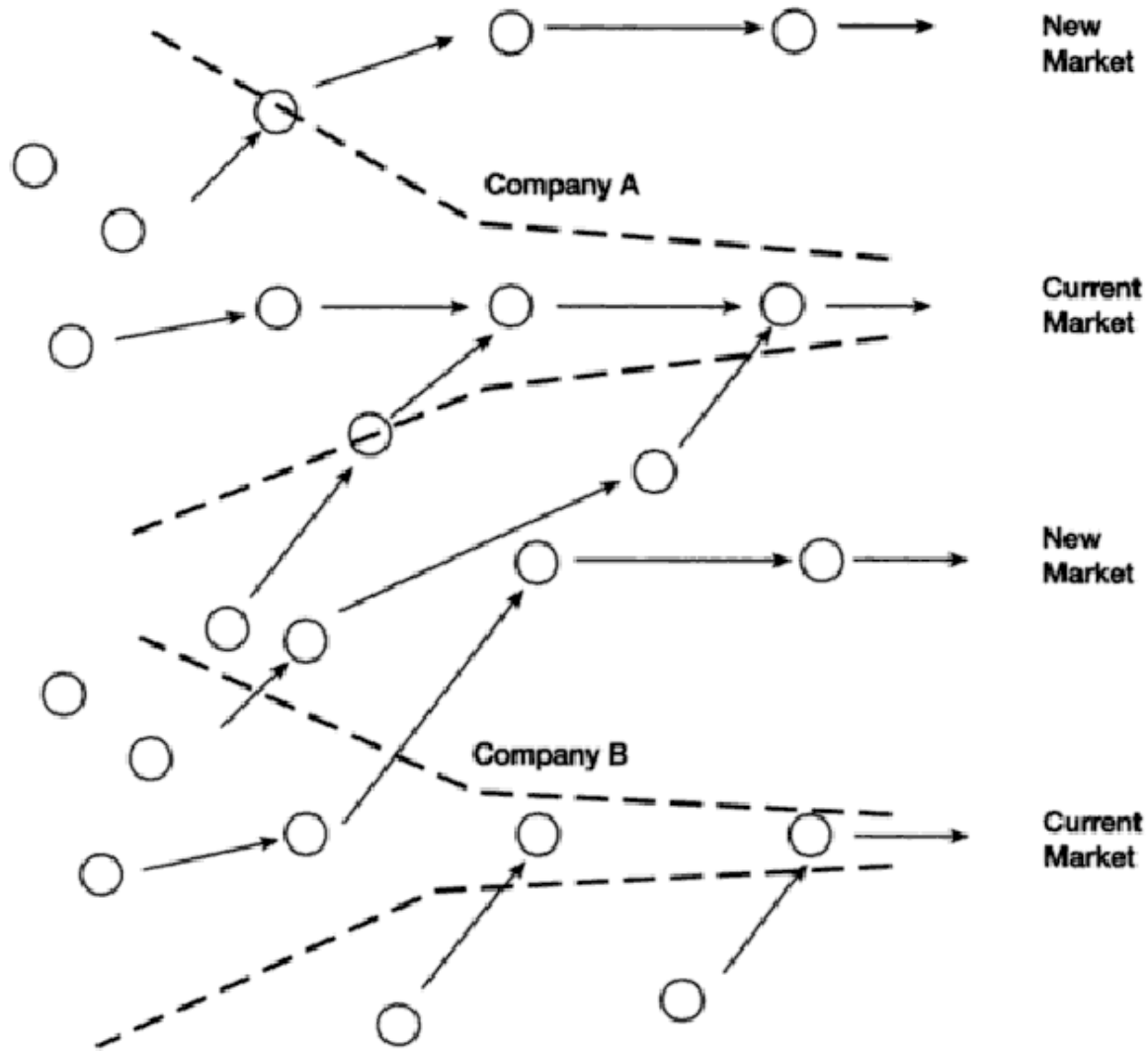
- In the early 1980s hard disk drives would typically ship for four to six years, by the end of 1990s the period was just six to nine months
- The time period between two competing drugs on the market is currently less than four months, up from 6 years in the late 1980s

- The cost of building a semiconductor fabrication facility in 2006 is nearly 3 \$ billion ... it would have cost nearly 1% of that in 1986
- The cost of developing a new drug is currently well over 800 \$ million, up more than ten-fold from the mid of 1990s

Towards a new paradigm of innovation management

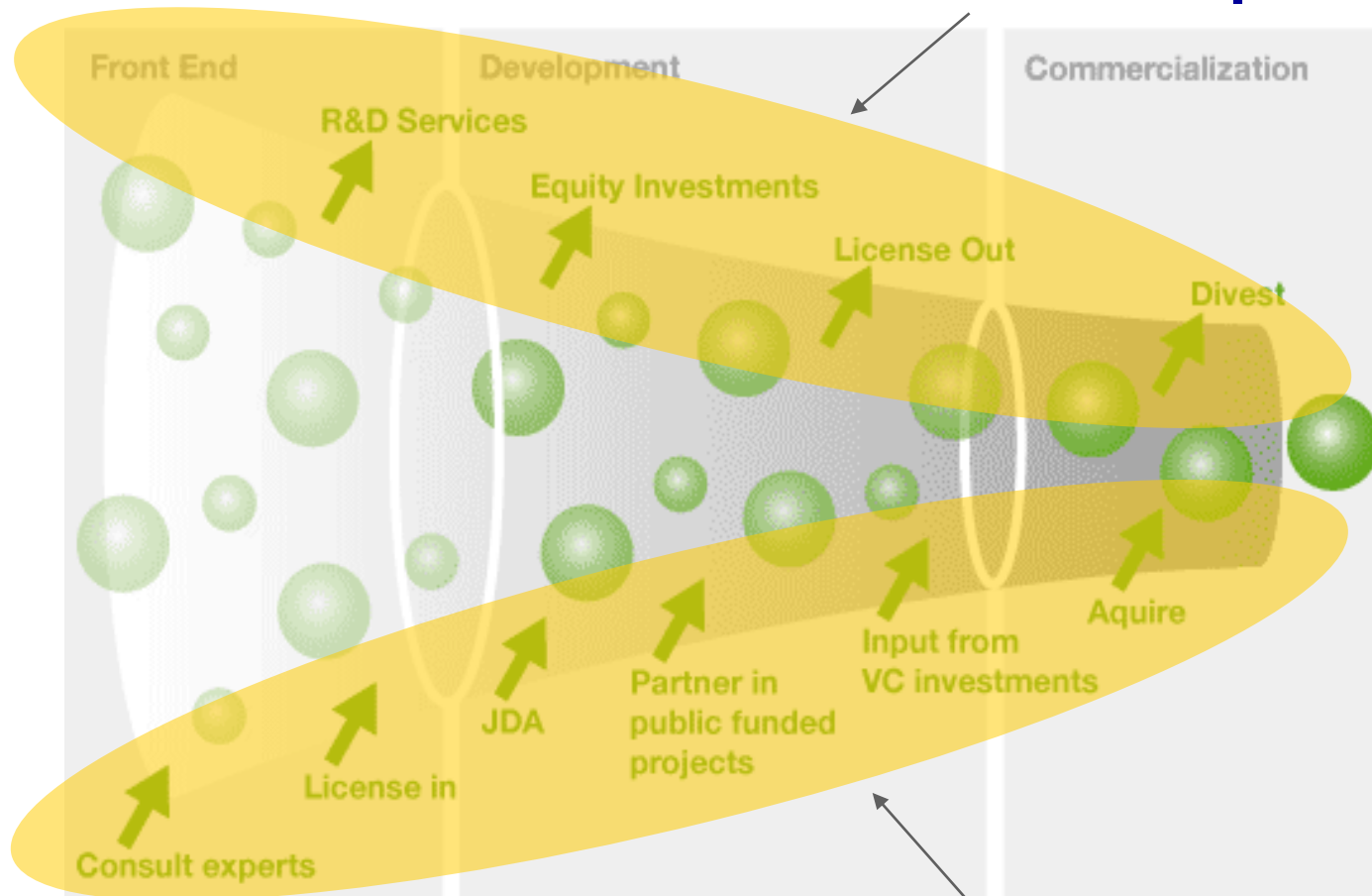
- As a result of both trends, **companies have found increasingly difficult to justify investment in technological innovation** under the “traditional” **closed model** of innovation
- **Companies have been increasingly rethinking the fundamental ways in which they generate ideas and bring them to market** – harnessing external ideas while leveraging their in-house R&D outside their current operations
- **The boundaries** between a company and its surrounding environment **are more porous enabling innovation to move easily between the two**
- **Henry Chesbrough** named in 2003 “**Open Innovation**” this new paradigm of innovation management

The Open Innovation paradigm



Open Innovation in BASF

Outbound Open Innovation

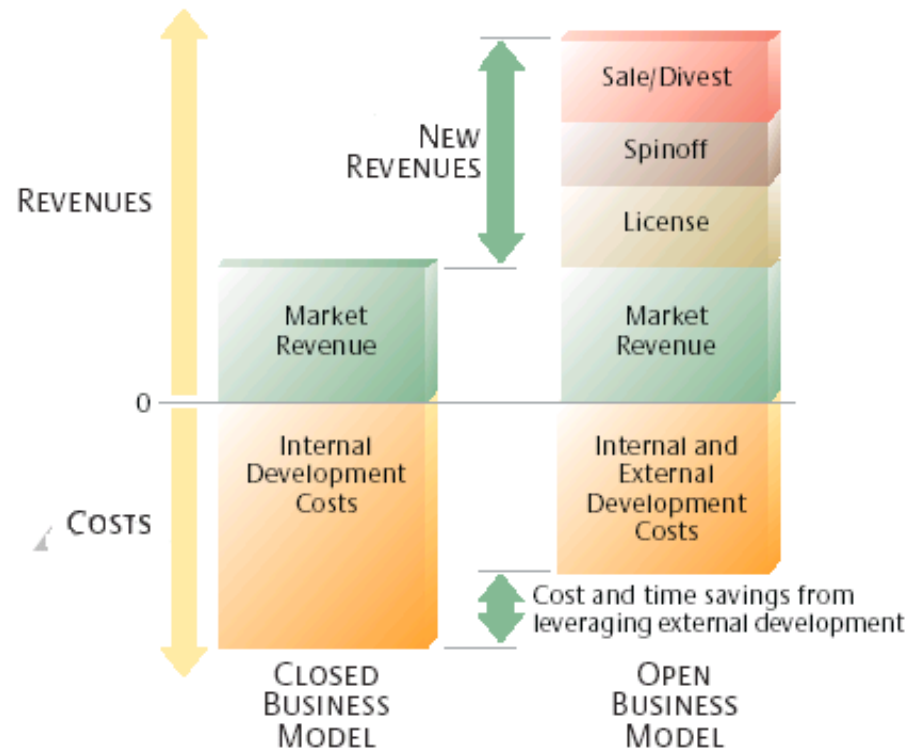


(source: www.basf-futurebusiness.com)

Inbound Open Innovation

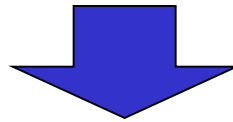
The Open Innovation paradigm

- The **Open Innovation** paradigm:
 - **attacks the cost side** of the problem by **leveraging external sources of innovation** to reduce time and money in the company's innovation process
 - **attacks the revenue side** by **increasing "market" chances**



Is it possible to manage technological innovation?

complexity, risks, intangibles, costs, uncertainty...

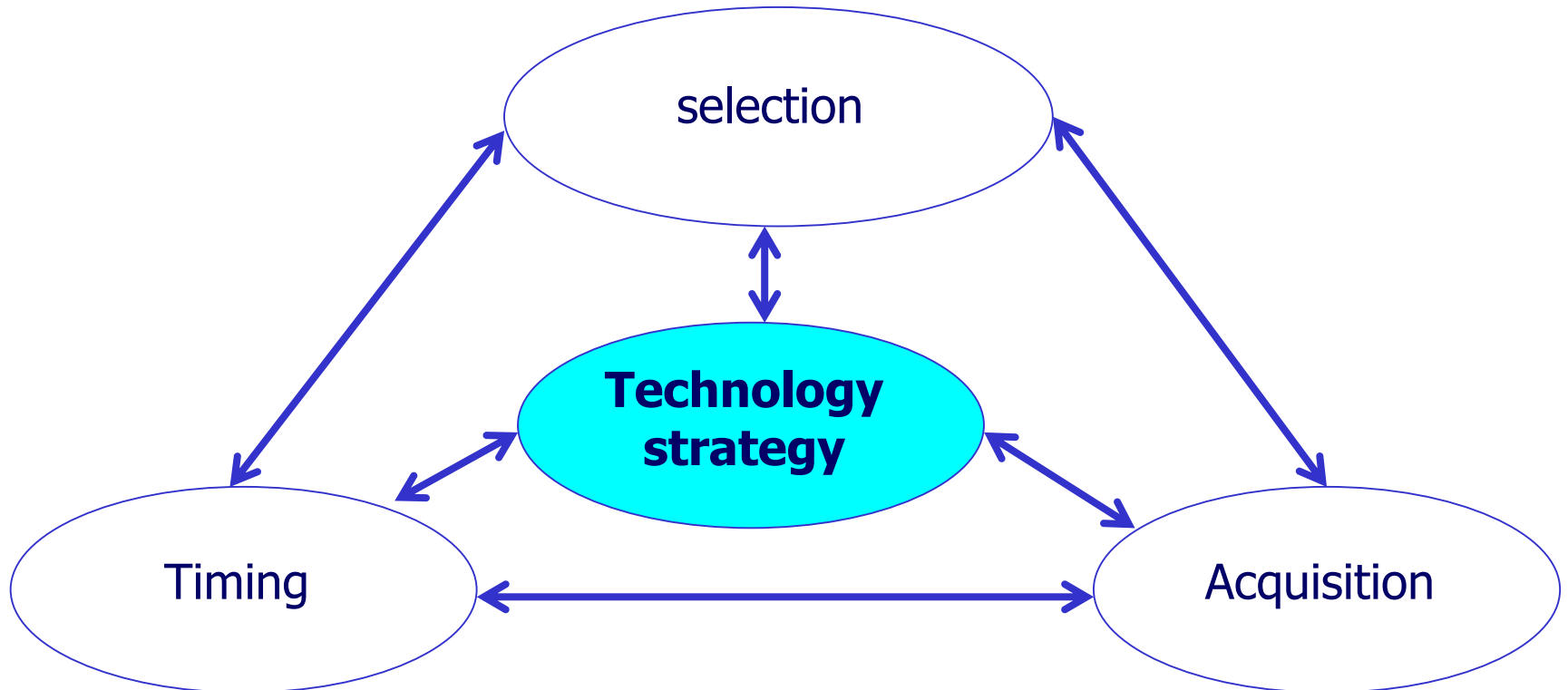


Companies need to have:

- **Strategic vision**
- **Managerial and organizational capabilities**
- **Good chances**

Technology strategy

Technology intelligence



References

- Chiesa chapters 1.2, 1.3, 1.4;
- Chiesa ch. 2;
- Chesbrough, H. W. (2006). Open innovation: The new imperative for creating and profiting from technology. Harvard Business Press.

Links

- The innovation funnel
- <http://www.ifm.eng.cam.ac.uk/research/dstools/innovation-funnel/>