



**UNIVERSITÀ  
DEGLI STUDI  
DI TRIESTE**

**Deams**

Dipartimento di

**Scienze Economiche, Aziendali,  
Matematiche e Statistiche "Bruno de Finetti"**

**UNIVERSITY OF TRIESTE – DEAMS DEPARTMENT  
BACHELOR COURSE IN BUSINESS & MANAGEMENT  
A.Y. 2022 – 2023**

**BLOCK 7**

**Management of Innovation**

**INSTRUCTOR**

**Guido Bortoluzzi (Ph.D)**

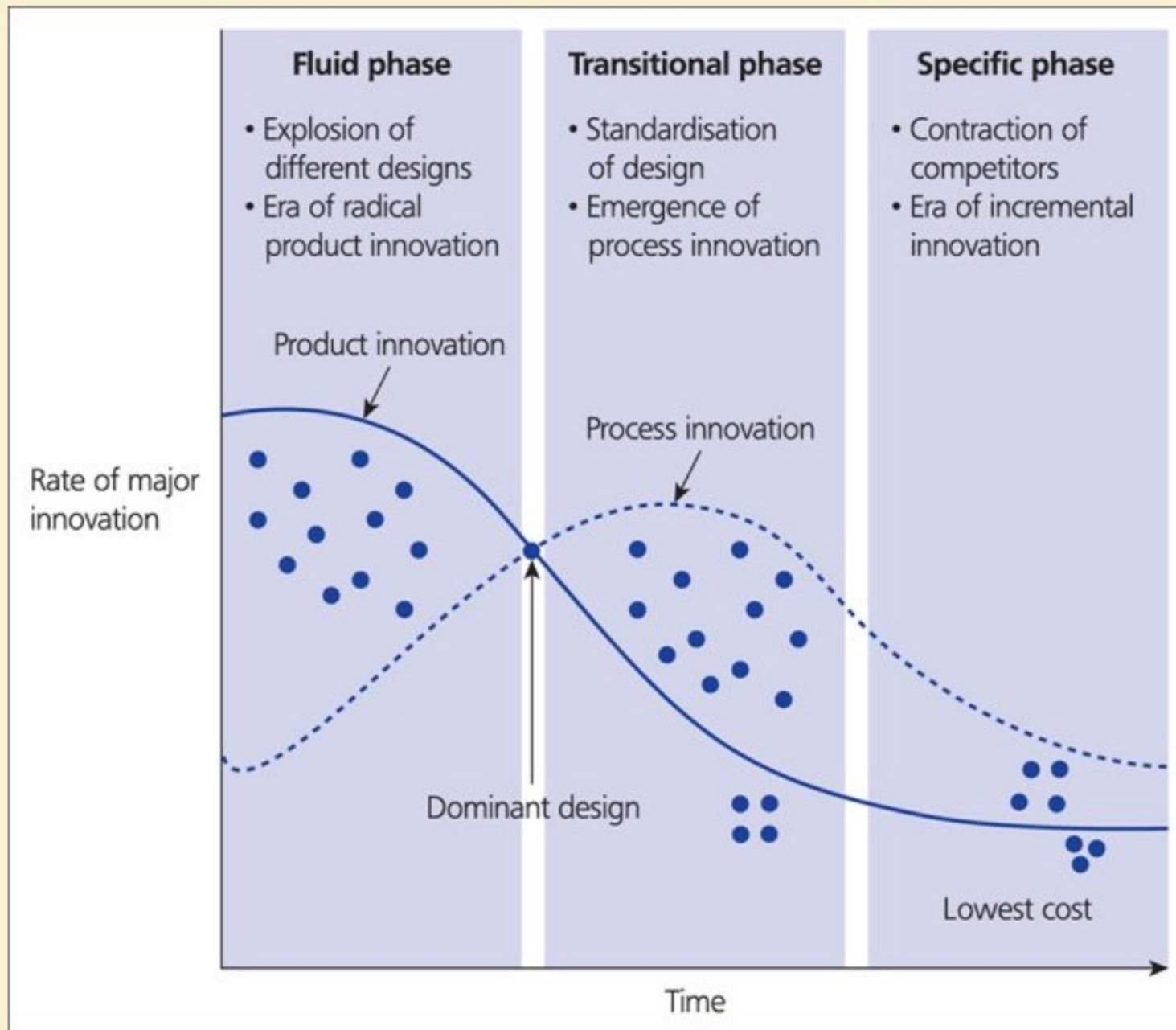


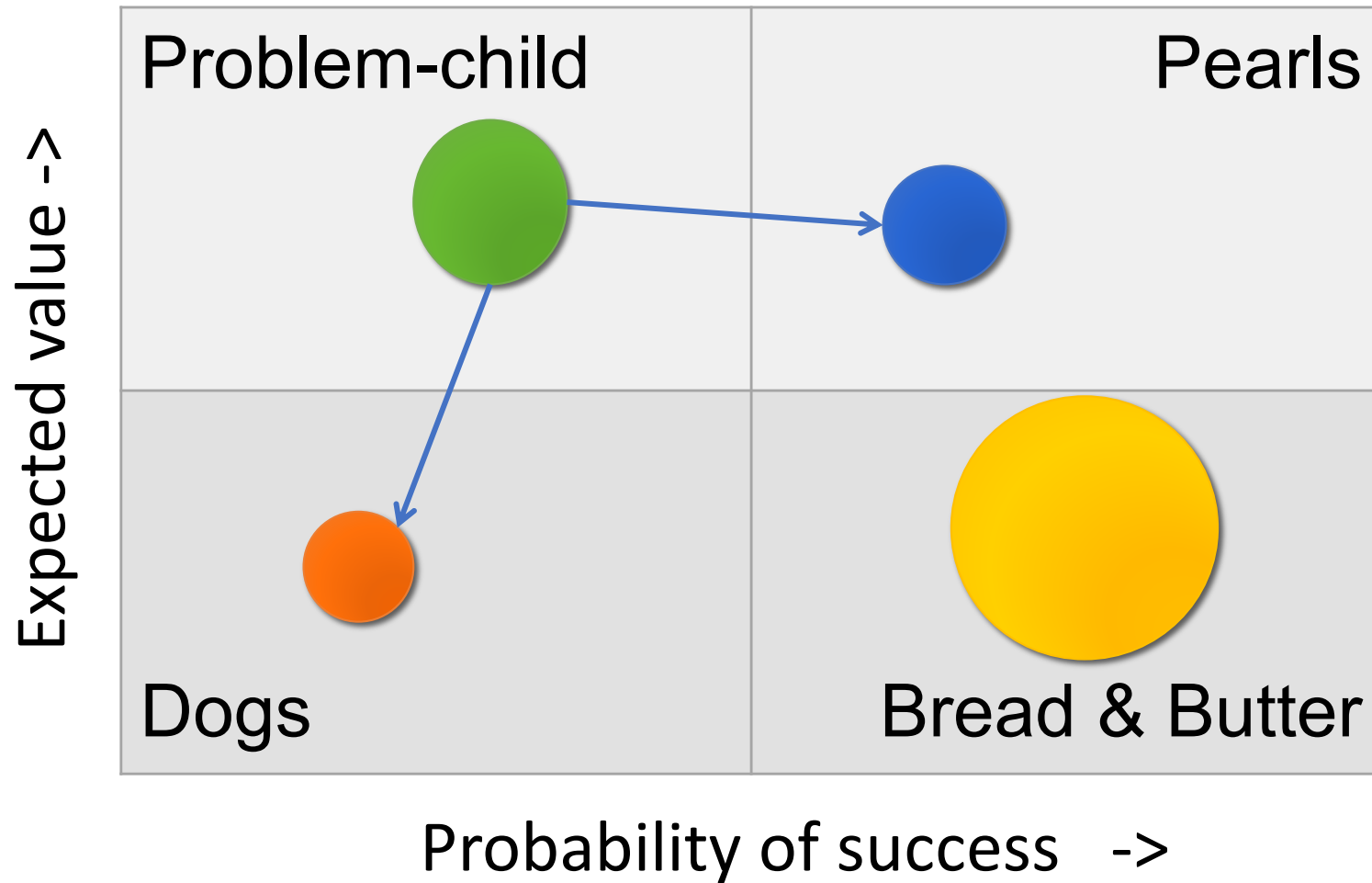
Figure 6.8 **Abernathy and Utterback's three phases of innovation**

Source: Utterback (1994).

# Decision making under uncertainty

1. In an uncertain world it makes NO SENSE to make too much detailed long-term plans in advance
2. However, firms can not innovate at random. They need some tools in order to better allocate their (scarce) financial resources to innovation projects
  - How to recognize more/less promising projects?
  - How to allocate money?
3. Options are not always clear
4. Firms must try to find solutions to convert uncertainty into something closer to a calculated risk

# PORTFOLIO MANAGEMENT TOOLS

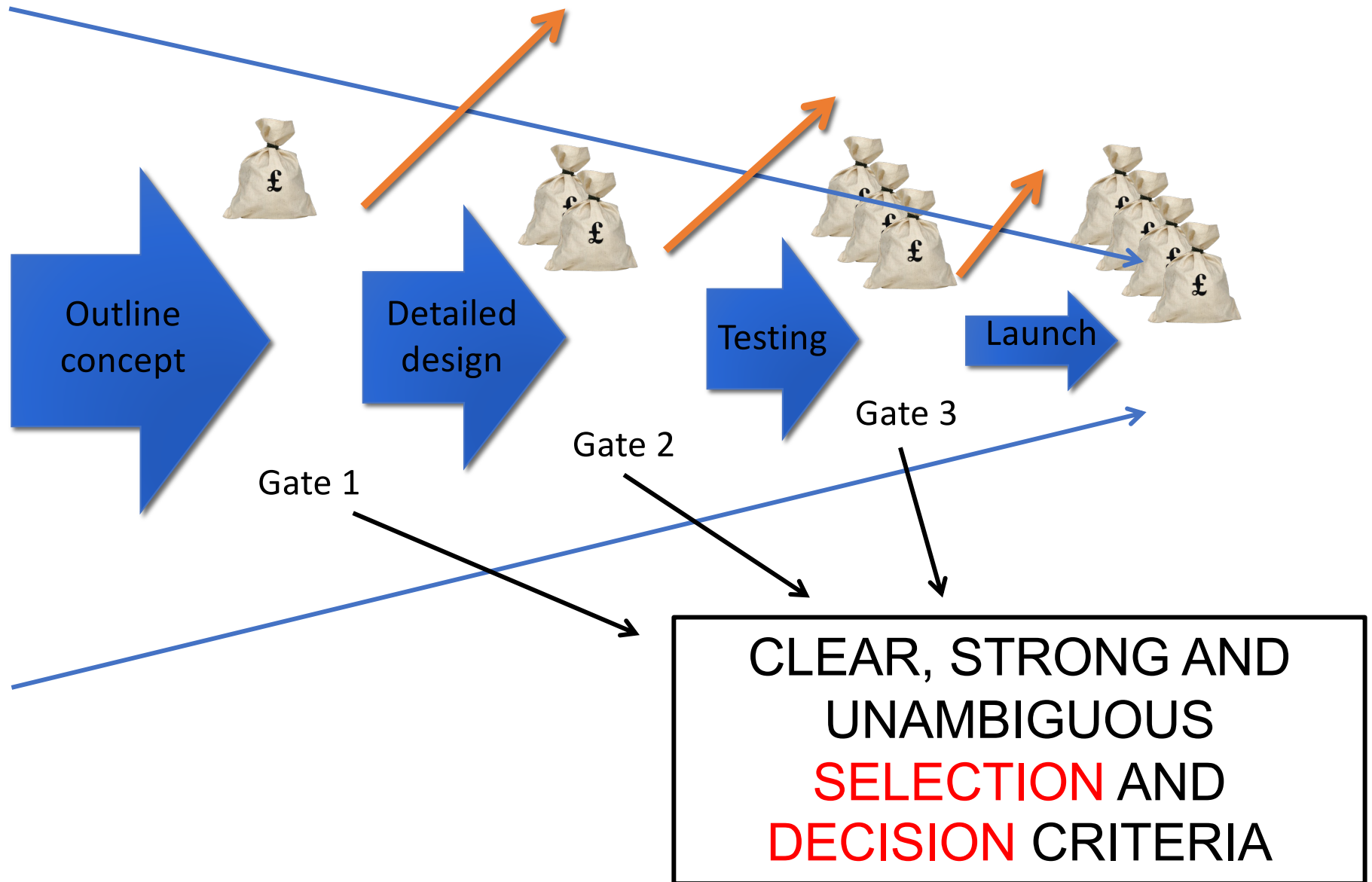


# Problems arising from poor portfolio management

Without portfolio management there may be...	Impacts
No limit to projects taken on (too many prob-child)	Resources spread too thinly
Reluctance to kill-off or de-select (too many dogs)	Resource starvation and impacts on time - and cost - overruns
Lack of strategic focus in project mix (too many dogs and bread&butter)	High failure rates, or success of unimportant projects and opportunity costs against more important projects

POPULAR KPI FOR INNOVATION

% OF REVENUES COMING FROM PRODUCTS DEVELOPED IN THE LAST X YEARS (NORMALLY 3 OR 5)



It makes no sense to commit all the financial resources at the outset when uncertainty is very high but instead to make a series of stepwise decisions

# The Stage-Gate approach

- Stage-gate model originates from the need to **manage in a more effective way** the process of New Product Development (NPD), from the idea generation phase until the market launch.
- Stage-gate applies Process-management methodologies to innovation processes. For this reason **it can be applied to any type of structured innovation process, services or products.** The logic and concepts remain the same.

# How does Stage-Gate work

- A stage gate system is (in average) composed by **4-7 stages**, depending on the complexity and the degree of novelty of a product/service
- Each stage is followed by a gate.
- Every gate opens once a project reaches the minimum requirements established in each stage.
- Hence, a decision must be taken at the end of each stage. This decision will enable or disable the project to continue.
  1. PASS
  2. PASS but (minor) REVISIONS are required
  3. NOT PASS until MAJOR REVISIONS are carried out (and a second evaluation will be needed)
  4. REJECT and WITHDRAWN
  5. PUT on HOLD for re-evaluation

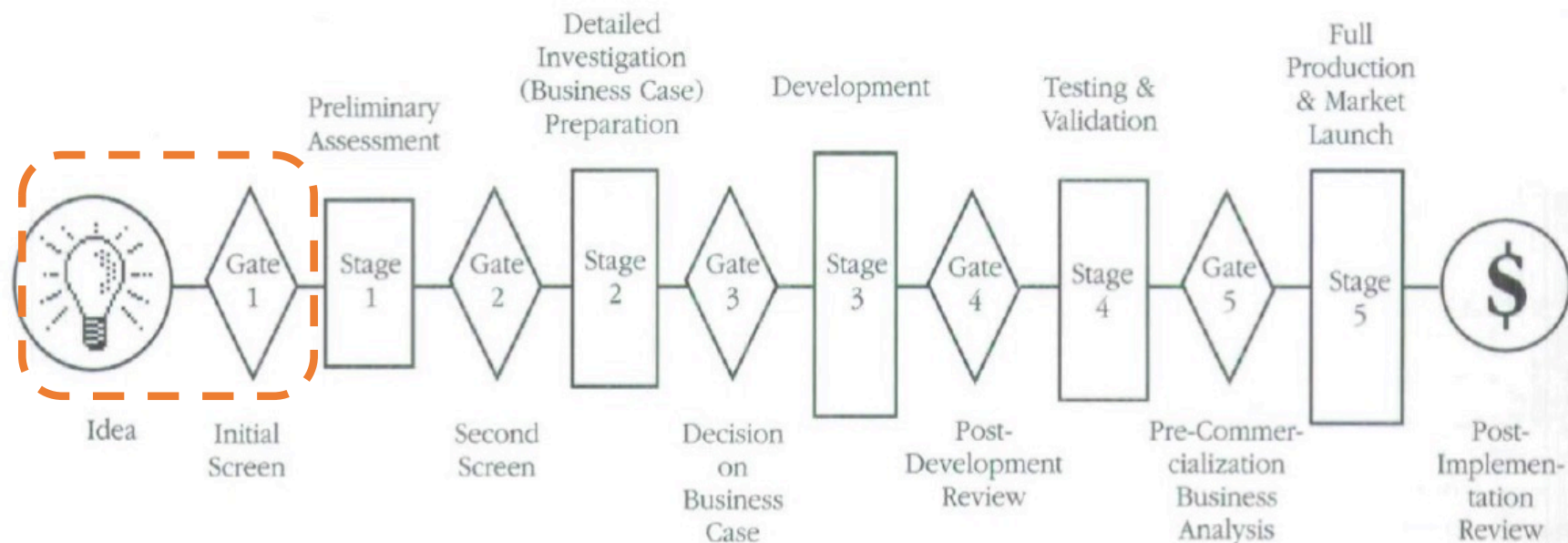


# Main actors in the Stage-Gate process

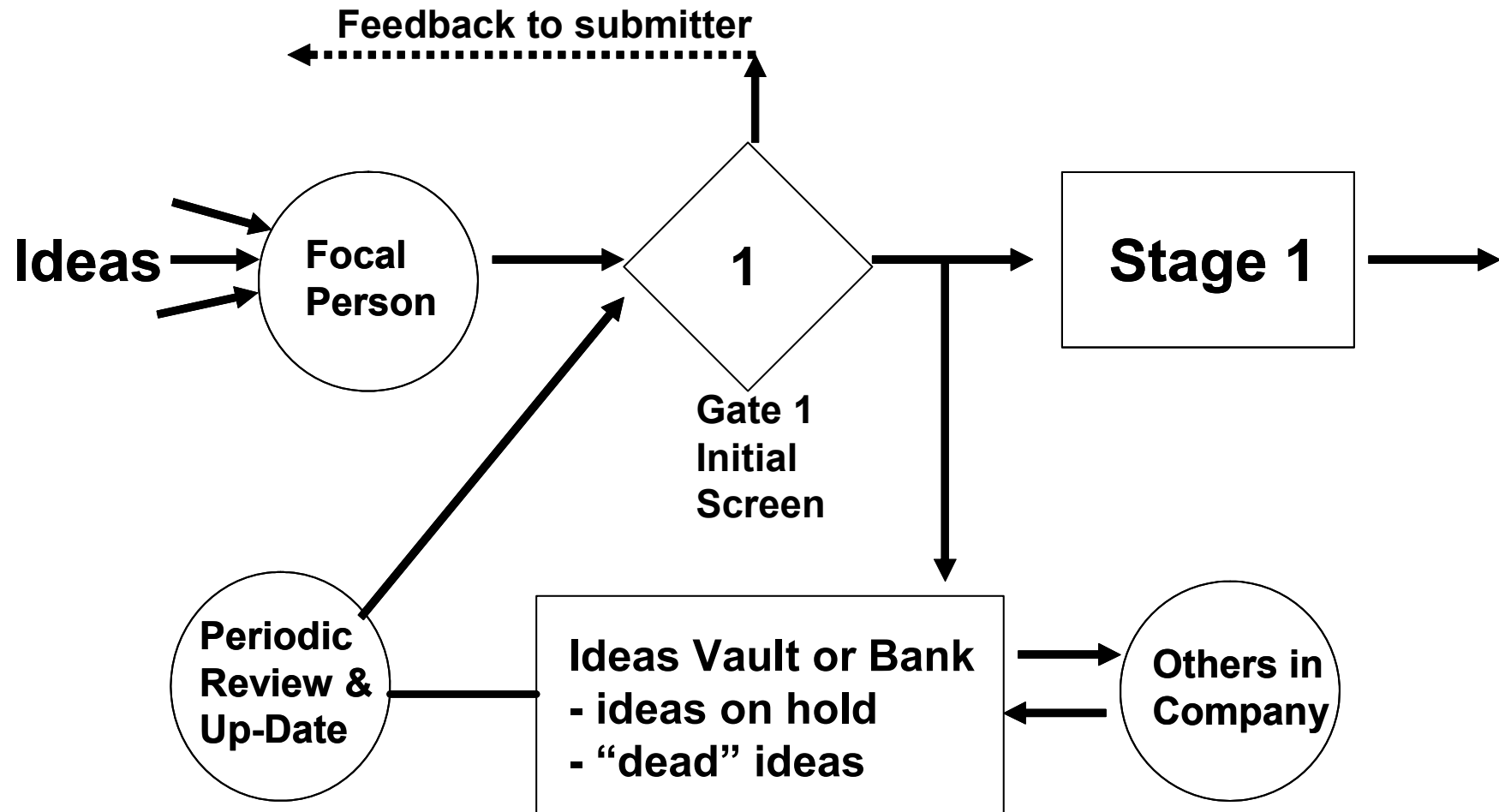
- **Project leader(s)**: Project leaders follow the progress of the idea during the entire process. They **provide guidance** to the the team they lead, leading the team to reach the objectives and the standards required in each stage.
- **Gatekeeper(s)**: The gatekeepers are responsible for the gate. They check that the project meets the standard required met. This function implicitly gives to the gatekeepers the responsibility to ensure that a business idea is in line with the company's strategy, resources and capabilities. Gatekeepers are normally organized in **cross-functional** and **multidisciplinary** teams.

# Stage-Gate approach to N.P.D.

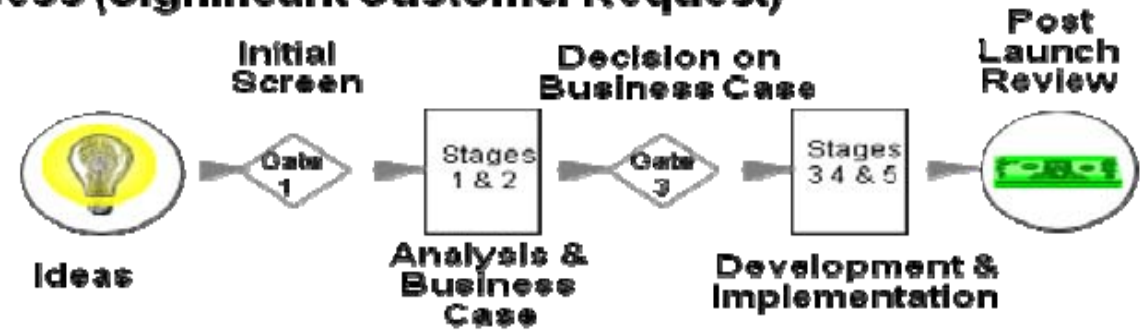
Figure 2  
An Overview of a Stage-Gate System



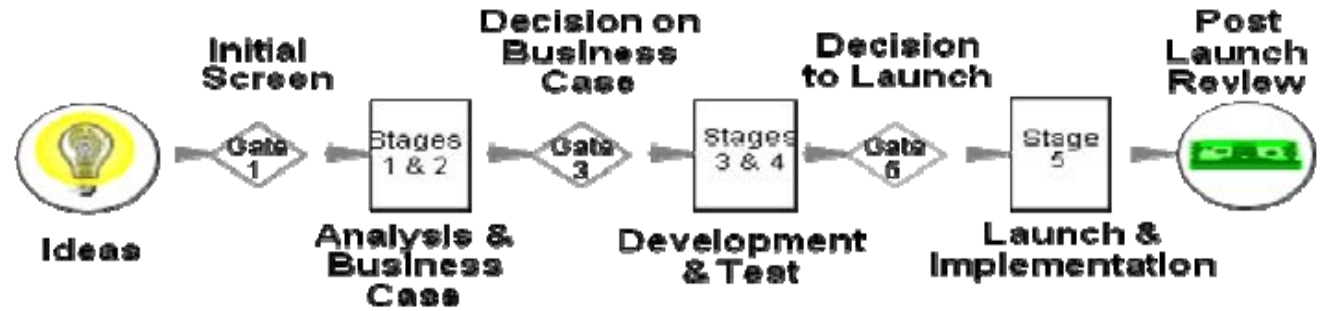
# Idea capture and handling system



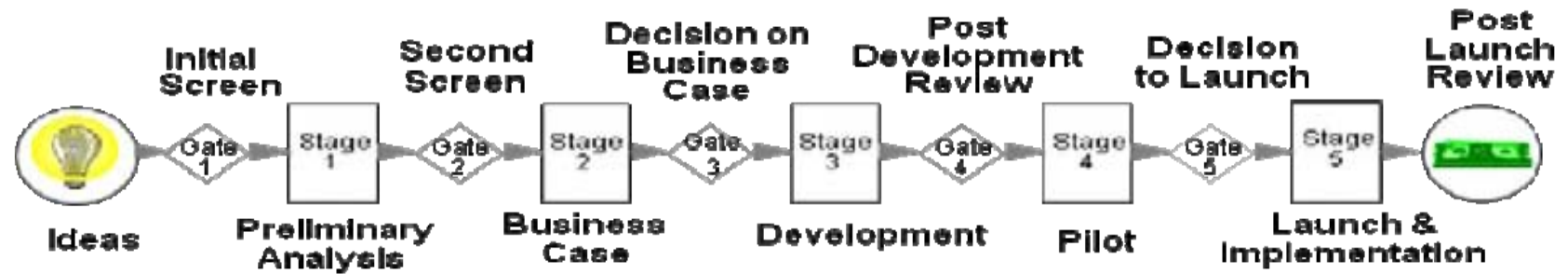
### SCR Process (Significant Customer Request)



### Fast Track Process (for lower risk projects)



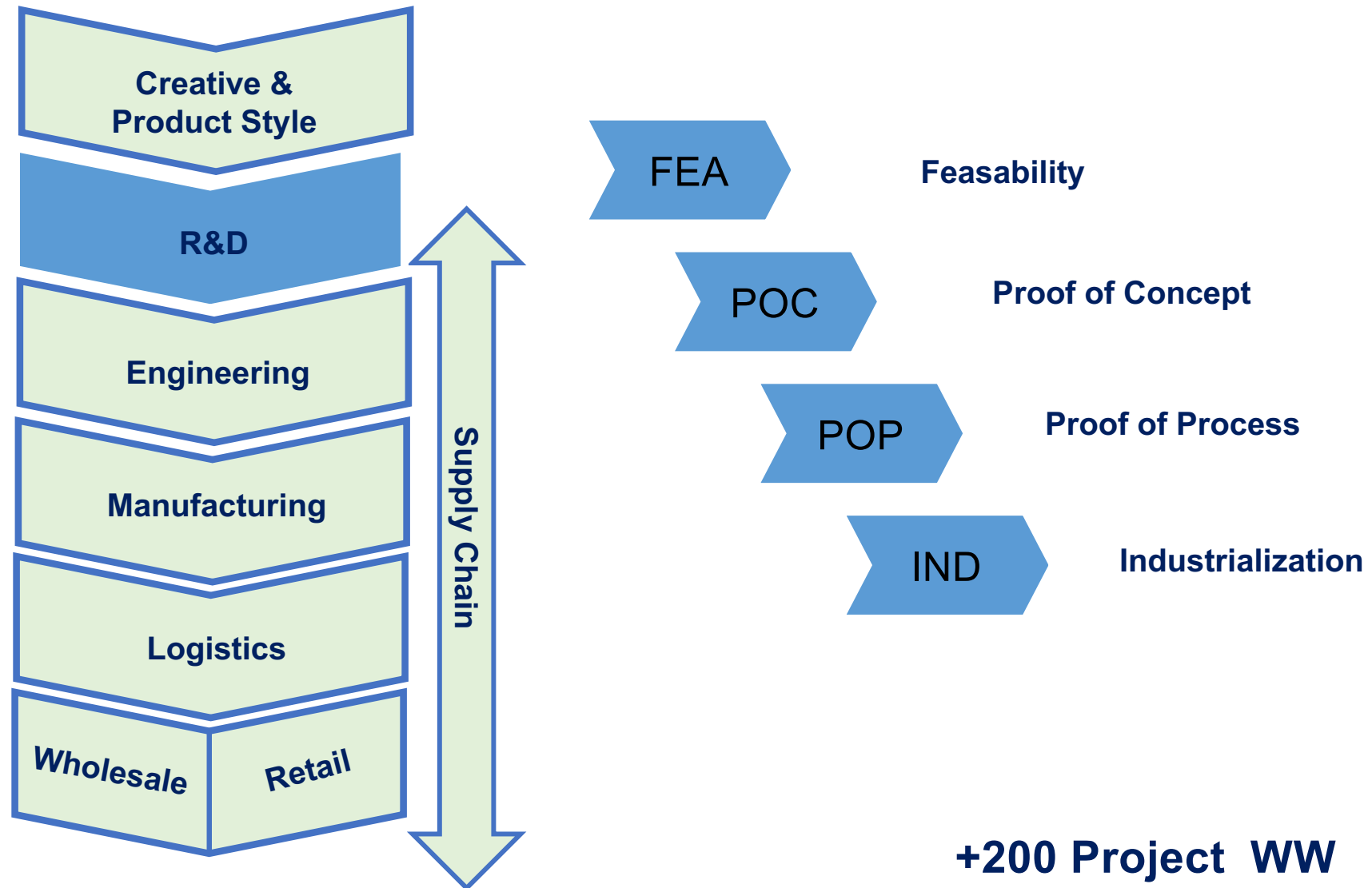
### Full 5-Stage Process (for larger, higher risk projects)



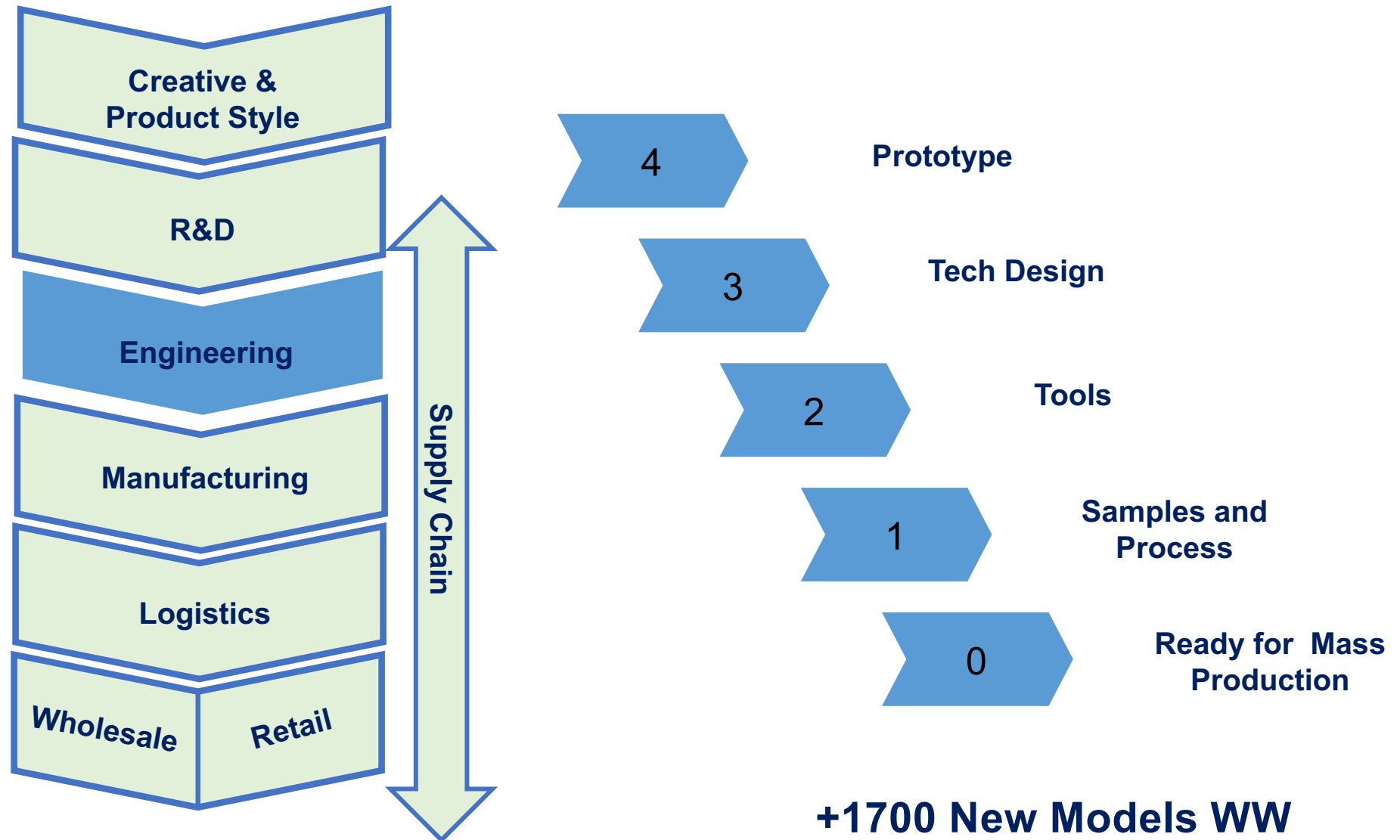
# Activities in each stage

- **Stage 0 -Discovery:** Activities designed to discover opportunities and to generate new product ideas.
- **Stage 1 -Scoping:** A quick and inexpensive assessment of the technical merits of the project and its market prospects.
- **Stage 2 -Build Business Case:** This is the critical homework stage - the one that makes or breaks the project. Technical, marketing and business feasibility are assessed resulting in a business case which has three main components: product and project definition; project justification; and project plan.
- **Stage 3 -Development:** Plans are translated into concrete deliverables. The actual design and development of the new product occurs, the manufacturing or operations plan is mapped out, the marketing launch and operating plans are developed, and the test plans for the next stage are defined.
- **Stage 4 -Testing and Validation:** The purpose of this stage is to provide validation of the entire project: the product itself, the production/manufacturing process, customer acceptance, and the economics of the project.
- **Stage 5 -Launch:** Full commercialization of the product - the beginning of full production and commercial launch.

# The stage-gate as "it was" in LUXOTTICA: R&D activities



# The stage-gate as "it was" in LUXOTTICA : Engineering activities



# BRAUN





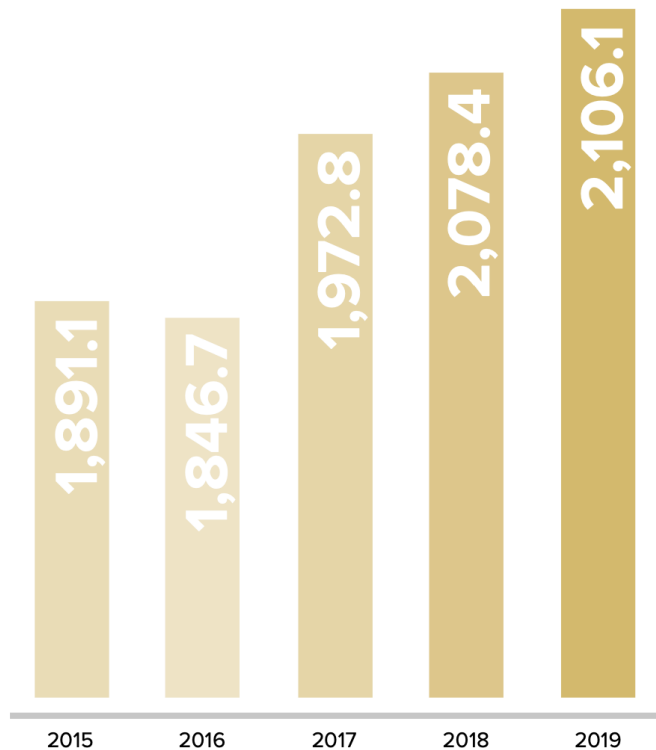


**KENWOOD**

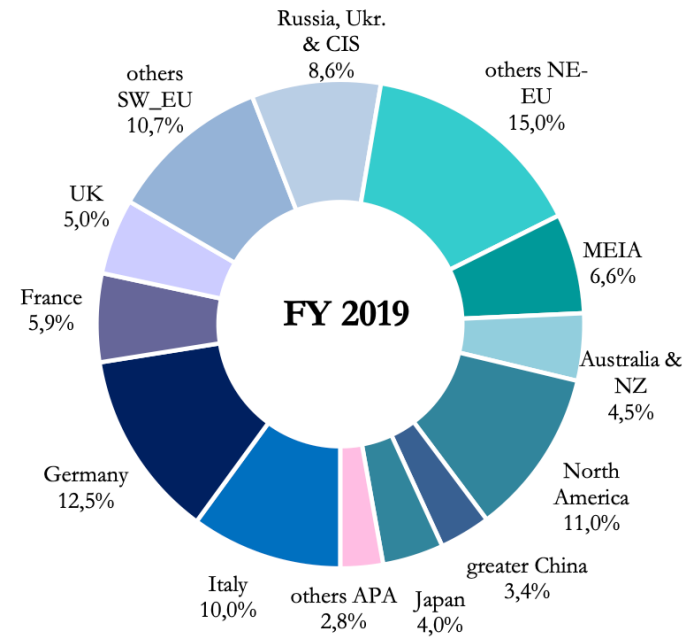
**BRAUN**

**Ariete®**

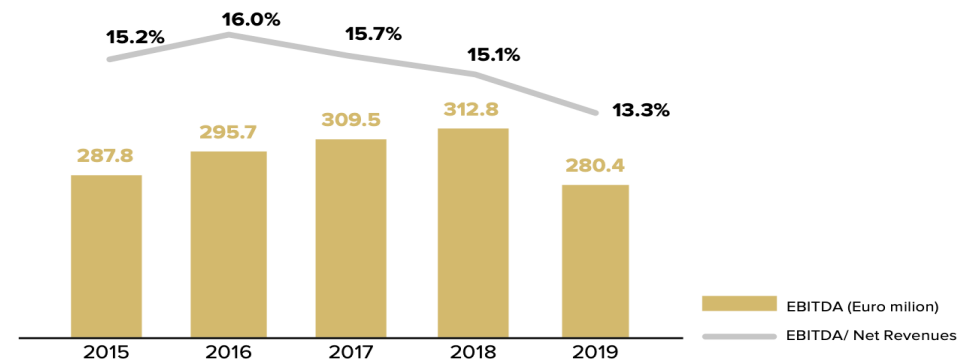
Normalized consolidated revenues amount to €2,106.1 milioni, +1.3%.  
 Good growth in the main European markets.  
 The success of coffee products confirmed.



(Euro million)

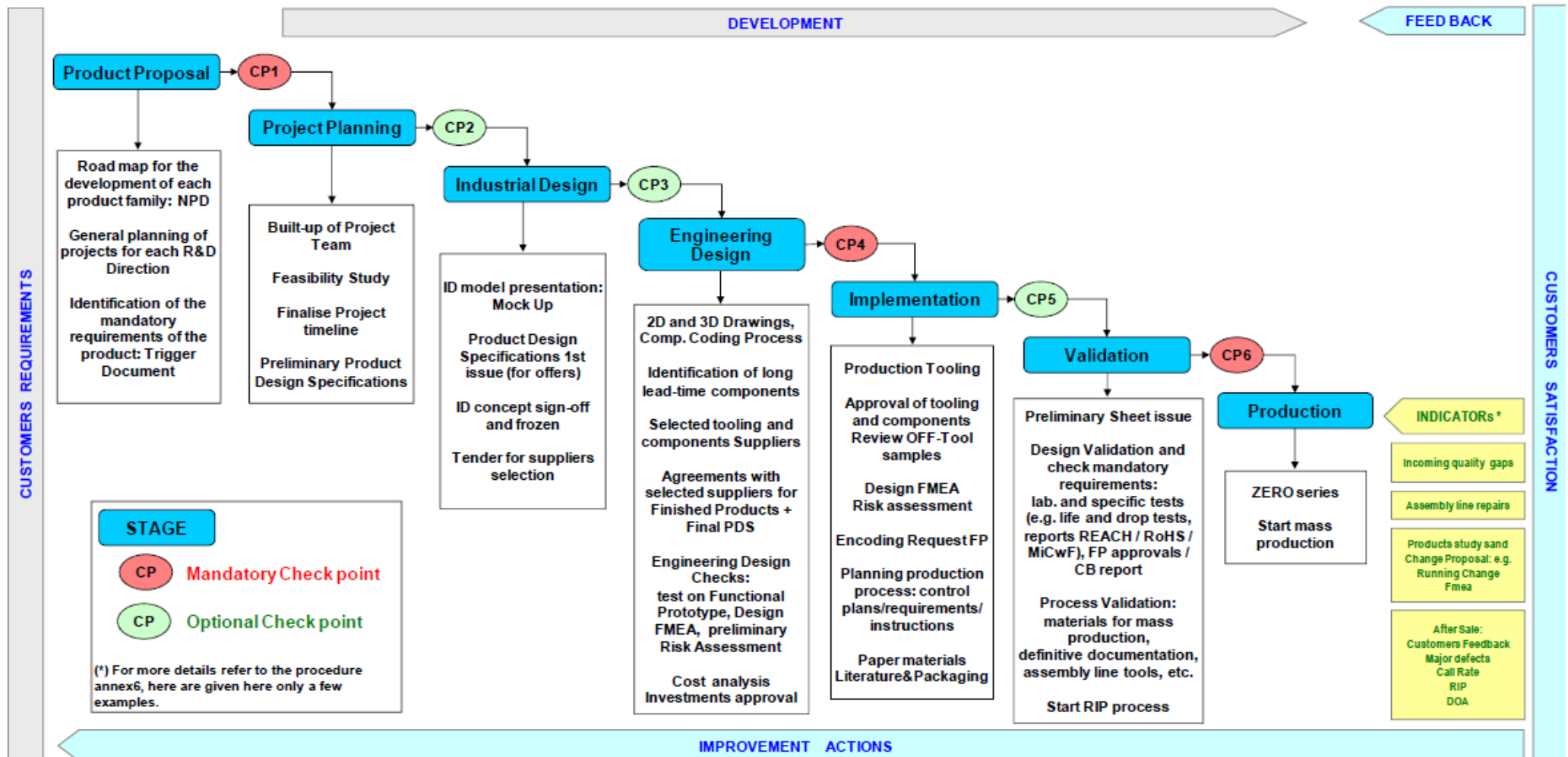


Normalized EBITDA before non-recurring/stock option cost comes to €280.4 million.



EBITDA (Euro milion)  
 EBITDA/ Net Revenues

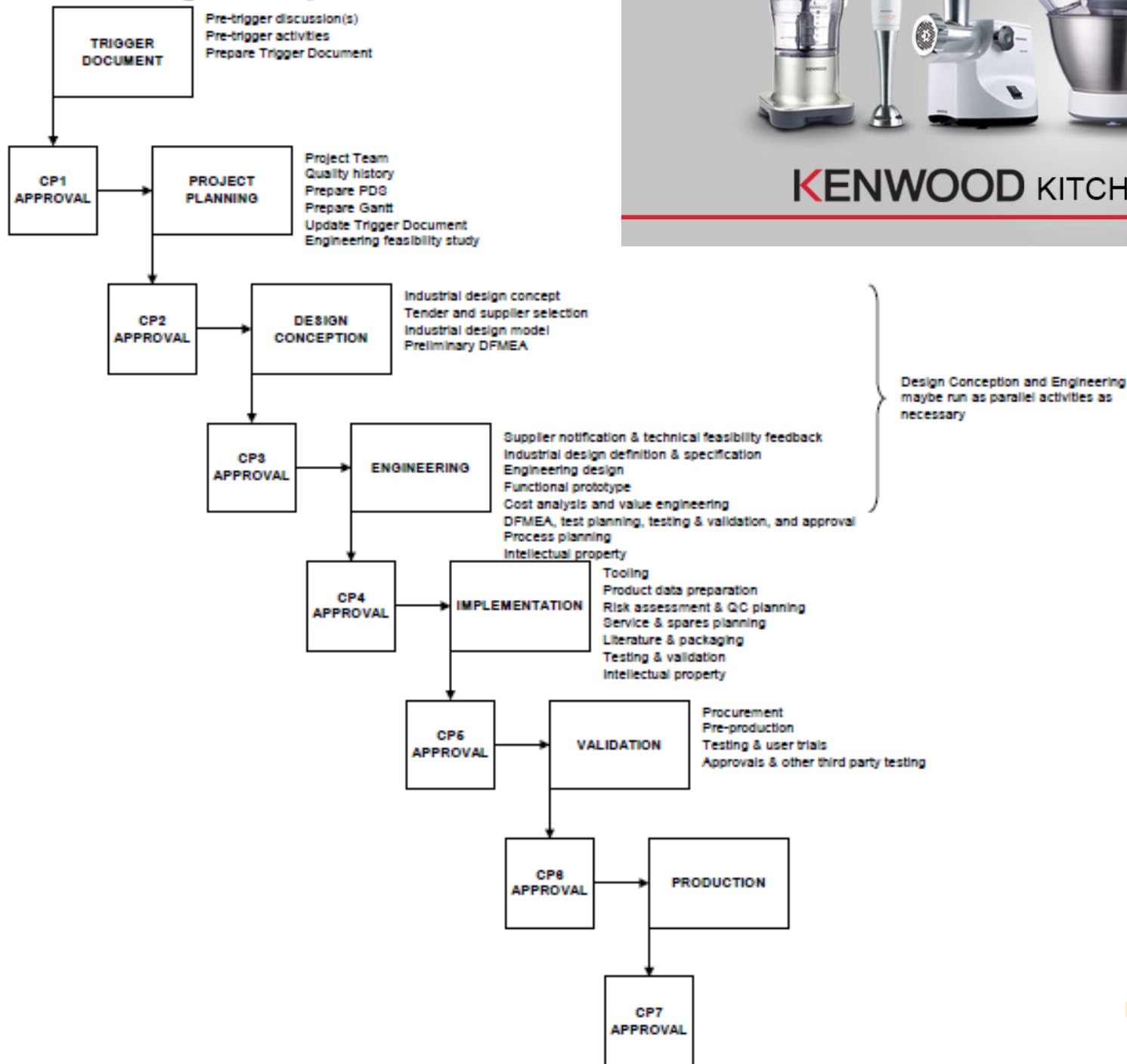
# Braun - DeLonghi NPD overview



Picture 1 – Detailed Project's phases



## KENWOOD KITCHEN APPLIANCES

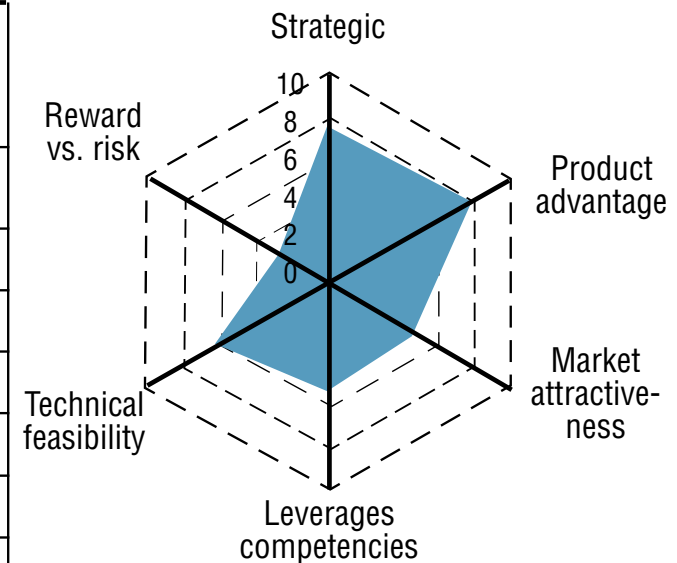


# Go/Kill gate: an example

## Project: Monty-21

Project attractiveness score: 34.4 cut of 60 or 57%	Decision: GO, COMMIT
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Evaluator	Strategic	Product advantage	Market attractiveness	Leverage competencies	Technical feasibility	Reward vs. risk	Score out of 60
JCC	0	10	4	7	7	10	38
MB	10	7	4	4	7	4	36
SJC	10	10	7	4	4	4	39
NCC	10	7	7	4	7	0	35
FK	7	7	4	4	7	0	29
FM	7	5	4	4	4	0	24
GRT	10	10	4	7	7	4	42
HH	7	7	4	7	7	0	32
Total	61	63	38	41	50	22	275
Mean	7.6	7.9	4.8	5.1	6.3	2.8	34.4
Team	10	7	4	4	7	4	36
Std. dev.	3.42	1.89	1.39	1.55	1.39	3.54	



# Problems arising from a poor “gate” management

Typical problems	Impacts
Weak or ambiguous selection criteria	Projects find their way into the mix because of politics or emotion or other factors – downstream failure rates high and resource diversion from other projects
Weak decision criteria (threshold)	Too many “average” projects selected, little impact downstream in the market

**ONLY FOR WOMEN**  
International Design Award

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## A CHAIR FOR MANY

DESIGN FOR A BETTER WORLD  
3<sup>RD</sup> EDITION 2010-11

DELIVERY DEADLINE  
MARCH 8<sup>TH</sup> 2011

areadeclic is launching a competition exclusively open to female designers. Participants are asked to design a **FAMILY OF OBJECTS** (chair, armchair, stool, table, small table) in **METAL** for the **CONTRACT** market characterized by solutions aimed at reducing the environmental impact to a minimum during production, use and disposal.

1<sup>ST</sup> PLACE > 1.500,00 EURO  
2<sup>ND</sup> PLACE > 1.000,00 EURO  
3<sup>RD</sup> PLACE > 500,00 EURO

The jury's decision will be notified  
by March 31<sup>st</sup>, 2011.  
The prizes will be given during the  
"Salone Internazionale del Mobile", in Milan.

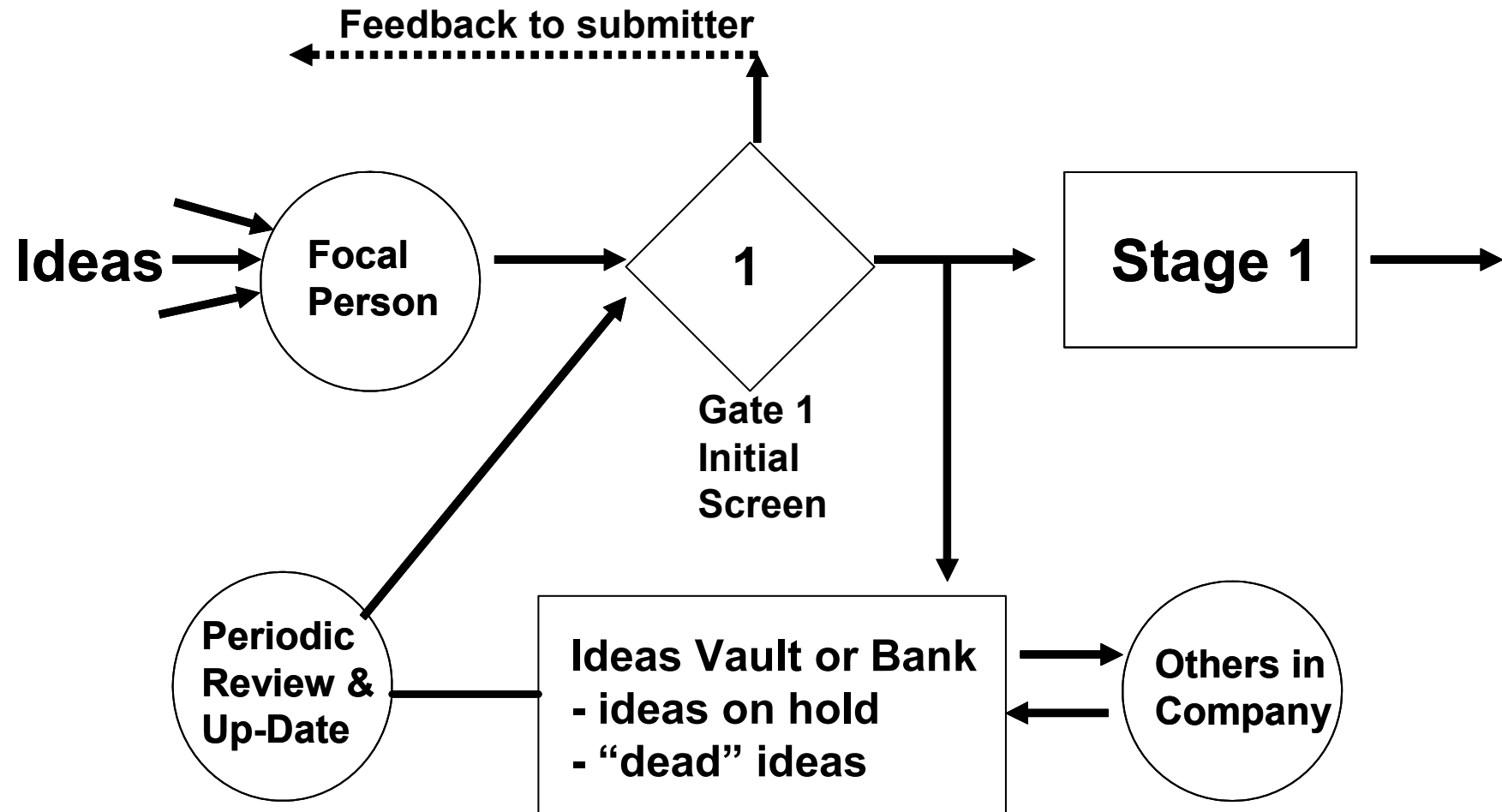
download  
<http://www.areadeclic.com/onlyforwomen/3-edizione-2011>



PHOTO BY VIRGINIA FANCHI (NOBILDOMA IN BIANCO CON ARAGOSTA, 2008)

# What was missing?

## An idea capture and handling system



# Weaknesses of the Stage-gate model

*“The world has changed a lot since the first Stage-Gate system was implemented—it is now faster paced, more competitive and global, and less predictable. In this context, Stage-Gate has attracted a number of criticisms: It is accused of being too linear, too rigid, and too planned to handle more innovative or dynamic projects. It’s not adaptive enough and does not encourage experimentation. It’s not context-based—one size should not fit all. Its gates are too structured or too financially based, and the system is too controlling and bureaucratic, loaded with paperwork, checklists, and too much non-value-added work (Becker 2006; Lenfle and Loch 2010). Some authors have taken issue with these criticisms, arguing that most are due to faulty implementation (Becker 2006), while some deficiencies have been corrected in more recent evolutions of Stage-Gate (Cooper 2011)*



# Adding crowdsourcing to stage-gate



## Adding Value to Stage-Gate Through the Use of Challenges

### Introduction

Companies with lengthy or complex product development cycles typically employ a wide-variety of structured methodologies, processes, and tools to more efficiently manage these cycles, reduce risk, and accelerate time-to-market for new products or services. Product Lifecycle Management (PLM), Stage-Gate<sup>1</sup>, New Product Development and Introduction (NPDI), lean manufacturing, Six Sigma<sup>2</sup>, and Total Quality Management (TQM) are examples.

This white paper explores the use of prize-based “Challenges” to accelerate innovation outcomes and improve business performance through integration to existing processes.