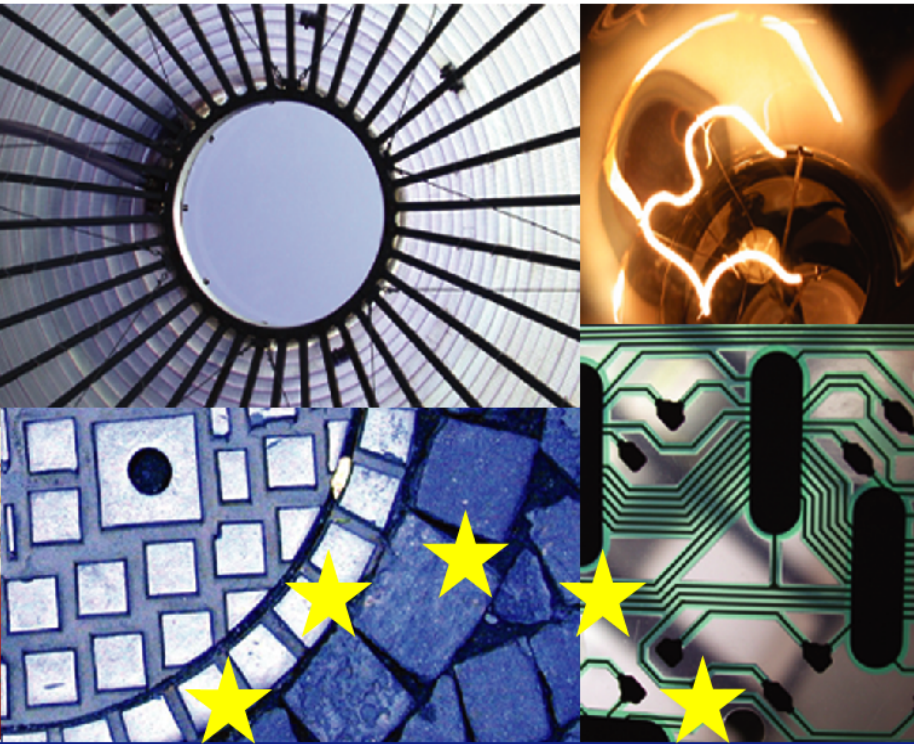




Improvement of the coordination,  
management  
and implementation mechanisms of EU  
Structural Instruments in Bulgaria  
PHARE Twinning Project BG 06 IB SPP 01



**EVALUATION**  
of  
**INDUSTRIAL RESEARCH PROJECTS**  
**CO-FUNDED BY**  
**RESEARCH NOP 2000-2006**

**ENRICO WOLLEB**  
**ISMERI EUROPA**

**Activity: 1.7**  
**Second Study Visit to**  
**Italy**

**Rome, 9 July 2009**



# EVALUATION SCHEME

Socio-Economic Context

Enterprises

INNOVATION NEEDS

PROJECTS: 84  
RESOURCES: 334  
M€

Projects

Programme

OBJECTIVES

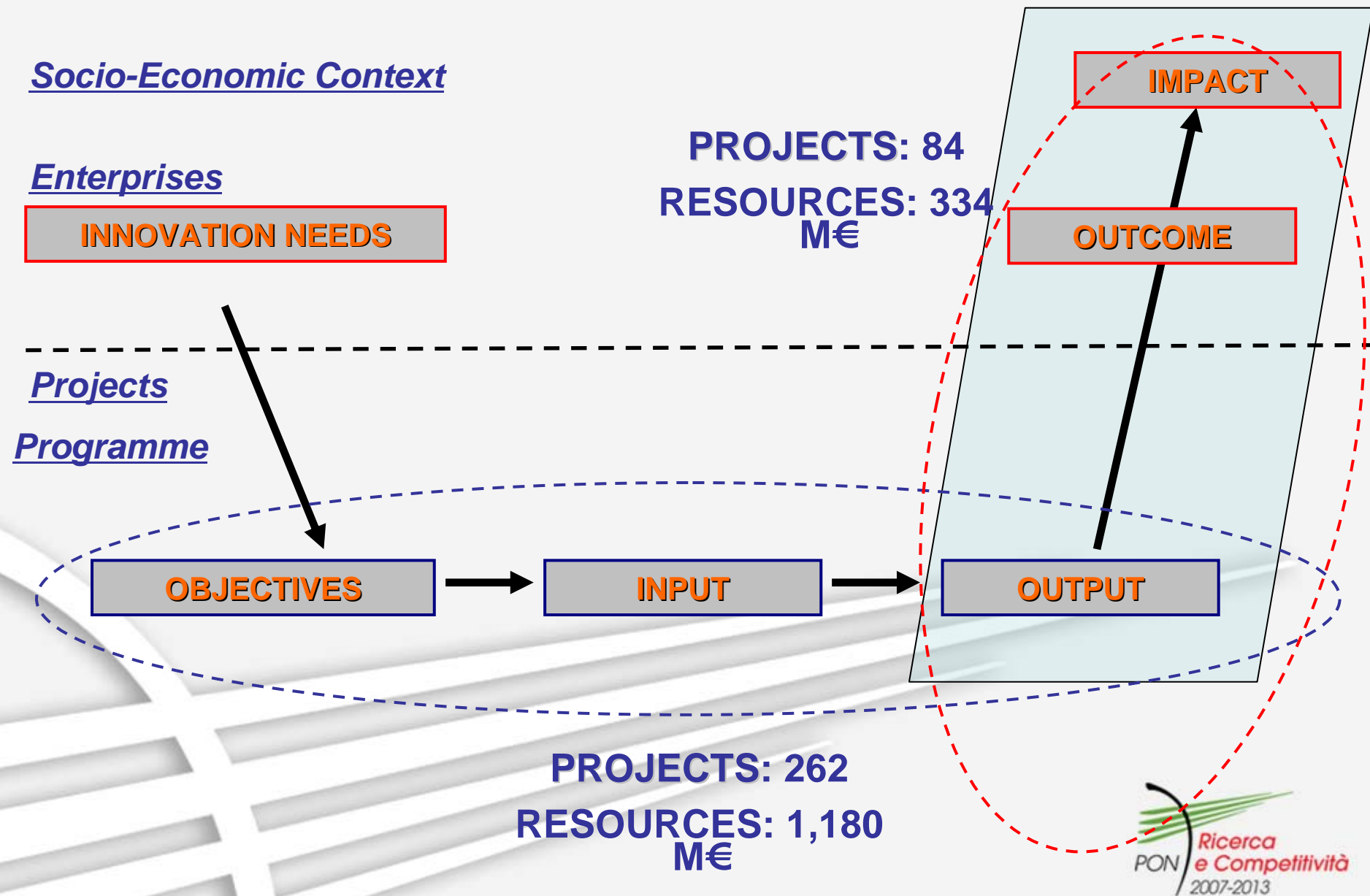
INPUT

OUTPUT

IMPACT

OUTCOME

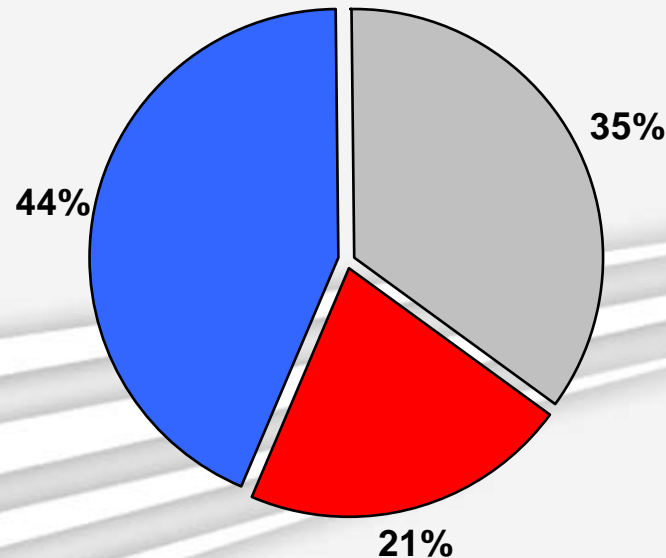
PROJECTS: 262  
RESOURCES: 1,180  
M€



# PROJECT AIMS

- Over a third of interventions are linked to product innovation, in exclusive form (circa 35%) or jointly intervening in the process (44%).

## RESEARCH PROJECT AIMS

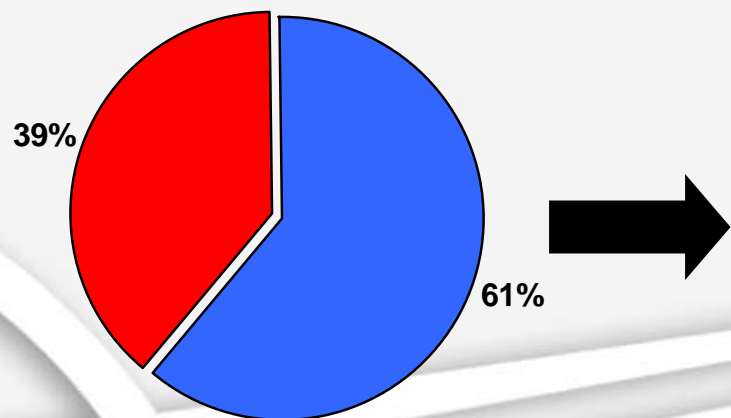


■ PRODUCT | ■ PROCESS | ■ PRODUCT + PROCESS

# PROJECT AIMS AND ENTERPRISES STRATEGIC OBJECTIVES

- Projects mainly insist on Enterprises Weak Points (WPs) (61%)
- Projects pursue precise strategic objectives, in particular productive differentiation and increase in competences and technological knowledge

## STRONG & WEAK POINTS



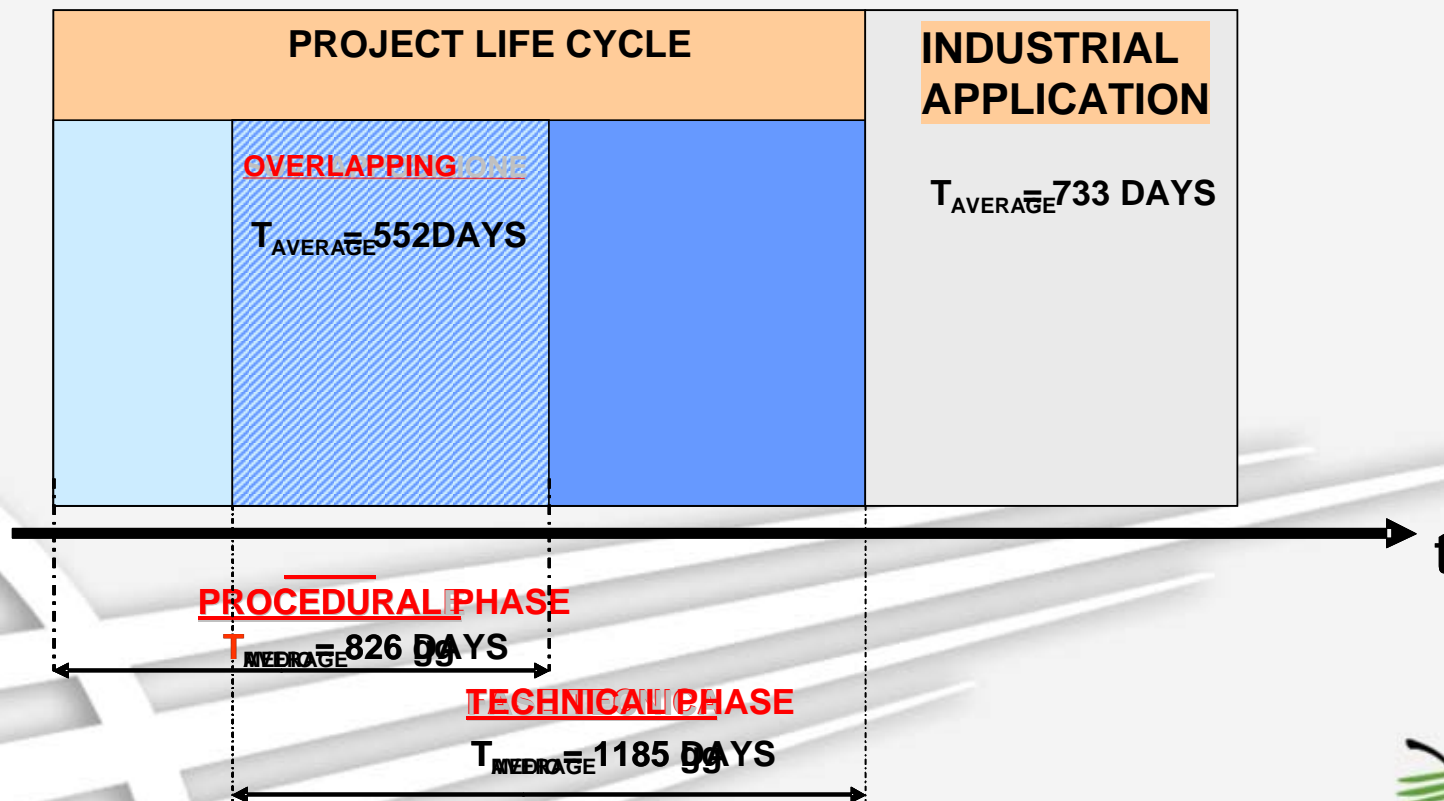
■ Weak Points

■ Strong Points

OBIETTIVI STRATEGICI DELLE IMPRESE	PdF (%)	PdD (%)
Differenziazione di prodotto	40,2	25,2
Competenze e Conoscenze Tecnologiche	33,3	23,7
Tecnologie di processo	19,5	16,3
Interazioni con fornitori, clienti e strutture esterne di ricerca	4,6	9,6
Posizione nel mercato	2,3	12,6
Costi	-	12,6

# PROJECT DEVELOPMENT TIMING

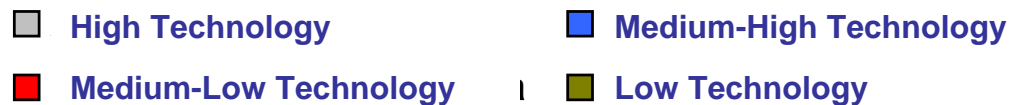
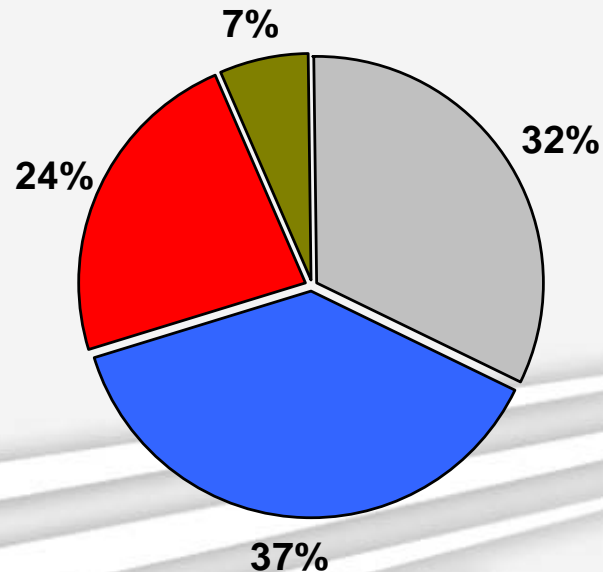
- Project life cycles (procedural timing + implementation technical timing) have an average duration of 4 years.
- Considering the industrialisation phase (89% of projects), the average overall duration – from proposal presentation to concrete application of results – is equal to 6 years.



# PROJECT TECHNOLOGICAL LEVEL

- The outcome of the technological content evaluation identified High and Medium-High level research projects at 69%. Only 7% of interventions were qualified as Low Technology.

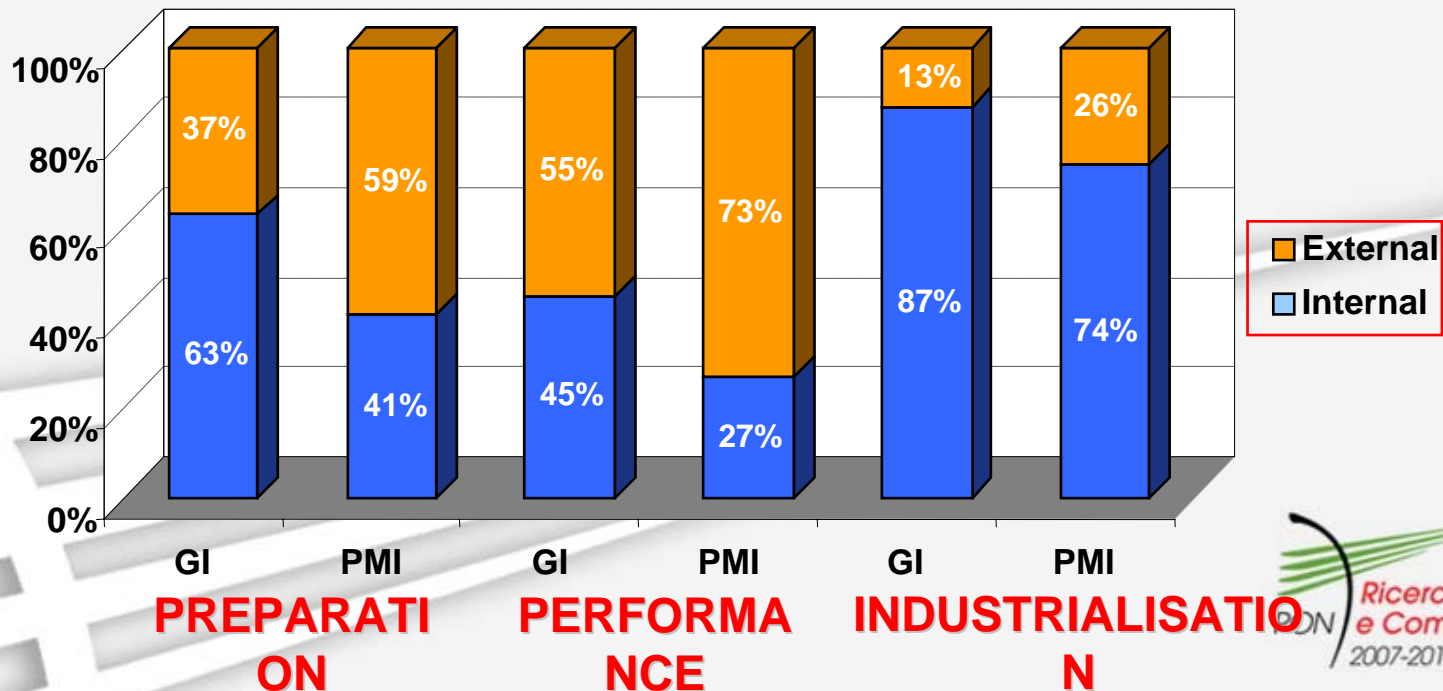
## TECHNOLOGICAL CONTENT EVALUATION



# COMPETENCY NEEDS

- Enterprises resort to external competencies mainly over the phases of preparation and performance of research activities. Such resort is lower over the industrialisation phase.
- The resort to external competences is strongly higher for SMEs over all Project phases.

RESORT TO EXTERNAL COMPETENCIES  
OVER PROJECT PHASES



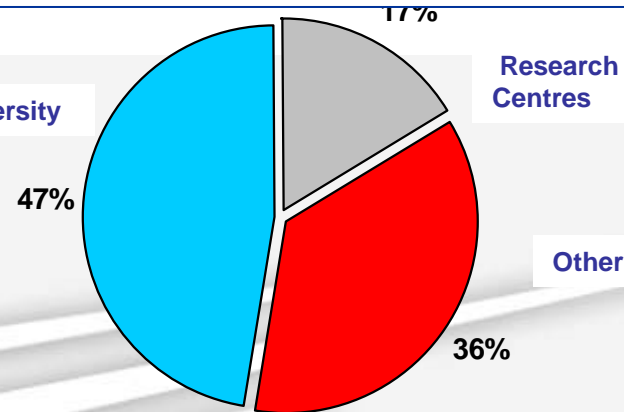


# COMPETENCY NEEDS

- The main source of provision of missing competencies over research implementation phase is University, to which almost half the overall need is entrusted.

## COMPETENCY ACQUISITION SOURCES

Resort to external competences		
Project preparation	➡	48%
Research performance	➡	33%
Found industrialisation	➡	19%

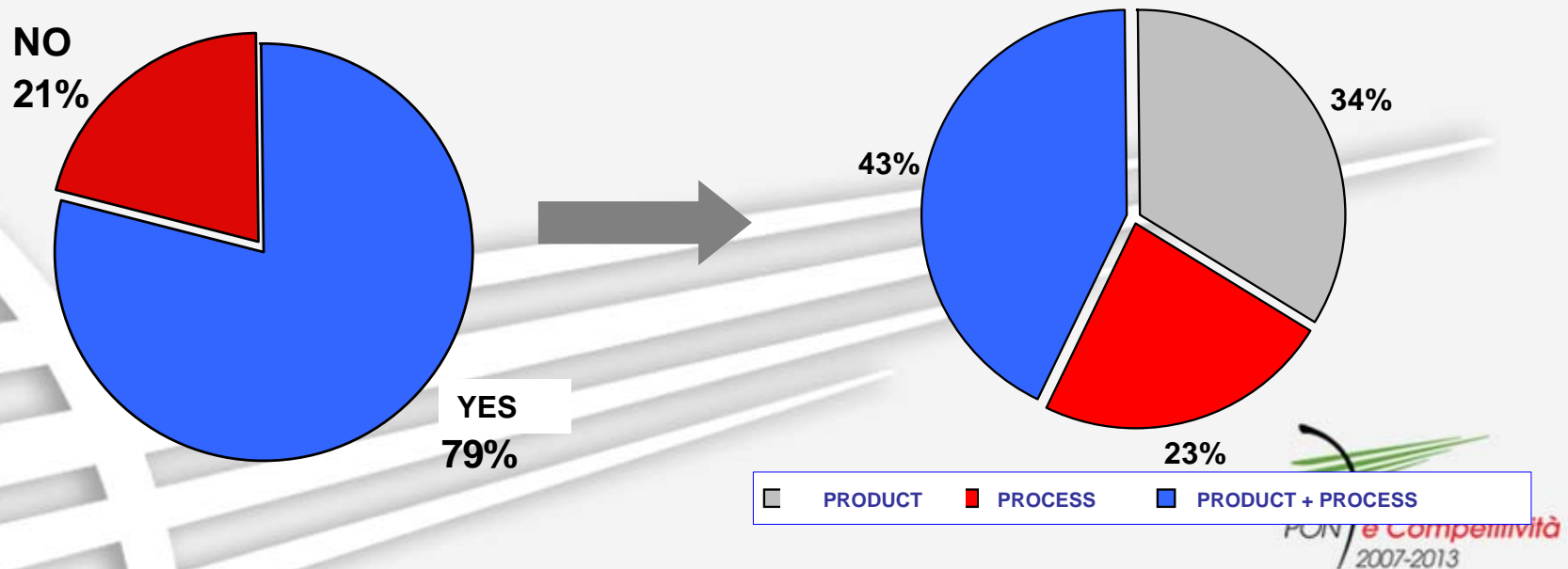




# PROJECT OUTPUT INDUSTRIALISATION

- The results of research projects were industrialised in 79% of cases – i.e. lower percentage than expected (85%).
- A relevant number of “non industrialised” projects concern know-how production to improve corporate operativeness.

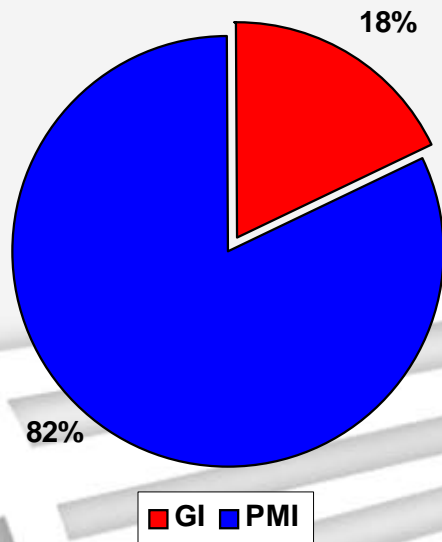
## OUTPUT INDUSTRIALISATION



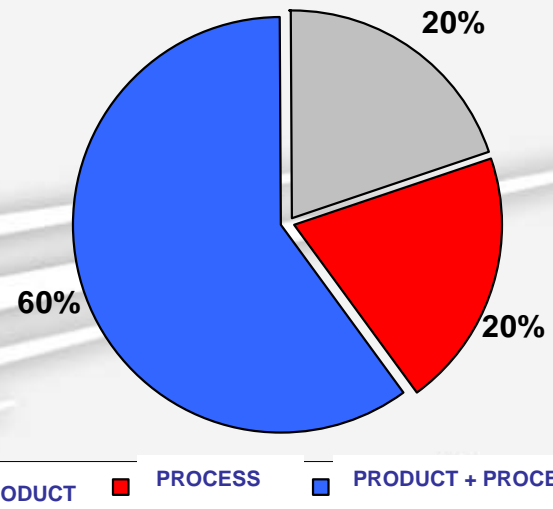
# PATENTS

- Output production concerns 19% of projects
- Patents were registered by LEs and, to wider extent, by SMEs (1 out of 4)
- The subsequent concession of patents is a non common practice to enterprises.

**PATENTS PER ENTERPRISE DIMENSIONS**

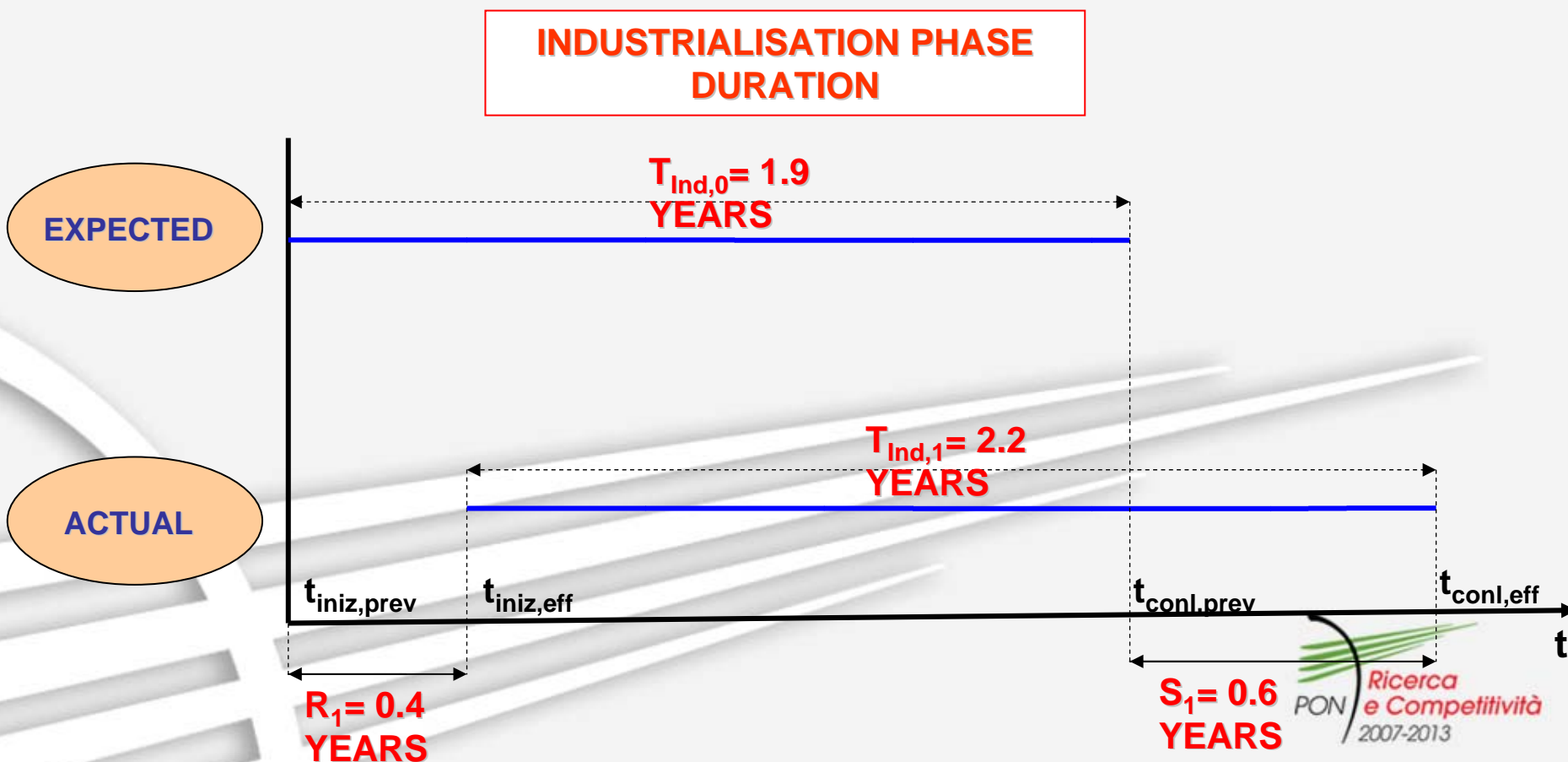


**PATENTS PER INNOVATION TYPOLOGY**



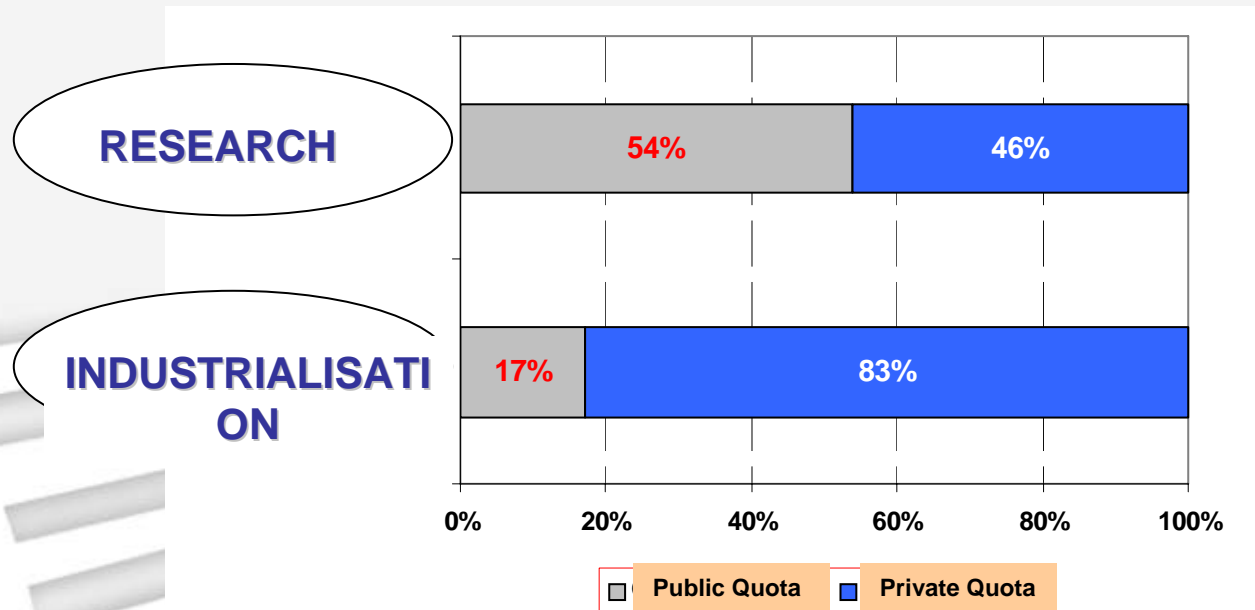
# INDUSTRIALISATION TIMING

- The industrialisation phase lasts, on an average, over 2 years and in 48% of cases involves a 200-day delay.
- On an average, SMEs employ longer than LEs to conclude activities (circa 1 year longer than LEs).



# INDUSTRIALISATION COSTS

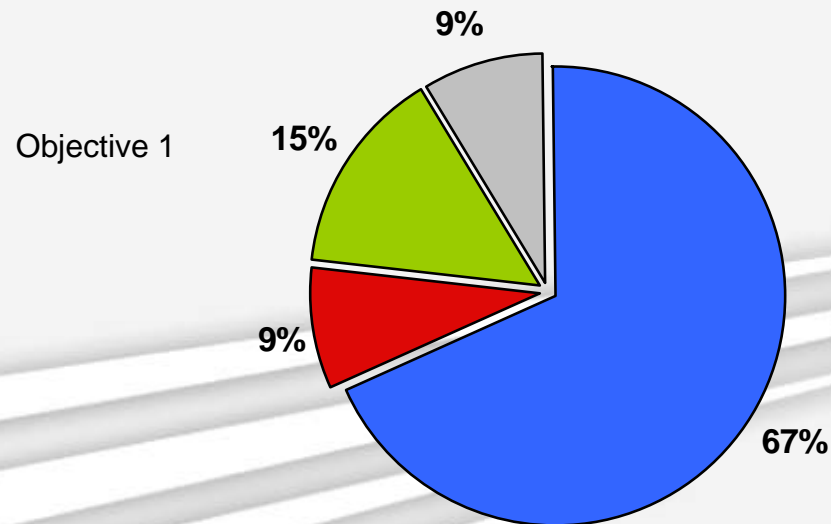
- On an average, investment for industrialisation is equal to circa 1.45 M/€ (1.55 and 1.26 M/€ for SMEs and LEs respectively).
- The investment coverage is largely entrusted to private contribution (83%).
- In general, private contribution is higher than initially envisaged by the enterprises. In some cases, unlike initial expectations, enterprises did not actually perceive the expected contributions and funded activities through own resources.



# INVESTMENT LOCALISATION

- In 68% of cases industrialisation is performed in the same region where research is performed. In 15% of cases, it occurs both in the research region and elsewhere.
- Industrialisation outside Obj. 1 is performed in the same region as the beneficiary enterprise legal seat.

## LOCALISATION OF INDUSTRIALISATION PLANTS

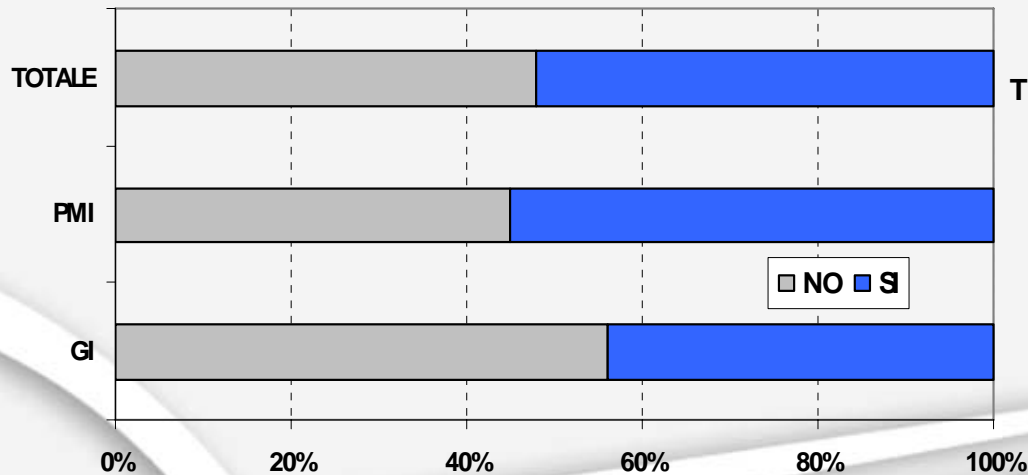


■ Obiettivo 1 ■ Obiettivo 2 ■ Obiettivo 1 e 2 ■ ND

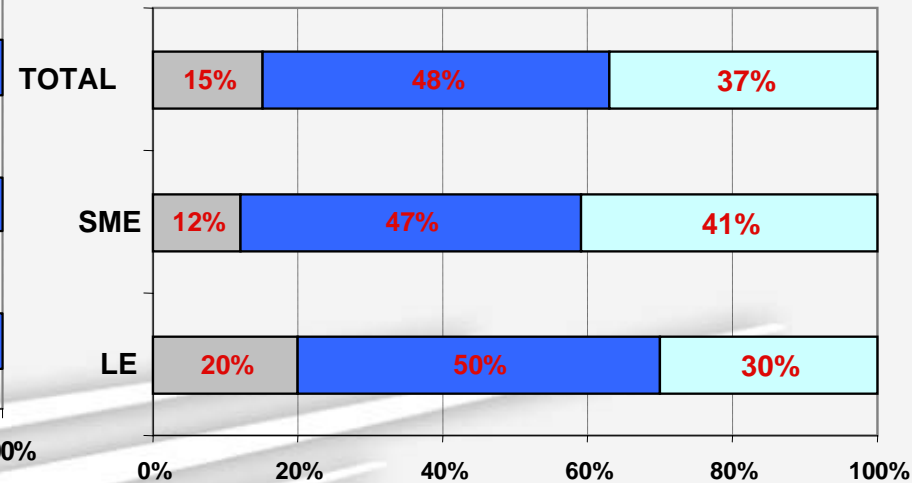
# INDUSTRIALISATION RESULTS

- Relevant project results in terms of **Export**: on an average, 6% increase of enterprises' exports linked to industrialisation and commercialisation of results.

## EXPORT INCREASE



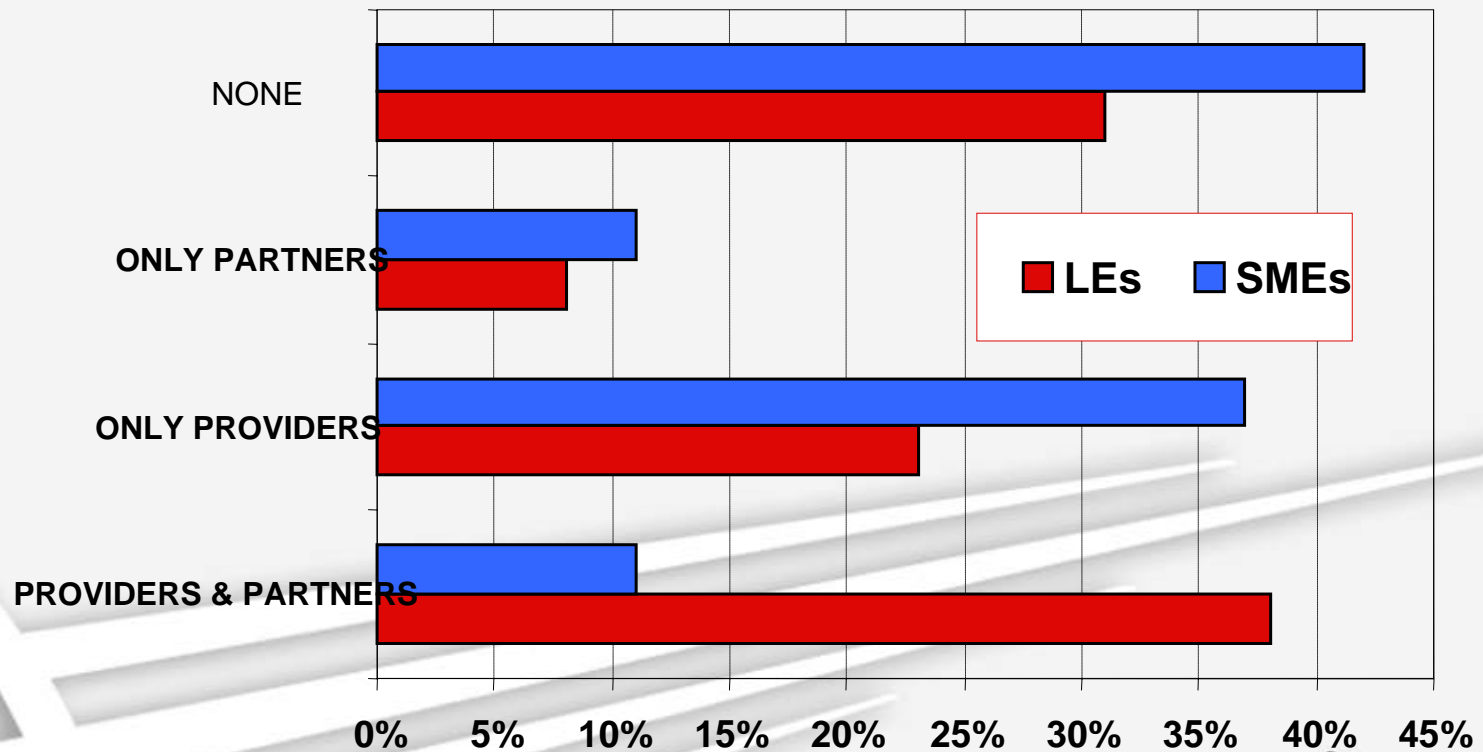
## NEW MARKETS



- NO
- New niches in current geographical markets
- New geographical markets

# INDUSTRIALISATION RESULTS

- 62% of projects exert impacts on value chain, especially on providers to whom a new technology adjustment capacity is imposed.





# INDUSTRIALISATION RESULTS

- Relevant Project results in terms of **Employment**: on an average, 11 and 7 staff units for SMEs and LEs respectively. In absolute value, and overall, an increase of 513 staff units is expected.
- Relevant impact on the **creation of networks**: 87% of projects contributed to creating stable relations among involved enterprises and research institutions (University and EPR). However, networks still appear local (2/3 of projects). Only in 22% of cases cooperation networks are transregional.

# ECONOMIC-FINANCIAL ANALYSIS MODEL

The financial model enables answering to the following questions:

- What are the financial balance conditions of single projects?
- Are expected financial returns commensurable to public and private funding?
- Do firms have a correct perception of the impacts of set up projects on their profitability?

The financial model considers 3 distinct phases: **research, result industrial application, and launch on the market.**

## RELEVANT EFFECTS

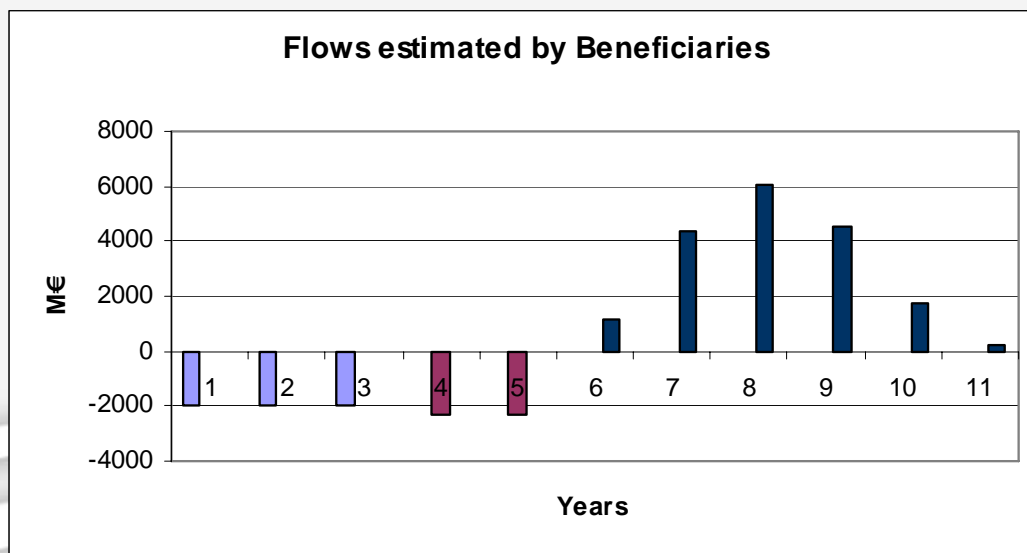
- **Projects suggesting convenient returns**
- **Overall value of financial and economic returns for the public sufficient to ensure the system balance;**
- **Projects profitability and earnings for private subjects.**

# ECONOMIC-FINANCIAL ANALYSIS MODEL

A Project – High technological level – Application of the financial evaluation model to an emblematic case

## DESCRIPTIVE DATA (Value in 000/€)

Duration (years) $n_1$	3,00
<b>Industrialisation (B)</b>	3.864,00
Duration (days)	700
Duration (years) $n_2$	2
$n_1+n_2$	5
A Mounting	7.059
B Mounting	3.980
MA+MB	11.039
<b>Higher expected margin</b>	18.000
<b>Life cycle <math>n_3</math></b>	6
$n_1+n_2+n_3$	11
Interest rate	6,0%
$W(n_1+n_2,i)$	€ 3.252
Final recovery time	4



# ECONOMIC-FINANCIAL ANALYSIS MODEL

A Project – High technological level – Application of the financial evaluation model to an emblematic case

Private/Public System Balance Flows					
	System	Private	Private input	Public	Gap
A	14.800,00	5.920,00	5.920,00	8.880,00	4.796
gg1	1100	1100	1.100,00	1100	
n1	3	3	3,00	3	
B	4.600,00	3.864,00	3.864,00	736,00	
gg2	700	700	700,00	700	
n2	2	2	2,00	2	
n1+n2	5	5	5,00	5	
p1	1	1	1,00	1	
MA	17.646,99	7.058,80	7.058,80	10.588,20	
MB	4.738,00	3.979,92	3.979,92	758,08	
MA+MB	22.384,99	11.038,72	11.038,72	11.346,28	
C	26.775	13.204	18.000	13.572	
n3	6	6	6	6	
nmax	2	2	2	2	
n1+n2+n3	11	11	11	11	
a	3	3	3	3	
b	4	4	4	4	
p2	1	1	1	1	
i	0,06	0,06	0,06	0,06	
W(0,i)	€ -	€ -	€ 2.430	€ -	
W(n <sub>1</sub> +n <sub>2</sub> ,i)			€ 3.252		
DPBT			4		

# ECONOMIC-FINANCIAL ANALYSIS MODEL

## A Project – High technological level – Interpretation of results

- The whole project life is 11 years, of which 6 years of actual financial exploitation of results;
- Total expected margins net of taxes (18,000) exceed the margins requested for private balance (13,204);
- The balance threshold for the system is equal to 26,775. The balance threshold for the public component (difference versus private component) is equal to 13,572;
- The value of financial returns and economic benefits for the public can be covered by the project impact on the system (effects on value chains, networking, other externalities, etc.) and additional taxes.

# MAIN OUTCOMES AND IMPACTS

## Double value for innovative system and enterprises:

- Increase in export (6%) and expansion on new geographic markets (37% of export increase cases);
- Creation of stable relations networks between research enterprises and actors (87% of projects);
- Effects on value chains (62% of cases), in particular technological *upgrading* of providers;
- Leverage effects on investments (1.45 M€ average investment for industrialisation) especially in the Mezzogiorno Area (67% of industrial investments localised in Obj.1);
- New employment generated (11 additional staffs in SMEs, 7 in LEs, 513 in total)
- Increase in corporate profitability.

**Thank you for your attention!**

*Contacts:*

*ENRICO WOLLEB*