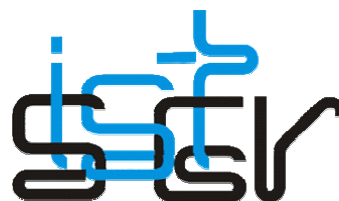


# FMI – building skills and strategy

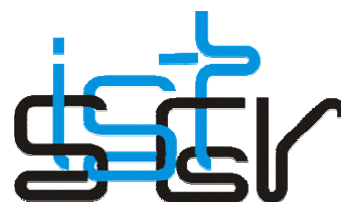
Maria Nisheva  
Petko Ruskov  
Elissaveta Gourova  
Yanka Todorova  
Albena Antonova

ICEIRD 2009  
Thessaloniki, 24-25.04.2009



Presented by:  
**Elissaveta Gourova**  
and  
**Yanka Todorova**

Work carried out within  
FP7 project SISTER



# Main topics

- FMI challenges
- SISTER project approach
- Scenarios for FMI
- Outlook

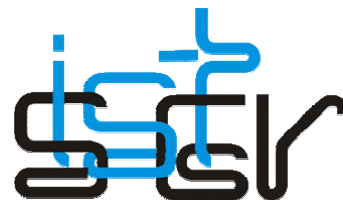
# ***ICT and entrepreneurship skills at FMI***

Maria Nisheva

Elissaveta Gourova

Albena Antonova

ICEIRD 2009  
Thessaloniki, 24-25.04.2009



# Sofia University “St. Kliment Ohridski”



- The first school of higher education in Bulgaria
- The largest and most prestigious university in Bulgaria, a big academic and scientific centre
- 16 Faculties on humanities and scientific disciplines
- More than 18 000 students and 3000 lecturers and administrative staff

# Challenges in skills development

- Challenges to universities
  - Follow labor-market needs
  - Provide up-to-date curricula

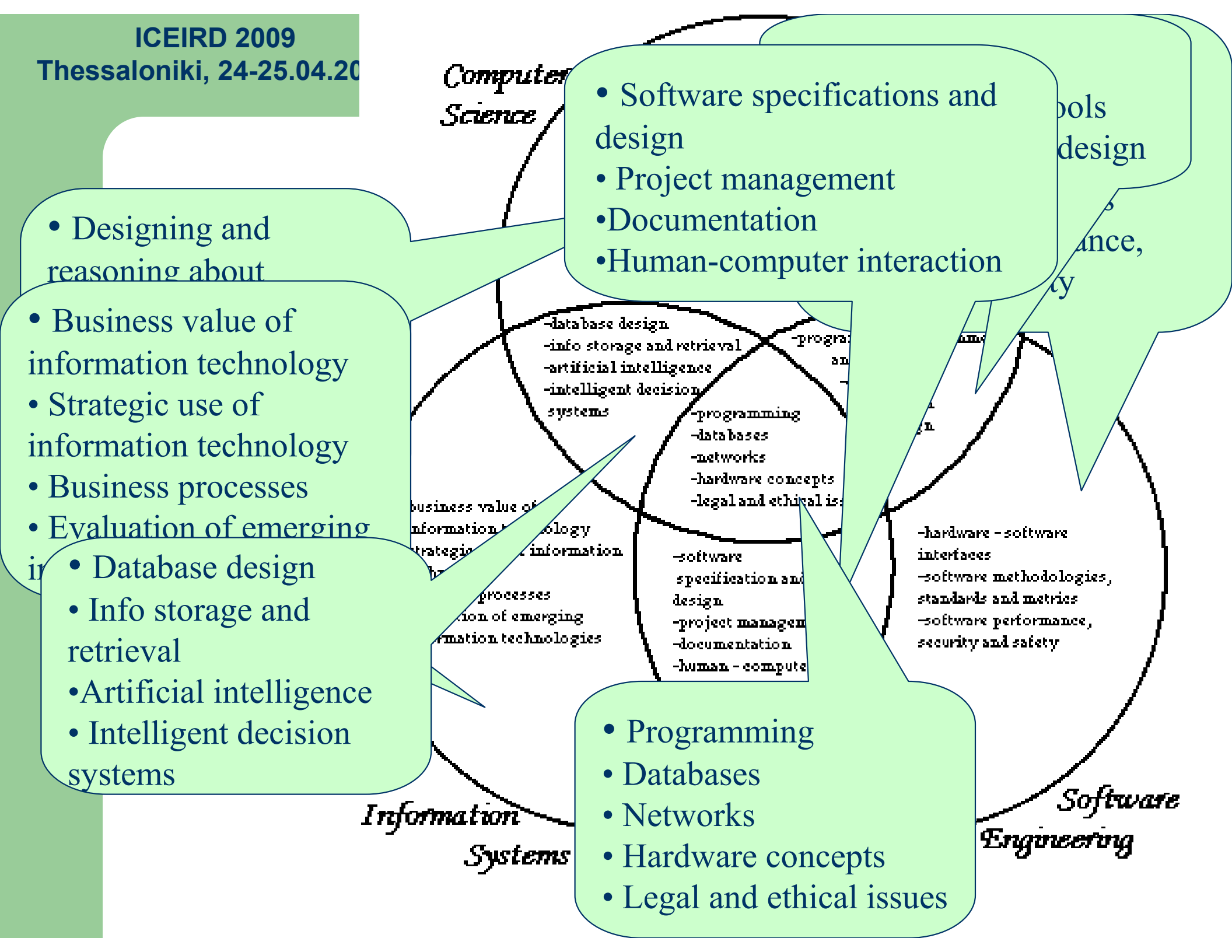
→ ***Need for strong collaboration with industry***

- Additional challenges to Bulgarian universities
  - Transitional period - impact on staff and equipment
  - Growing demand for higher education
  - Demand for new qualifications
  - Emergence of private universities and e-Learning
  - Europe-wide university competition

→ ***Need to change and adapt rapidly***

# Implementing ACM / IEEE CC2001/ CC2005 at Sofia University

- Computer Science
- Software Engineering
- Information Systems
  - BSc, MSc & PhD
- Technology entrepreneurship
- e-Business
- e-Learning





# Challenges for FMI

- Emigration and migration to industry of highly skilled professionals
- Insufficient research funding
- Lack of sufficiently stimulating research environment
- Lack of youth staff
- Lack of stable and multiple bridges between research, development, education and training
- Lack of traditions in university-industry-government cooperation
- Fragmented nature of research activities and the dispersal and not effective use of limited resources.

# Main topics

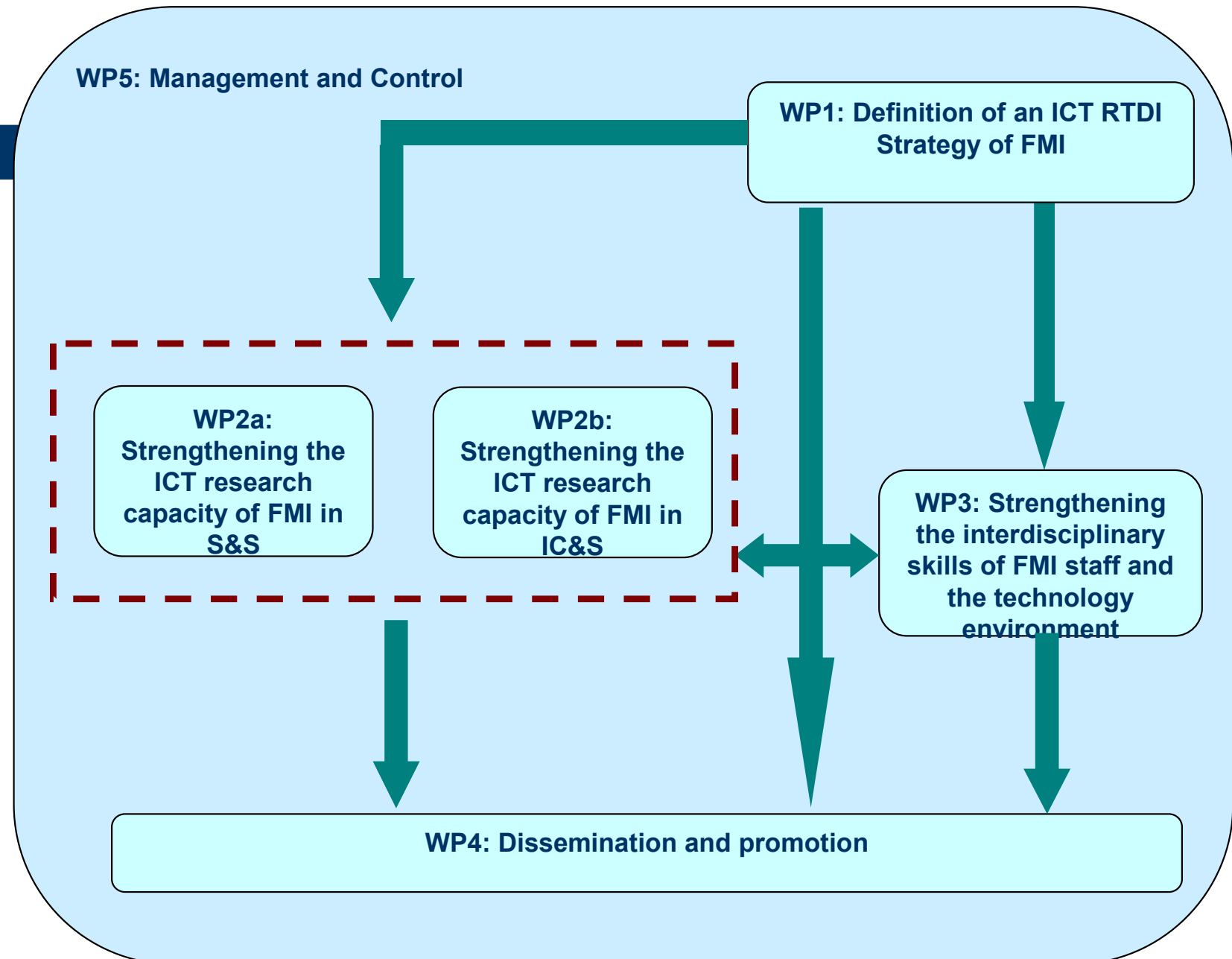
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- FMI challenges
- SISTER project approach
- Scenarios for FMI
- Outlook

## FP7 SISTER project

- Main goal:
  - to strengthen the FMI capacity
  - to develop it as a Leading Centre in South-East Europe in research, innovation and training in the area of ICT (Software and Services, Intelligent Content)
- Objective of WP1:
  - to elaborate a strategic framework for FMI future development
  - to outline where to make strategic investments in human resources, networking and capacity building

# FP7 SISTER project



# Main activities of WP1

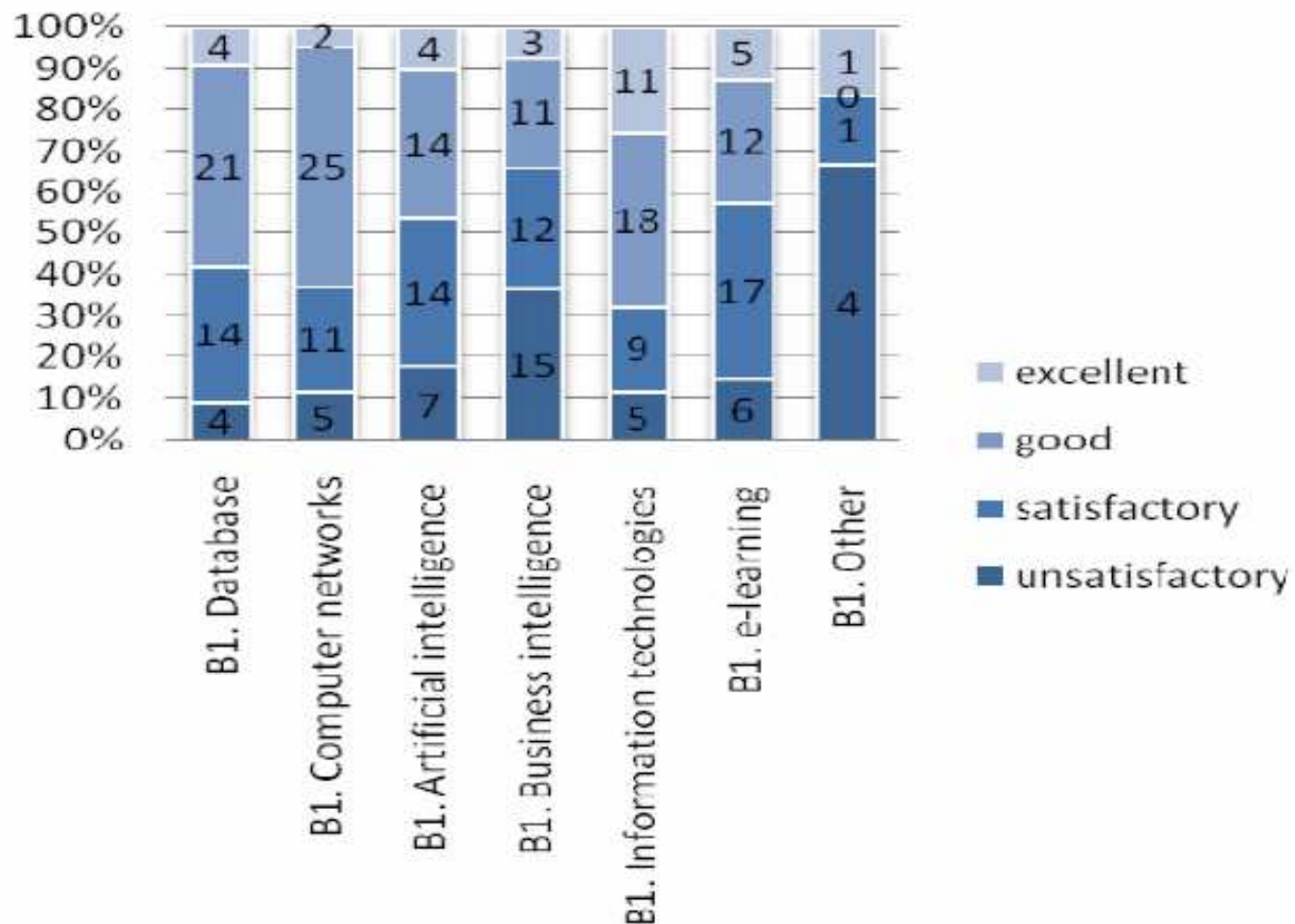
- Environmental scanning
  - European and national reports
  - web sites, scientific literature, media publications, etc.
- SWOT analysis of FMI
  - positioning in the area of ICT in Bulgaria and the region
  - opportunities and threats for further development and integration into ERA and European Higher education area
- Issue survey
  - in a large number of enterprises, policy makers and local authorities in Bulgaria, among FMI researchers and ICT end-users
  - to determine the large societal and economic needs for research and training in ICT

## Focus of FMI survey

- FMI staff experience, skills, and research interests and needs
- the research priorities according to the staff –on European, on national, and on personal short-term and long-term level
- the personal assessment of the organization and work within FMI
- the evaluation of the overall national environment and attitudes toward researchers and research career in Bulgaria.

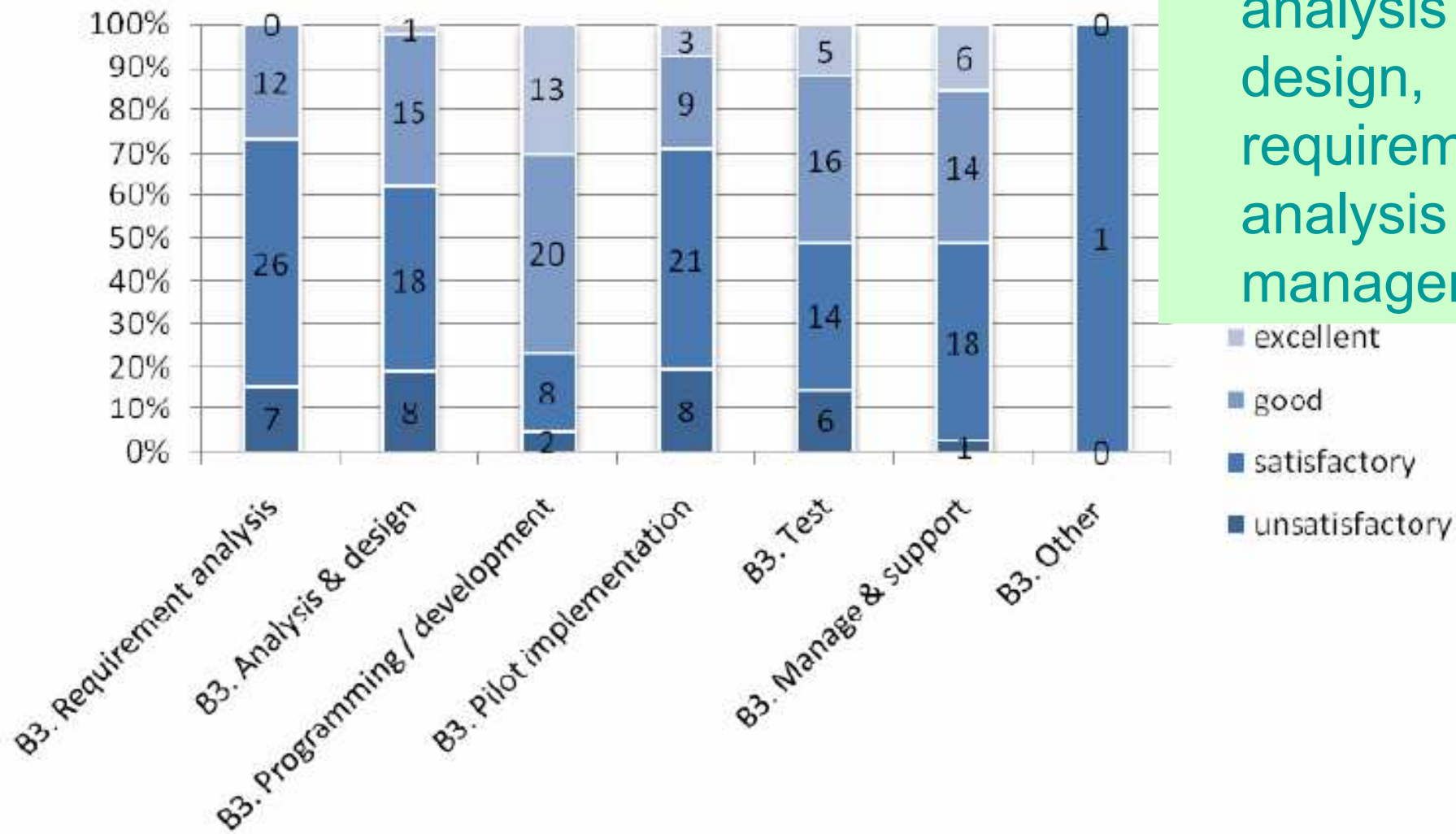
## BSc students of FMI

- very good level of skills in information technology, computer networks and data bases
- more efforts in business intelligence



## BSc students of FMI

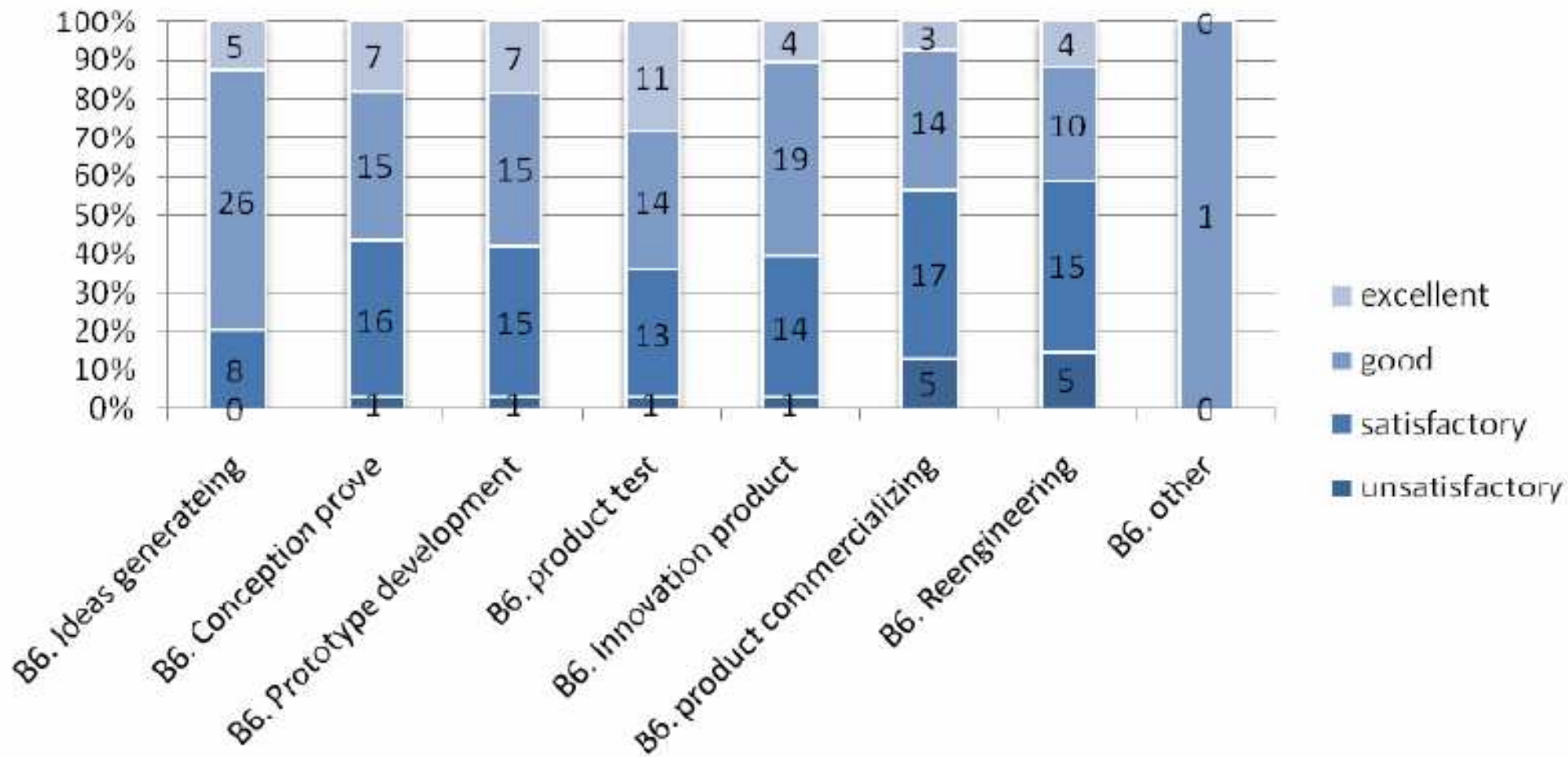
- high programming competences
- more efforts needed in analysis and design, requirement analysis and management

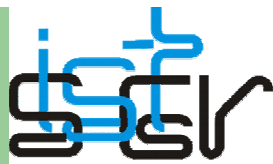




# Innovation skills of FMI students

- product commercialization and business process reengineering





# Guidance to PhD students and young researchers

- Hiring new researchers
  - PhD students
  - Research fellows
- Supervision within SISTER
  - Preparing individual research plans
  - Ensuring supervisors from FMI and EU partners
- Exchange of knowledge
  - Research seminars within SISTER
  - Research workshops
  - Collaborative tools

# Main topics

- FMI challenges
- SISTER project approach
- Scenarios for FMI
- Outlook

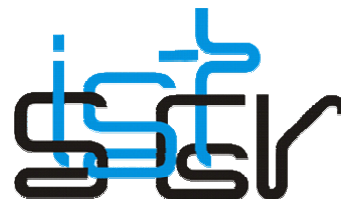
# ***Building scenarios as part of Strategy Modelling for FMI RTDI Strategy***

Yanka Todorova

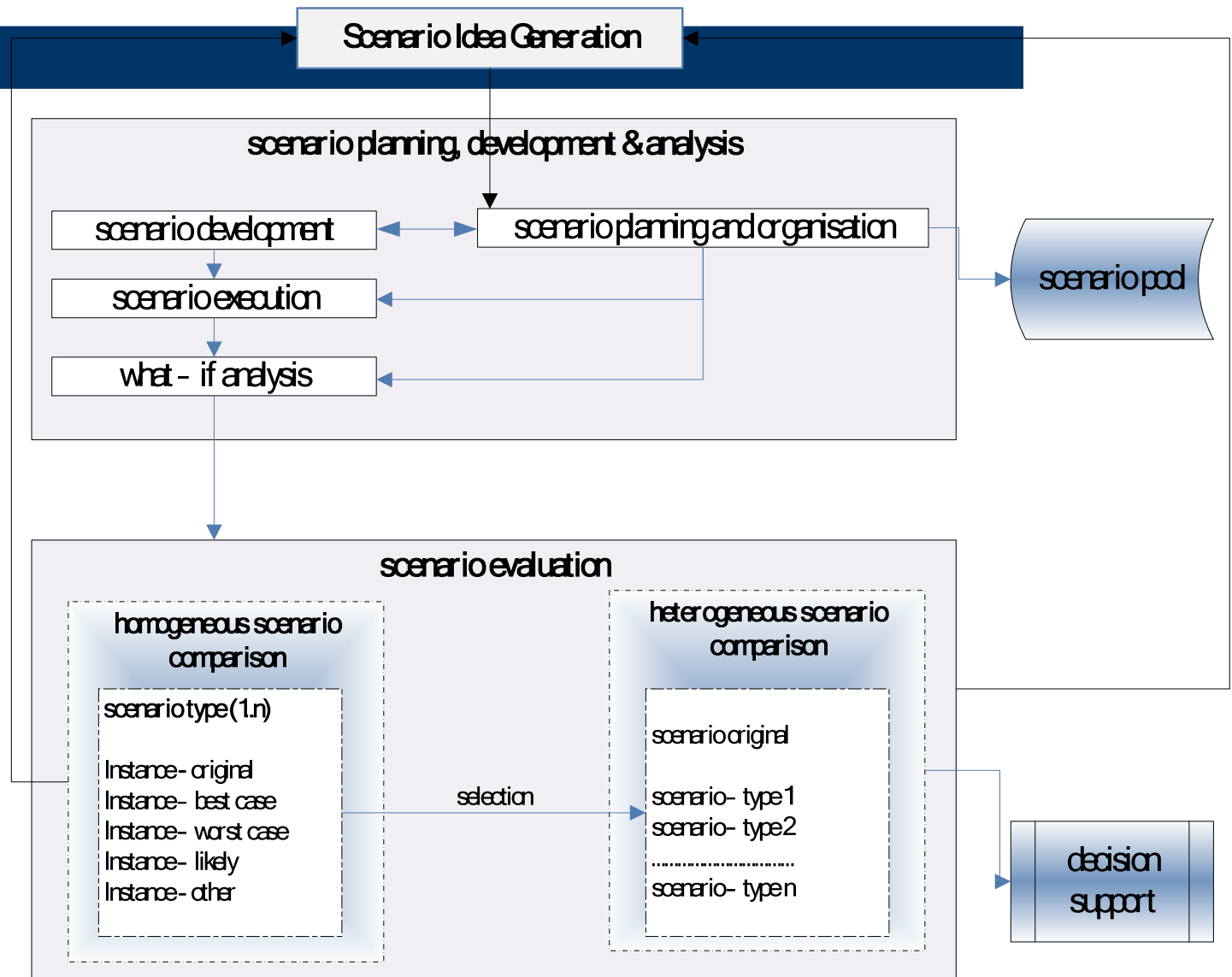
Petko Ruskov

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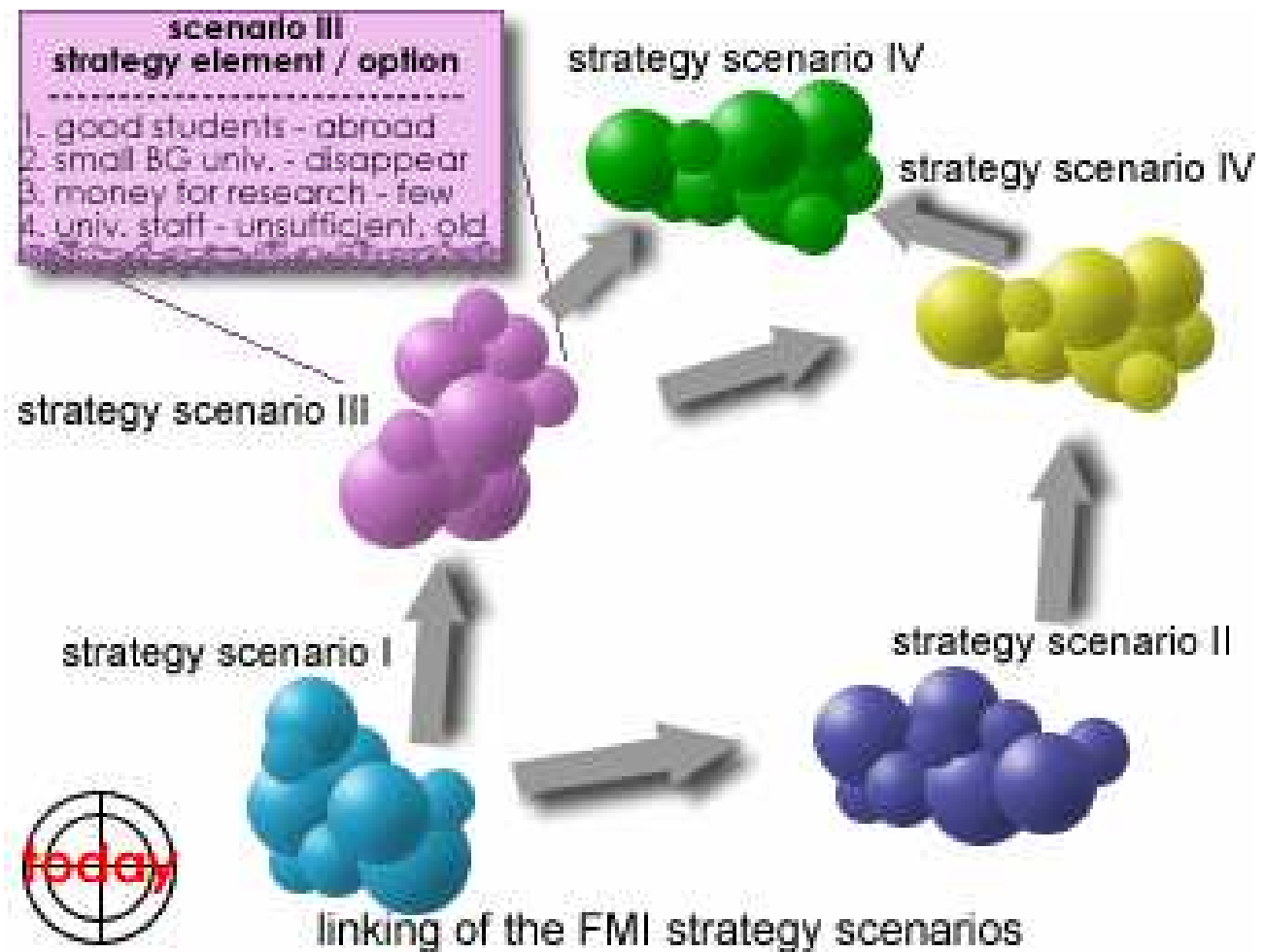
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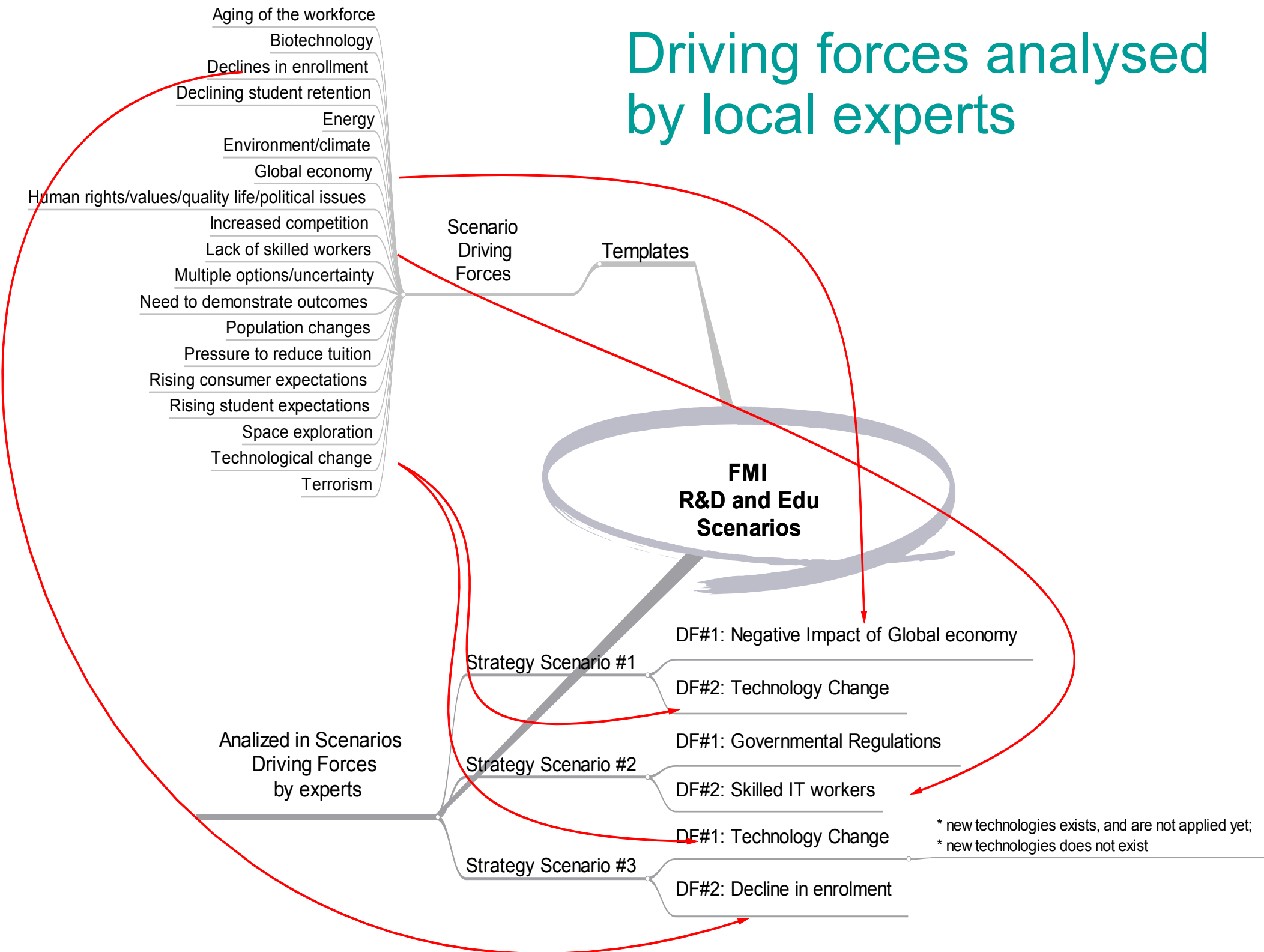
# Scenario management: A life-cycle approach



# Expert panel scenarios



# Driving forces analysed by local experts



strategy scenarios 1-4 of FMI

DF # 1: Global Economy (negative impact)  
DF # 2: Tech. Change

{G}  
{T}

G↑T↓

## Scenario 1

- Economical influence (bad)
- Increase dig. divide?
- Lack of innovations in education & research
- Resources readily available due to high unemployment

high

G↑T↑

## Scenario 2

- Economical influence (bad)
- Tech can educate Masses
- Uni .degrees become import.
- High liquidity → UC
- Collaboration increases
- Low Uni financing by state & private
- Curriculum dev. ↑

low

high

G↓T↓

## Scenario 3

- Econ. stagnating
- Research ↓
- LLL ↓
- Mot. for Uni. Degree ↓
- Foreign students
- Tech positions low
- State & private funding “=” ↓

low

G↓T↑

## Scenario 4

- Academics more imp.
- Decreases dig. divide
- G↓ motiv. T↑ instrument (terrorism)
- Knowledge worker appr.
- Research high
- Incr. collab.
- Higher (priv) for Uni
- High curr. dev.
- Increased globalisation
- Foreign students





strategy scenarios 5-8 of FMI

DF # 1: Gov. Regulations  
DF # 2: Skilled IT workers

Increased Government Regulation

## Scenario 5

- Unemployed programmers and civil engineers
- $\Delta t$  for unemployed to realize opportunities at universities
- More people for research and teaching (new appeal)
- Opportunities for outsourcing of research and teaching/training
- Opportunities for technology innovation at industry & start creation new businesses



## Scenario 6

- Increased fund from the Government
- New opportunities for research
- Increased rate of innovation
- Improvement of teaching quality & effic.
- Foreign students

Excess of skilled IT workers (economy crisis?)

Lack of skilled IT workers

## Scenario 7

- Outsourcing of services abroad
- Bodyshopping
- New private universities
- Migration of professors
- Effort for lobbying for education



## Scenario 8

- $\Delta t$  for industry to realize
- Companies go inside univ. & schools
- Direct support
- Indirect support
- Industry creates research centres & joint labs
- New private universities for applied sciences

Decreased Government Regulation

DF # 1: Tech change:

- Tech exists, not applied yet
- Tech not existing

DF # 2: Decline in enrolment

(connect w. expectation, pop. change, raised expectation, more competition...)

strategy scenarios 9-12 of FMI

Progress

Scenario 9

OK!

chance = 5% or less

Big  
Change

higher risk & probability

Scenario 10

challenge

DESC

- Shall BG uni. disappear
- Good students abroad
- Foreign uni. Arrive in BG (sofia uni ahead of BG uni)
- Curricula change for new technology

ACT

- To anticipate such change (because of research)
- Change way of teaching
- More research on new tech
- Students arriving from abroad (marketing)
- Training faculty

SPINOFFS

stagnation

Scenario 11

Action

- Optimise the present
- Develop research
- Train faculty
- Industry relationship

Desc.  
Today!

higher risk & probability

Scenario 12

Big  
Declines

recession

DESC

- Few research money
- Few staff (oldest)
- Conservative tendency
- Experienced people leave

ACT

- Encourage young staff
- Interaction with company
- Lobby with government
- Attract 3rd world students (grants?)

New admission regulation  
Try to adopt existing tech ...  
Link to high schools



Academic Excellence



Profitability

# Cause and effect for EDU



Student Education



Financial



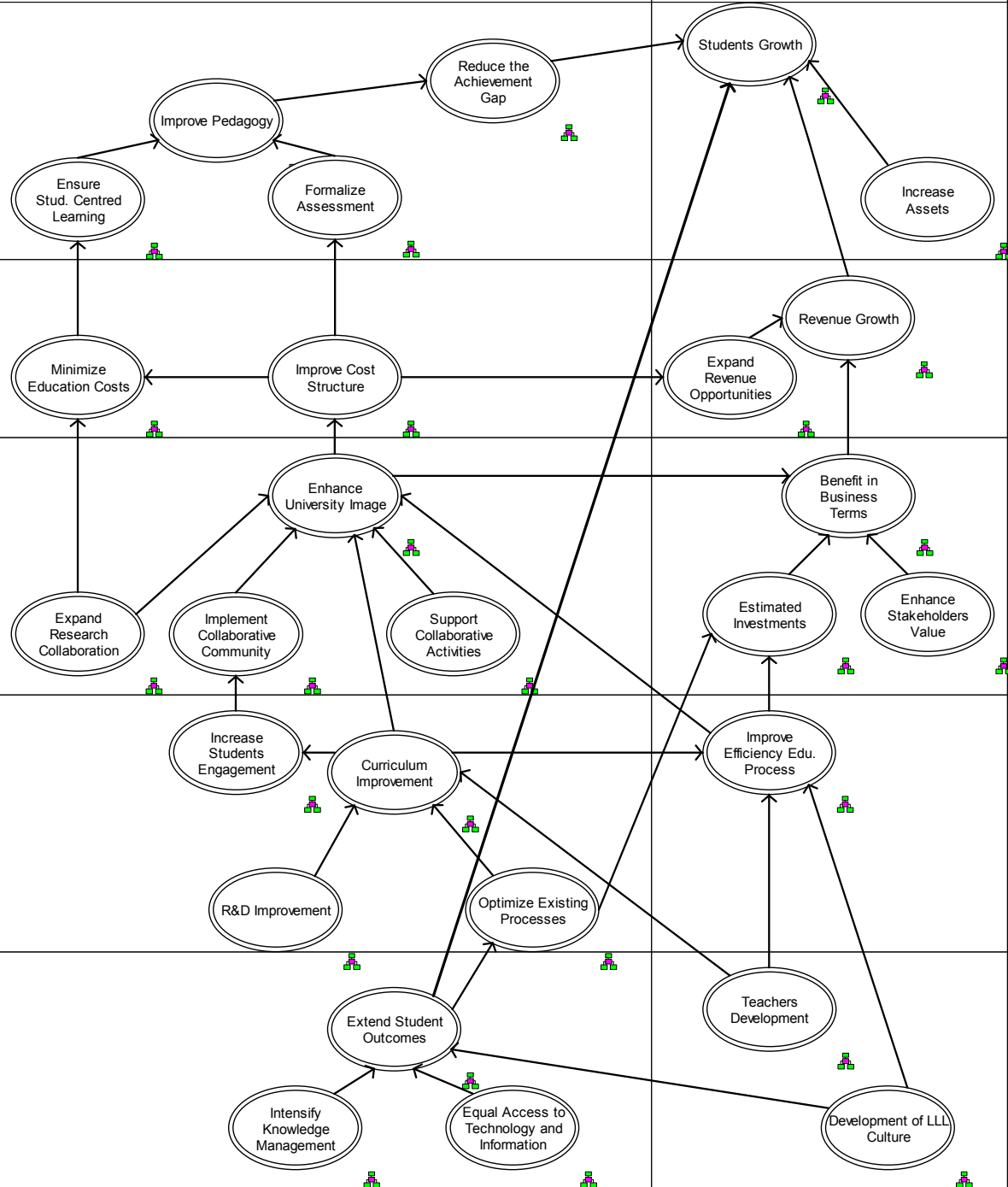
Stakeholder

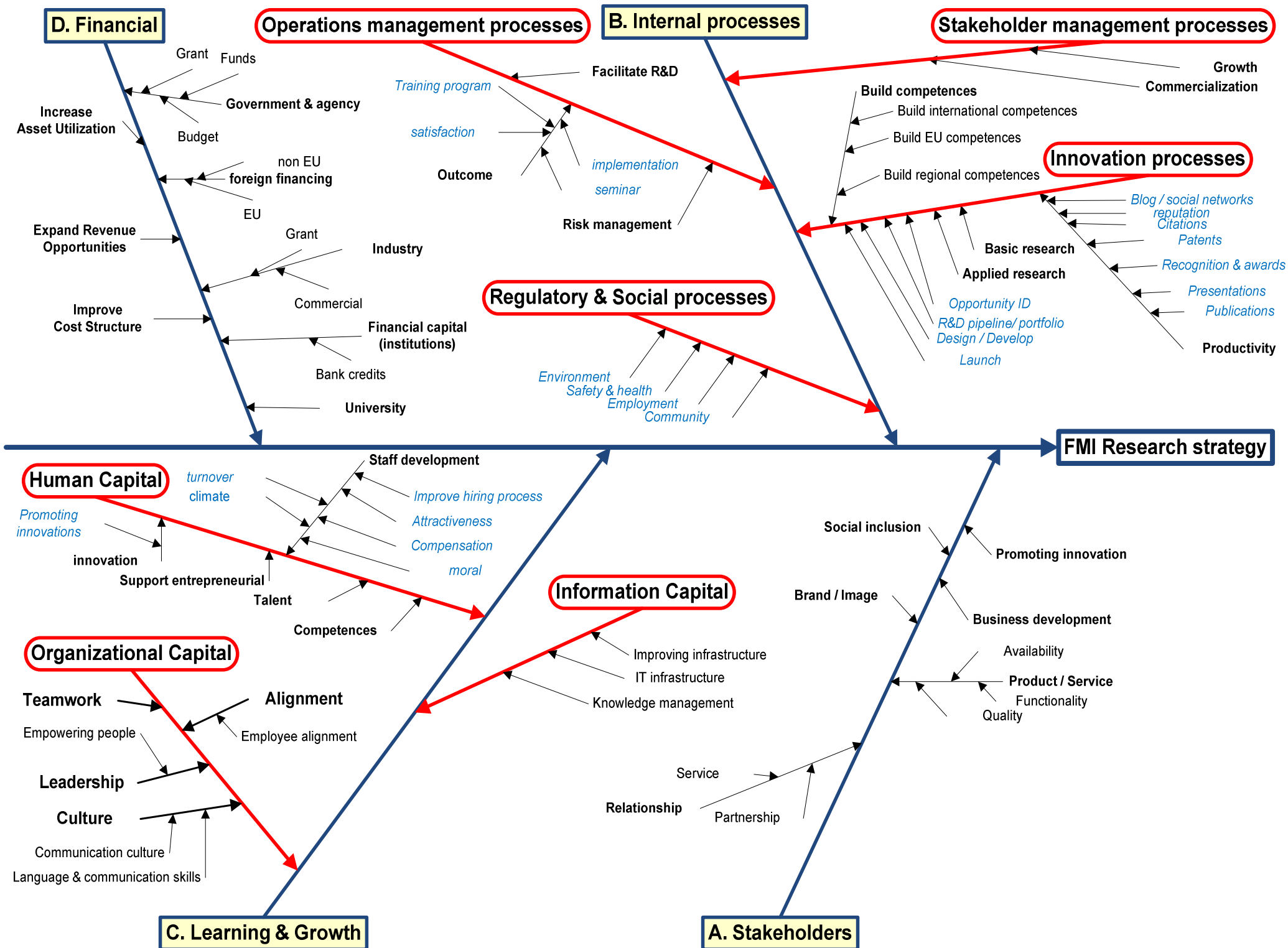


Internal



Learning and Growth





# Action Plan for ICT RTDI Activities at FMI

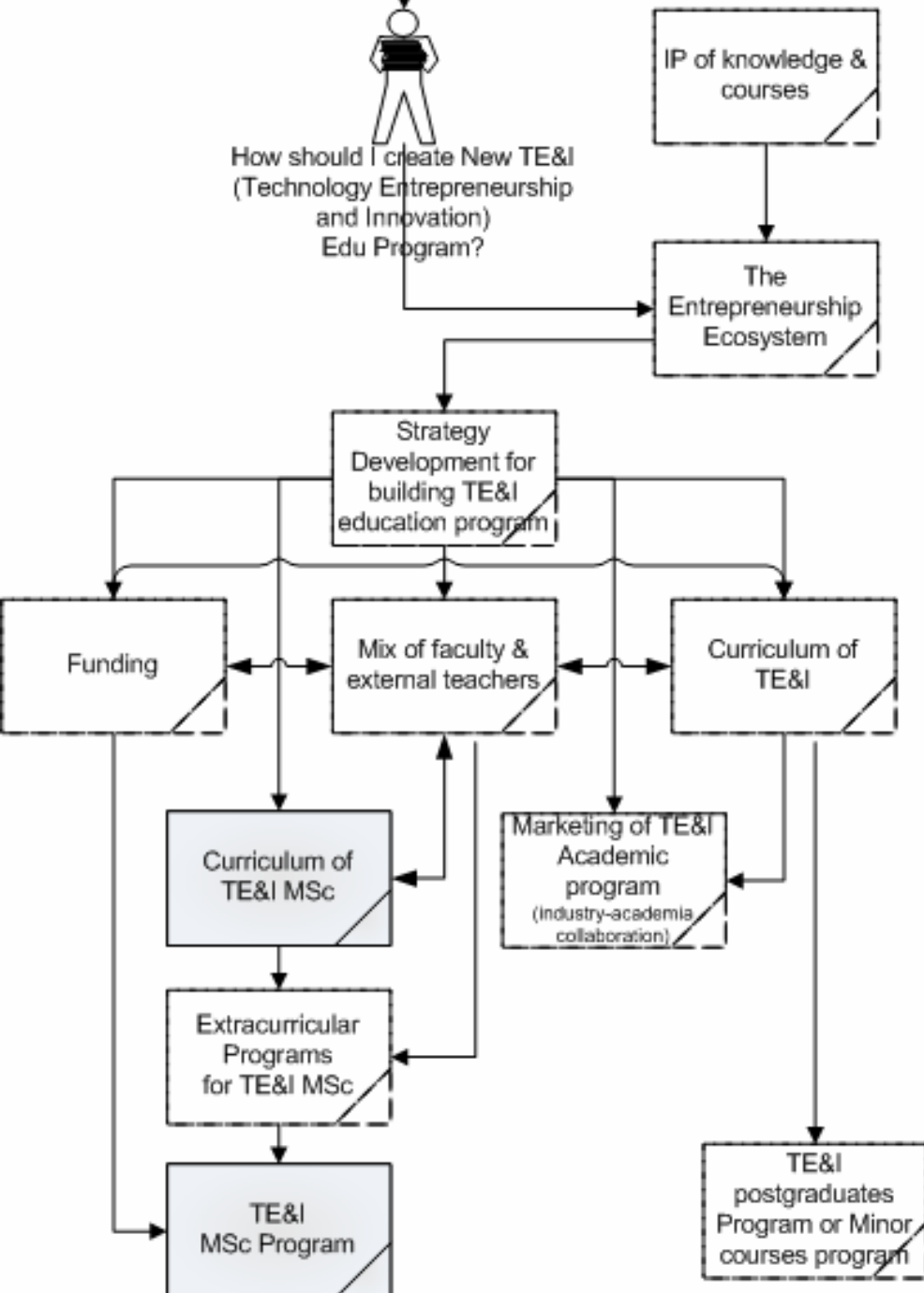
- Strategic Goal 1: Intellectual Capital Improvement
- Strategic Goal 2: Internal Processes Excellence
- Strategic Goal 3: Stakeholders Collaboration Excellence
- Strategic Goal 4: Financial Wealth

For each Strategic Goal - 3 objectives

For each objective:

- Action Steps:
- Organizational areas most affected:
- Time Frame:

# Patterns @EUROPLoP



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Thank you for your attention!

Questions?

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