



# **BEST PRACTICE WORKSHOP 4, Wed, 17 June 2009 at 14.30-15.30**

**DYNAMIC DEBATE AND DISCUSSION PANEL ON  
HOW TO REFRESH THE  
DEVELOPMENT OF PROJECT  
BUSINESS IN PARTICULAR  
WITHIN THE CONSTRUCTION  
INDUSTRY?**



# **RATIONALE OF THIS PANEL**

**chaired by Lauri Palojarvi**

- **To advocate collaborative development between academic and business communities for more advanced project business**
- **To conduct this panel as a combination of three triggering speeches and a lively discussion**



## THREE TRIGGERS FOR REFRESHING

- **Viabile principles: High-quality performance of project-based organizations through collaborative action research (Juhani Kiiras)**
- **State-of-art: Management of project-based businesses by applying generic, outside-in & inside-out concepts (Pekka Huovinen)**
- **Successful collaboration case: Risk management (RM) with opportunity management (OM) (Lauri Palojärvi)**



# **PANEL MEMBERS**

**“REFRESHING TRIGGERS” = 3 ACADEMICS of  
TKK Construction Management and Economics, Finland**

**Juhani Kiiras, Professor**

**Pekka Huovinen, University Teacher**

**Lauri Palojärvi, Lic.Sc. (Tech.), Chairman of Panel**

**4 PRACTITIONERS + 1 ACADEMIC AS DISCUSSANTS**

**Osmo Härkönen, Wärtsilä Corporation, Finland**

**Ole Jonny Klakegg, Norwegian University of Science  
and Technology, Norway**

**Gerrit Koch, Berenschot BV, The Netherlands**

**Daniel Scheifele, Losinger Construction AG,  
Switzerland**

**Juergen Schloss, Siemens, Germany**



## **CYCLE OF NEGATIVE DEVELOPMENT MUST BE STOPPED AND REVERSED**

- **Traditionally, the results of academic research are not widely used in industry ⇔ Are good practices used in academia?**
- **Industry invests very little in R&D and no synergy effects exist between academic and business communities. It seems that this explains why ...**
- **... academic outcomes remain low – unless this cycle of negative development will be reversed!**



# **REFRESH HIGH-QUALITY PERFORMANCE OF PROJECT- BASED ORGANIZATIONS THROUGH COLLABORATIVE ACTION RESEARCH**

by

**Juhani Kiiras, Professor  
TKK Helsinki University of Technology, Espoo, Finland  
Construction Management and Economics (CME)  
e-mail: [juhani.kiiras@tkk.fi](mailto:juhani.kiiras@tkk.fi)**



# Juhani Kiiras

- **Professor in CME for 30 years**
- **M.Sc. (Eng.) in building**
- **Developer, not traditional scientist**
- **Control theorist**
- **Implementor**
- **Collaborator with firms and public organizations in Finland**



# SCIENTISTS VS. PRACTITIONERS

## Reasons for no vested interests

- Practical use of academic research is low
- Articles in scientific journals are not read by practitioners
- Scientists are not interested in wide practical management problems
- For scientists, cooperation means that firms give them data and information
- Universities are open, but firms protect their ideas
- For scientists, projects are ready when reports or articles are published
- In Finland, TEKES (funding agency) requires collaboration



## RESEARCH METHODS AT TKK/CME

- **Surveys and interviews do not provide new answers (“others should change their ways of doing”)**
- **Rough or unreliable statistics is of little help vis-à-vis solving real management problems**
- **Statistical research methods do not separate factors from within “practical mess”**
- **We use (1) a computational-empirical method with statistical testing of results and (2) action research and case research with interventions for development**



## **VIABLE PRINCIPLES FOR CONDUCTING A RESEARCH PROJECT**

- **There must be a vision and hypotheses of problems and their solutions**
- **Implementation must be a key goal from the start**
- **A management paradigm (philosophy), valid methods or tools and a database should be developed concurrently**
- **At TKK/CME, many Master's theses are used as key parts in most research projects**



## **EXAMPLES OF TKK/CME'S HIGH-IMPACT R&D PROJECTS IN BUILDING IN FINLAND**

- **Finnish Target Price System 1980 →**
- **Advanced LoB or Time-Place Diagram 1985 →**
- **Very short throughput time, a scheduling method (construction Kanban) 1990 →**
- **Finnish Construction Management (CM) models 1995 →**
- **FinSUKE Design Management (for CM projects) 2000 →**
- **Risk Management (for CM projects) 2005 →**



# TARGET PRICE SYSTEM (Haahtela,Kiiras) NEARLY STANDARD IN FINLAND 1980 →

Problem: Project cost overruns (owners)

Financing: **No research financing**

Researchers: >10 students with Master's theses, 1 postgraduate

Collaboration: **No formal collaboration with firms**

Change in a paradigm:

**Mistakes in cost estimating => Mistakes in project management**

Methods: Calculations (differences) – empirical testing

Results: Target Price Procedure based on a **program/brief** (not on designs) and **an annually updated** database for it

Implementation: **Successful piloting by the researchers**

Scientific articles: **No articles**

Section	Room schedule	size	pc	quantity	ecu/m <sup>2</sup>	ecu
A	BASEMENT					
A	Near-by storage, big	49,0	1	49	858	42 065
A	Storage room	204,0	1	204	749	152 764
A	Cleaning rooms in average	4,0	1	4	1 741	6 964
B	GROUND FLOOR					
B	Office room, normal	18,1	14	254	1 247	316 673
B	Open space office	50,0	1	50	1 164	58 224



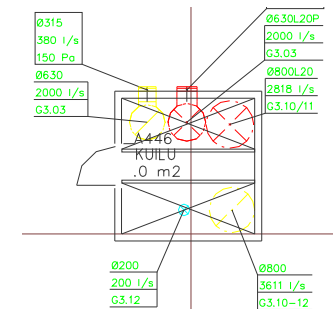
## *FinSUKE* (Kiiras, Kruus) DESIGN MANAGEMENT FOR CM PROJECTS 2000 →

- Problem: Design problems in concurrent construction
- Financing: **TEKES, owners, CM service firms**
- Researchers: 1 doctoral student + many Master’s theses
- Collaboration: **CM service firms**

- Change in a paradigm:

**As early as possible → As late as possible**

- Methods: Survey for problems, retro- and prospective cases for development and testing
- Results: 5 constructs of open building, design packages, procurement strategy, selection procedure, and supplements to scopes of professional PM and Design work
- Implementation: **Supplements to a Standard Scopes of Professional PM and Design Work in Finland**
- Scientific articles: 10 papers





## MORE VIABLE PRINCIPLES ...

- Implementation of results must be targeted already in a research plan
  - **Research project manager must have a vision on a problem, its solutions, and a role of collaboration**
  - Surveys and interviews are used only to verify focal problems **(and for the marketing of research)**
  - If a result is a database, a system should be designed with its **updating as a primary objective**
  - R&D results must be tested early by piloting
  - Professional journals, presentations in firms, and training courses and events must be used to gain industry recognition (not only scientific journals and conferences)
- **I do not know right answers to (formal) collaboration, we have achieved high impacts with and without it**



# **REFRESH THE MANAGEMENT OF PROJECT-BASED BUSINESSES BY APPLYING GENERIC, INSIDE-OUT AND OUTSIDE-IN CONCEPTS**


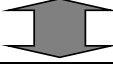


by

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# FOUR FUNDAMENTAL QUESTIONS IN MANAGING PROJECT-BASED FIRMS

	<u>Businesses</u>		<u>Project-based firm</u>
	Countries		
	<b>WHAT FUTURE MARKETS WILL BE MOST ATTRACTIVE?</b>		<b>IN WHAT FUTURE BUSINESSES SHOULD WE COMPETE?</b>
			
	<b>HOW WILL FIRMS COMPETE IN FUTURE MARKETS?</b>		<b>HOW CAN WE SUCCEED IN THIS FUTURE BUSINESS?</b>



**MANAGING A SINGLE BUSINESS  
(UN)SUCCESSFULLY  
IS  
THE MOST CHALLENGING AND  
ENDURING LEVEL  
OF  
STRATEGIC MANAGEMENT  
IN PROJECT-BASED FIRMS,  
BUT ...**



**... THERE ARE NO RESEARCH  
TRADITIONS TO ADVANCE  
(GLOBAL) PROJECT-BASED  
BUSINESS MANAGEMENT  
  
WITHIN  
  
FOUR KEY DISCIPLINES OF  
PM, CM, REAL ESTATE  
DEVELOPMENT, AND  
INDUSTRIAL MANAGEMENT**



**IT IS PROMISING THAT  
ACADEMIC RESEARCHERS  
IN THE USA, EU COUNTRIES, ...  
HAVE PUBLISHED  
60-70 CONCEPTS  
IN ENGLISH BTW. 1990-2008  
FOR  
MANAGING A FIRM'S PROJECT-  
BASED BUSINESS ...**



**... HOWEVER, IT SEEMS THAT  
PRACTICAL APPLICABILITY  
OF  
THESE 60-70 APPLIED,  
PROJECT-BASED BUSINESS-  
MANAGEMENT CONCEPTS  
IS TOO LOW**



**FOR UNIVERSITY-INDUSTRY  
COLLABORATION,  
FIRM-SPECIFIC APPLICATIONS  
OF GENERIC BUSINESS-  
MANAGEMENT CONCEPTS  
OF 8 SCHOOLS OF THOUGHT  
ARE HEREIN ADVOCATED ...**



**... BUT:  
WHAT CRIT-  
ERIA CAN  
A PROJECT-  
BASED FIRM  
USE FOR  
CHOOSING  
ITS NEXT BM  
CONCEPT?**

## School of thought on BM

1 Porterian

2 Resource-based

3 Competence-based

4 Knowledge-based

5 Organization-based

⌘ **From projects to business**

⌘ **In-/external networks**

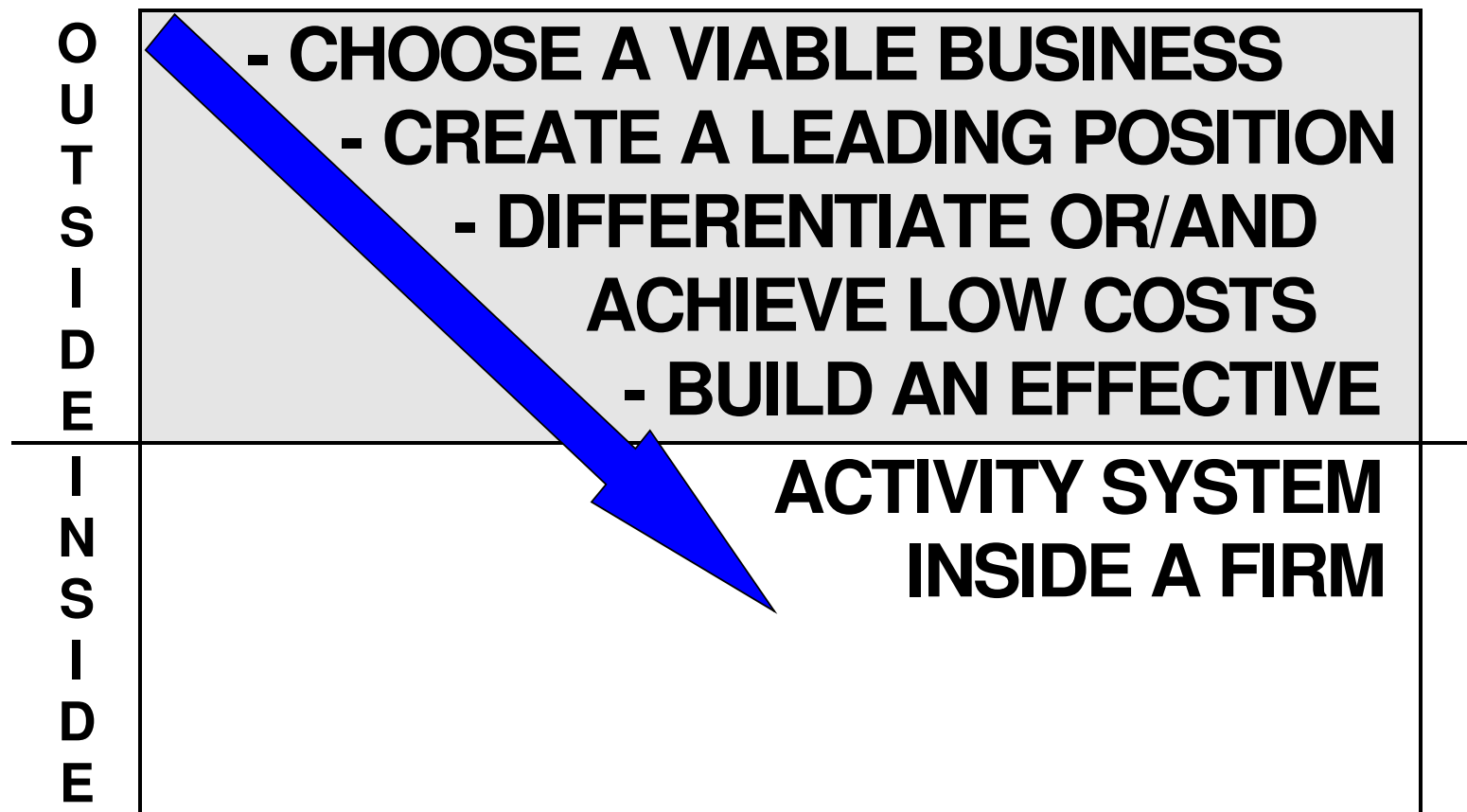
6 Process-based

7 Dynamism-based

8 Evolutionary

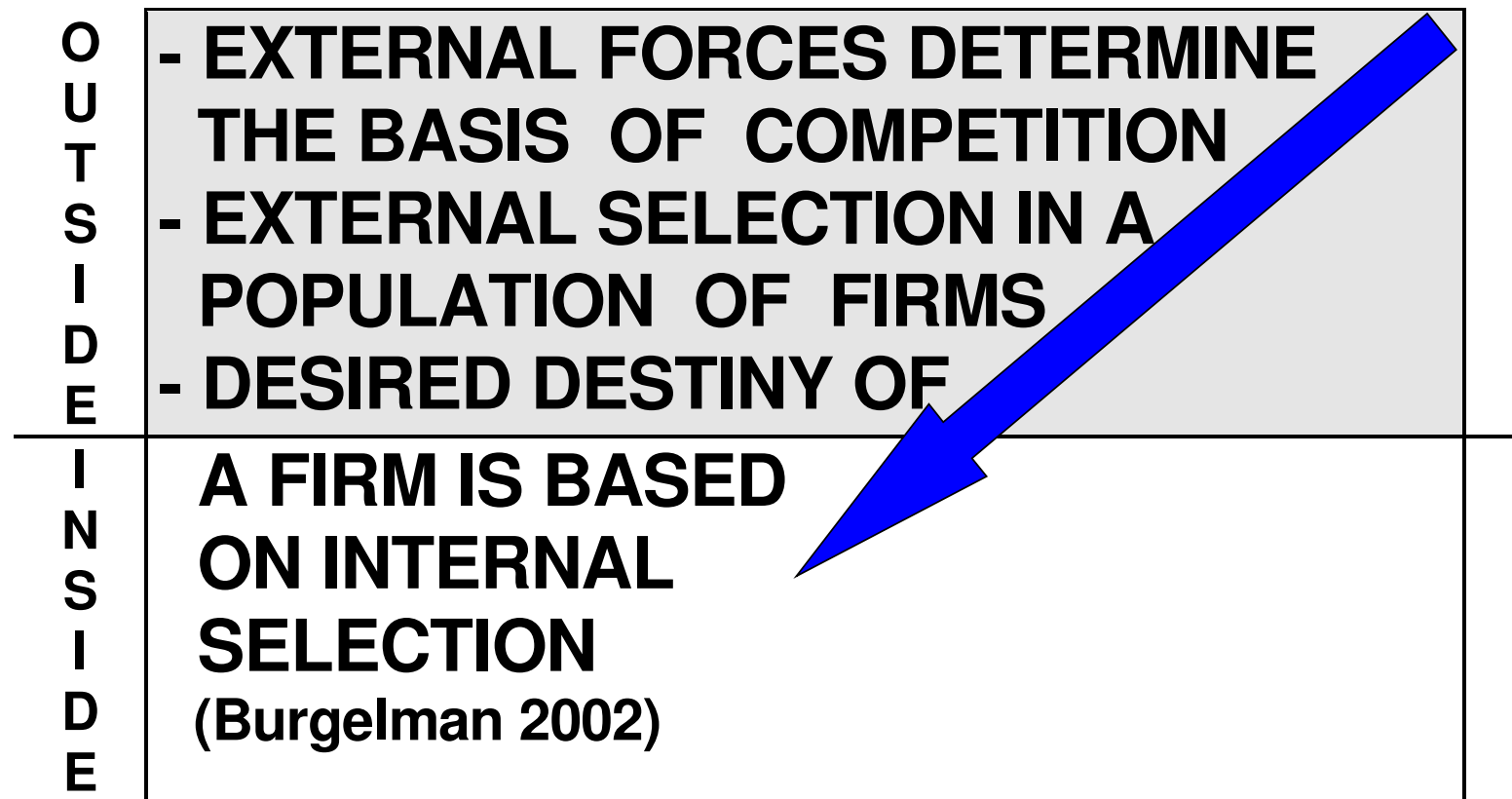


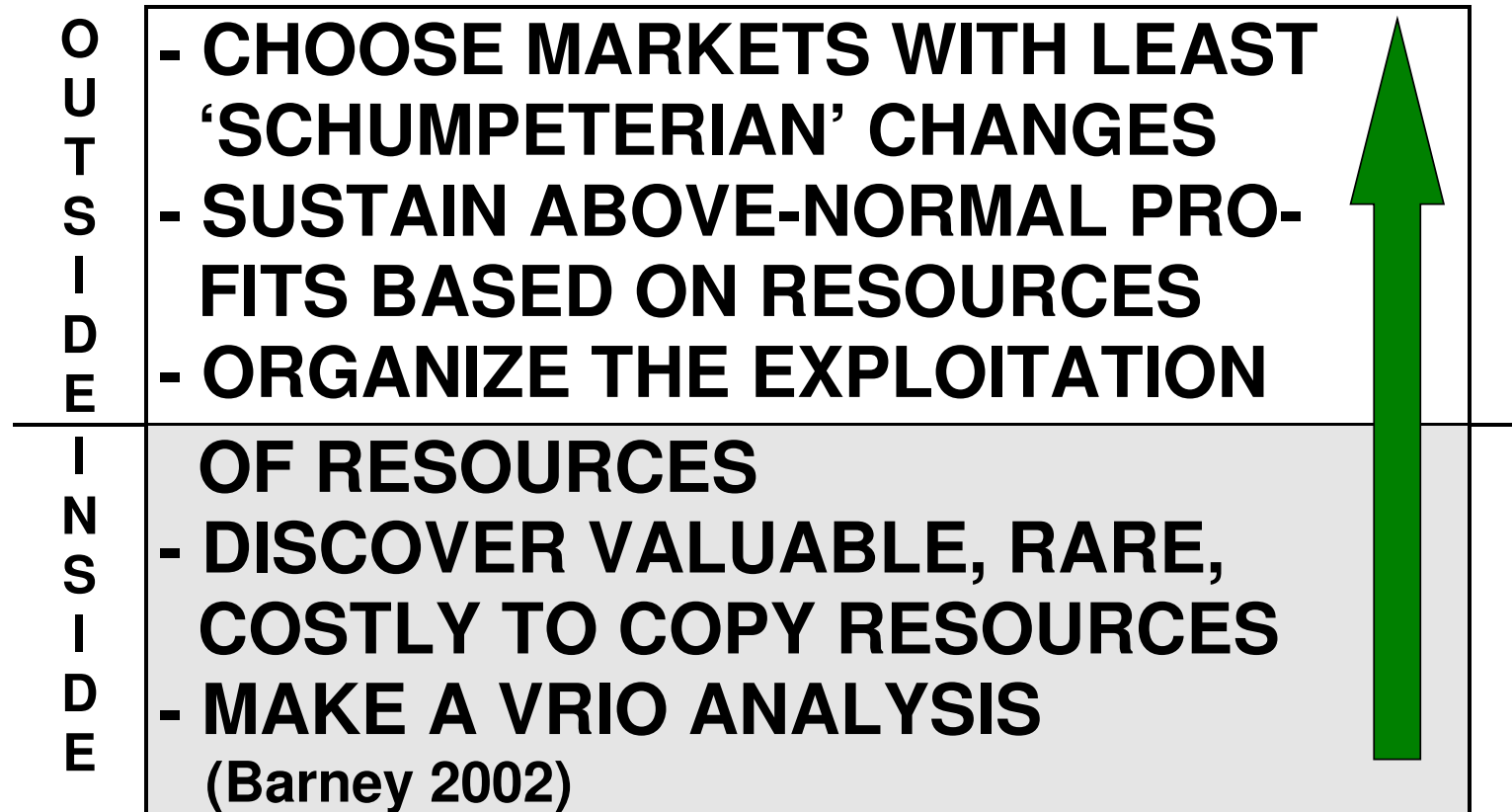
## MICHAEL E. PORTER’S OUTSIDE-IN FRAMEWORKS DOMINATE SINCE 1980s (School 1)



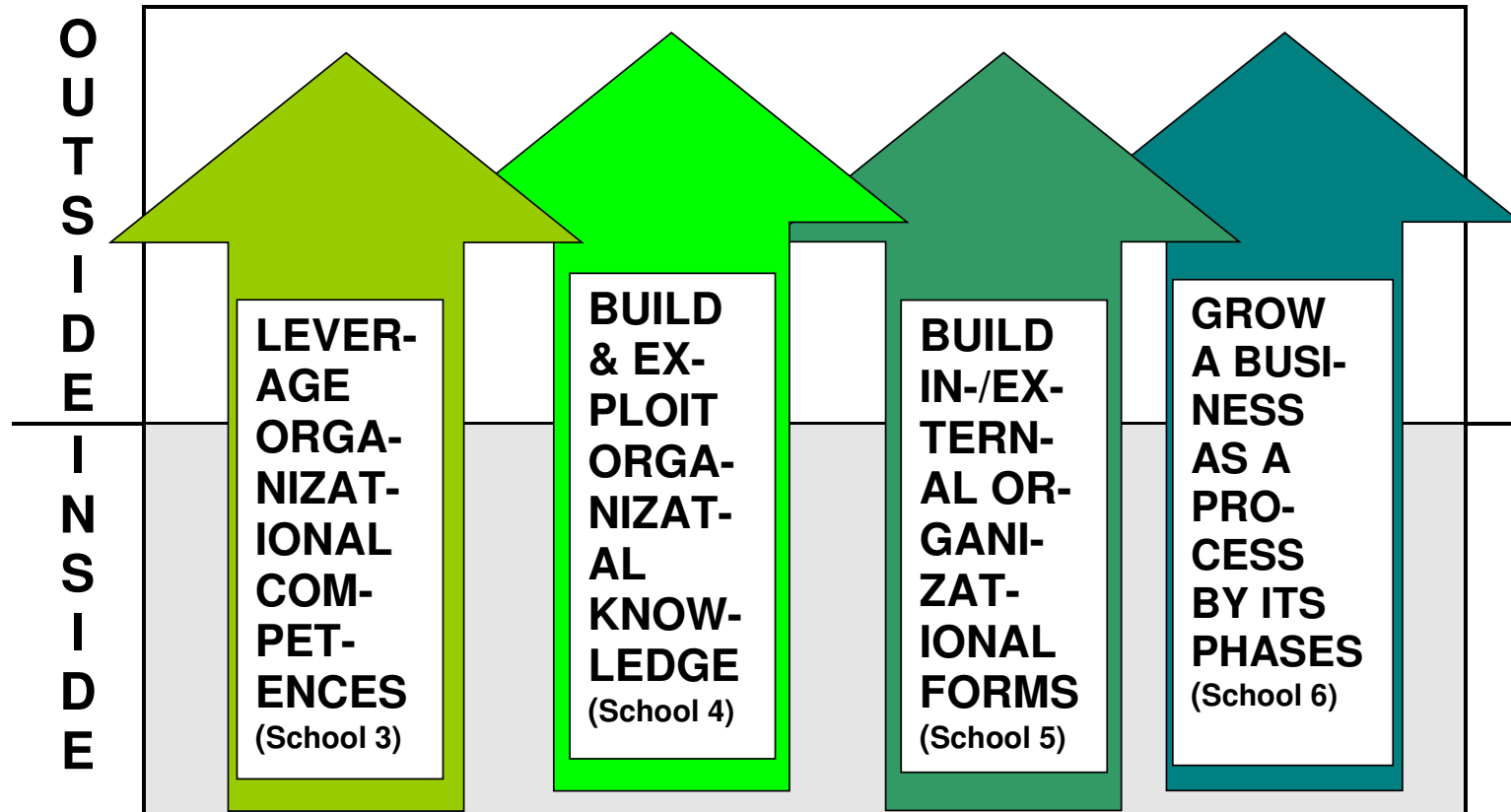


## ... CHALLENGED BY EVOLUTIONARY, OUTSIDE-IN CONCEPTS (School 8)





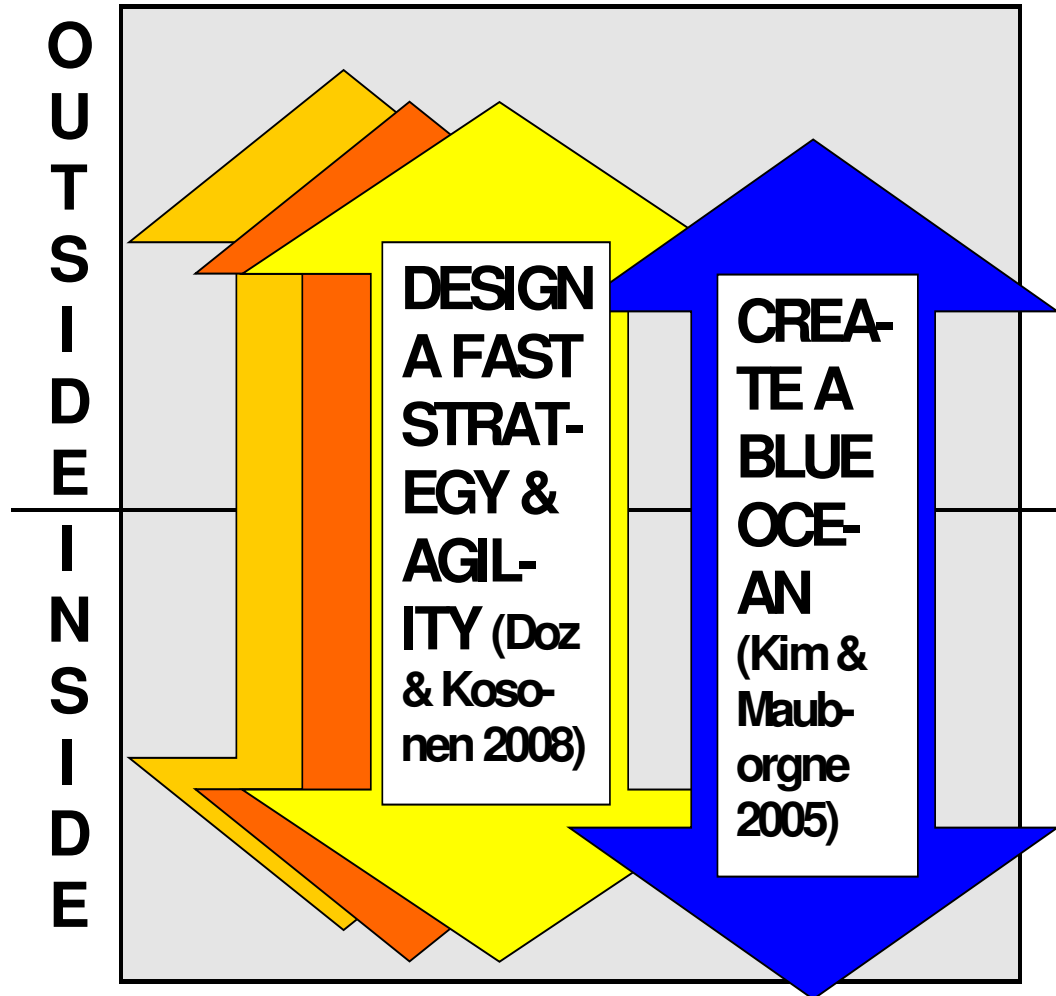
**IN TURN, INSIDE-OUT, RESOURCE-BASED FRAMEWORKS (School 2) HAVE BEEN USED INCREASINGLY SINCE EARLY 1990s ...**



**... ALONG WITH OTHER INSIDE-OUT CONCEPTS BASED ON FOUR KINDS OF KEY RESOURCES (Schools 3-6) ...**



**... IN 2000s,  
DYNAMISM-  
BASED CON-  
CEPTS  
(School 7)  
ENABLE TO  
MANAGE  
DYNAMIC,  
GLOBAL  
BUSINESSES  
WELL**





## **R&D IDEAS FOR AALTO UNIVERSITY AND INTERNATIONAL PROJECT-BASED FIRMS?**

- **NSN: PM AND "PLUG & PLAY" SERVICES FOR TELECOMMUNICATIONS NETWORK CONTRACTING**
- **CONSOLIS: PREFAB CONCRETE SYSTEMS**
- **KONE Elevators: VIRTUALIZATION OF ELEVATORS DELIVERIES**
- **PÖYRY GROUP & METSO: MODELED PULP & PAPER PROJECT SOLUTIONS**
- **WÄRTSILÄ: MODELED ENERGY SUPPLY PROJECT SOLUTIONS**



**COLLABORATION CASE:  
REFRESH RISK MANAGEMENT (RM)  
WITH OPPORTUNITY MANAGEMENT  
(OM)  
by**

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## Speaker's background

- Lauri Palojärvi was born in 1946 in Helsinki and has worked more than 30 years in top management positions of Finnish construction industry at Lemminkäinen, Partek and Metsäliitto/Finnforest.
- Besides, he worked from 1995 till 2000 for the Finnish Government, first in Brussels, when Finland joined EU, and then as CEO of the public risk financing company Kera (later Finnvera) Plc.
- He has lived in total 13 years abroad- in Africa, Middle East, South East Asia and Western Europe, on top of extensive travelling from Finland to nearly 100 countries.
- In 1986 he completed, besides his business duties, a licentiate thesis on the risk management in project export.
- The growing international construction business contains significant risks. Therefore he launched in January , 2007 , a doctoral study on "Risk management in international construction growth business" . Completion date is 12/2009.
- The speaker is a shareholder and board memeber in some SME firms looking for international growth.



## **SUCCESSFUL COLLABORATION – INSIDER ACTION RESEARCH ON PRACTICAL RM**

- **In the context of international construction business, the cases of Lemminkäinen Corp. in 1974-1984 created pre-understanding and a RM framework for the licentiate thesis**
- **(i) Cases of Partek Corp. 1984-1995 and Metsäliitto/Finnforest Corp. 2000-2006, (ii) a review of the academic literature, and (iii) a result- and research-oriented supervision have enabled to conduct a doctoral study ....**
- **....to produce a novel, proactive contribution to risk and opportunity management (ROM) concepts and practices (Ford et al. 2003)**



## **SIX PRE-CONDITIONS FOR R&D COLLABORATION – were nearly all met in this case**

- **Sustainable decision on “Why and what of collaboration”: Random choice? Competition? Communities’ own goal setting?**
- **Mutual respect and trust between parties**
- **”Win-win-win” impacts on business, academic, and surrounding communities (e.g. in Finland)**
- **Long-term planning and incentive funding of collaborative teams with multiple roles**
- **Ample supervision and dynamic self-management**
- **Some permanent structure – physical and/or virtual**



## **THREE REASONS FOR REFRESHING COLLABORATIVE R&D IN AALTO U.**

- **Good goal** – the carbon free environment must be built across the globe
- **Good moment** – e.g. Aalto University is creating a new culture for basic and applied research on built environment
- **Good references** have been readily gained at TKK/CME vis-a-vis successful collaboration between Finnish academic and business communities



# OUR GUIDELINES FOR COLLABORATION

Juhani Kiiras, Lauri Palojärvi, and Pekka Huovinen of TKK/CME

## For academics:

- **Identify common interests and needs**
- **Combine basic and applied research**
- **Have a strong vision on problems+solutions**
- **Target implementation early in research plans**
- **Ensure mutual respect and trust**

## For project-based firms:

- **Identify common interests and needs**
- **Organize long-lasting relationships**
- **Start collaboration with clear objectives**
- **Target collaboration early in R&D plans**
- **Ensure mutual respect and trust**



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