INTERCLUSTER 2007

the first european conference
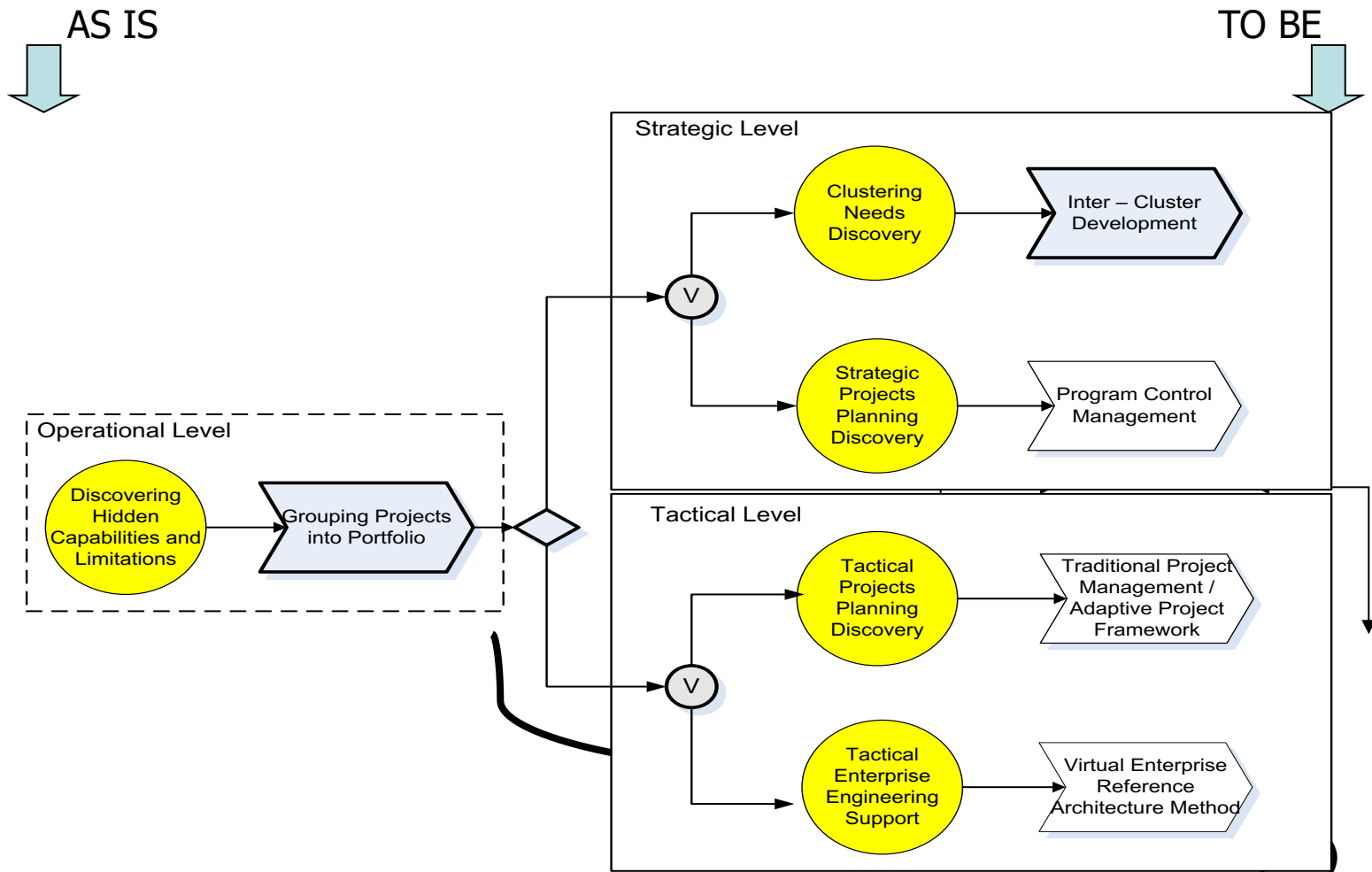Brussels 6 and 7 December 2007

Architecture Approach for Inter-Clusters

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# The Positioning Milestones (AS IS – TO BE)

Foundation of Intercluster Development in regions of the Member States

- Human Resources and skills
  (people with strong basic skills, special administration support and managerial skills and people stats new enterprises – entrepreneurs)
- Technology R&D and ICT impact on clustering
  (basic research in the fields with economic potential, R&D leading to local product innovation, product technologies)
- Capital Financing and Public Private Partnership
  (available capital for modernization, start ups in new established and emerging industry, controlling, auditing, reporting)
- Fiscal Regulatory and Public Private Cooperation
  (pro competitive fiscal and regulatory climate)
- Physical Infrastructure and Quality of Life
  (local services infrastructure, basic community health, amenities and quality life standards)

Cluster's Model and BM components
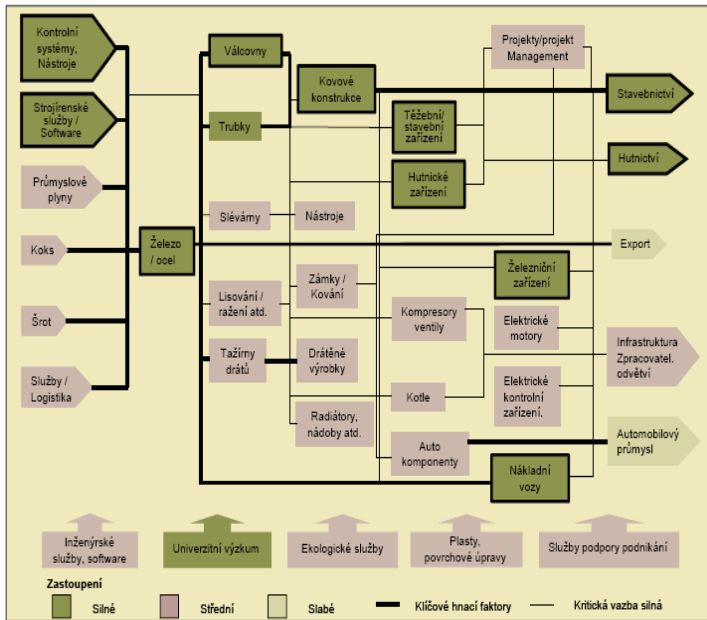
Implementation of BM on an existing cluster or initiate a new one or to develop an Intercluster is risky without Architecture Approach support
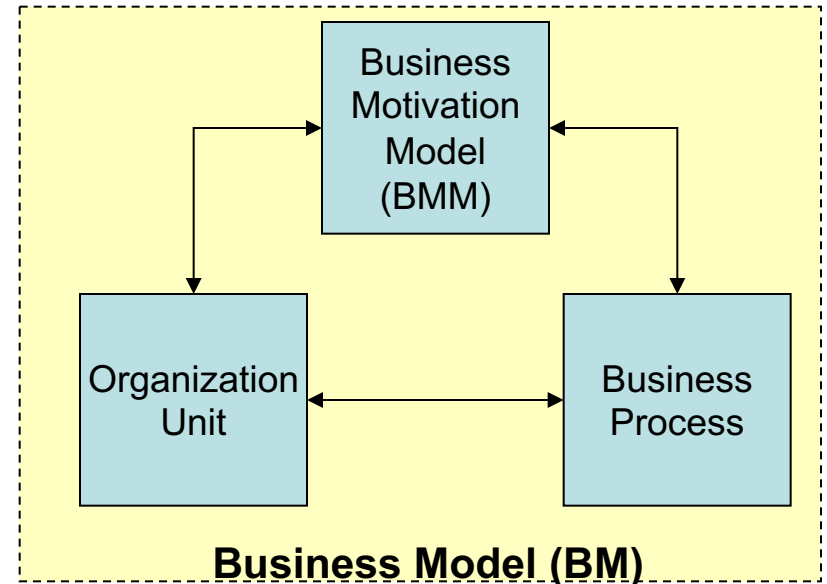
Establishing a Cluster could be long term and risky process without Business Model support

Business Model (BM)

Business Motivation Model (BMM) Structure

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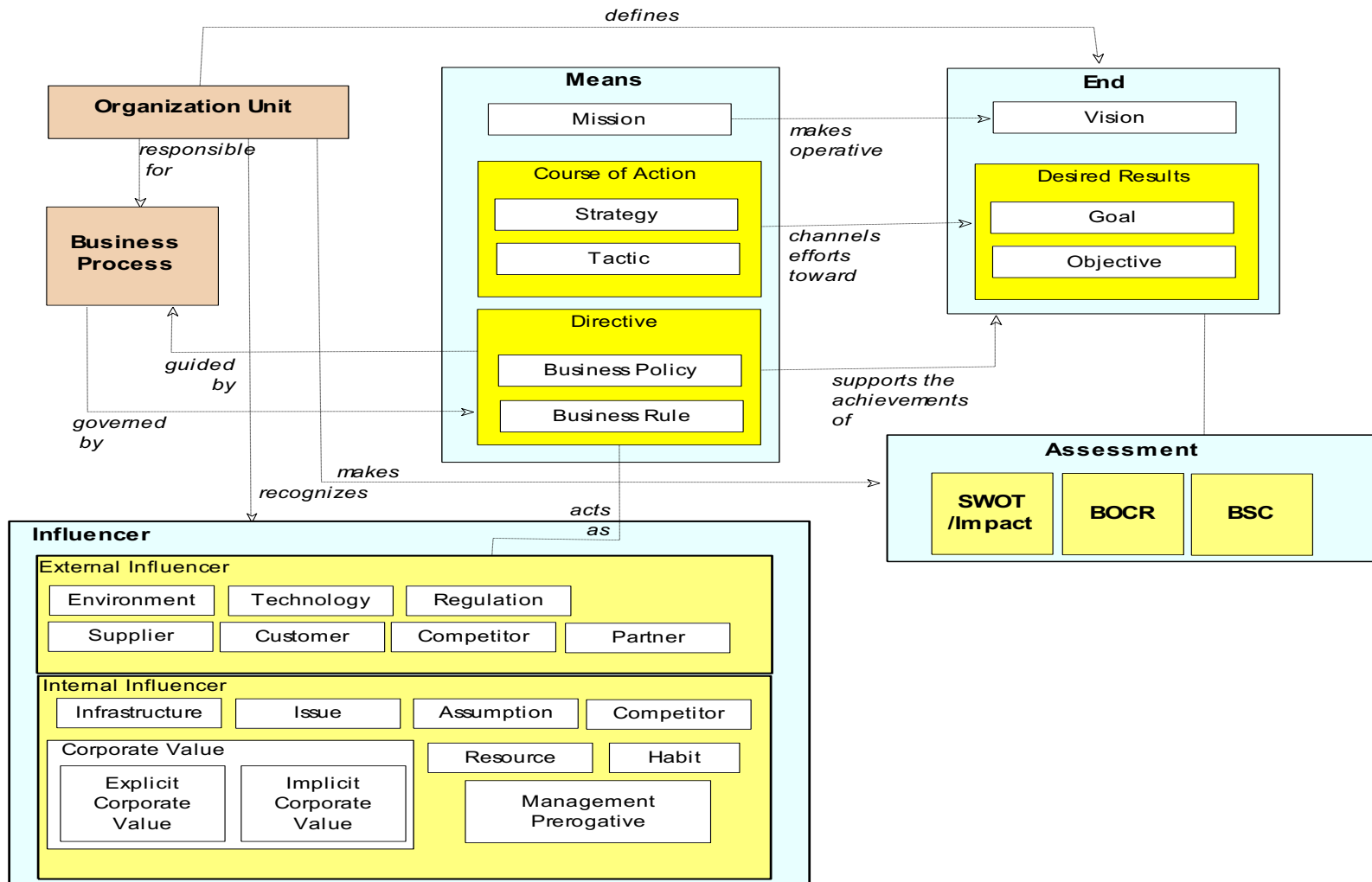
The Cluster Model is Losing Relevance

EURADA: Is a cluster policy still relevant? What should bedone to move clusters from „Then" to „Now"?

THEN

Manufacturing

Trials / Testing

Research

Service

Development
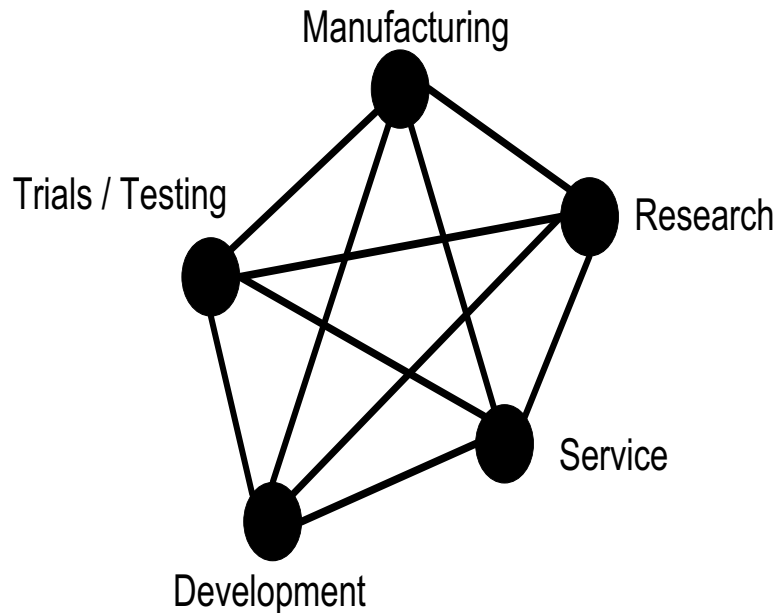
Self-contained
Regional clusters

Now

RegA

RegB

RegD

RegC

RegE

RegG

RegF
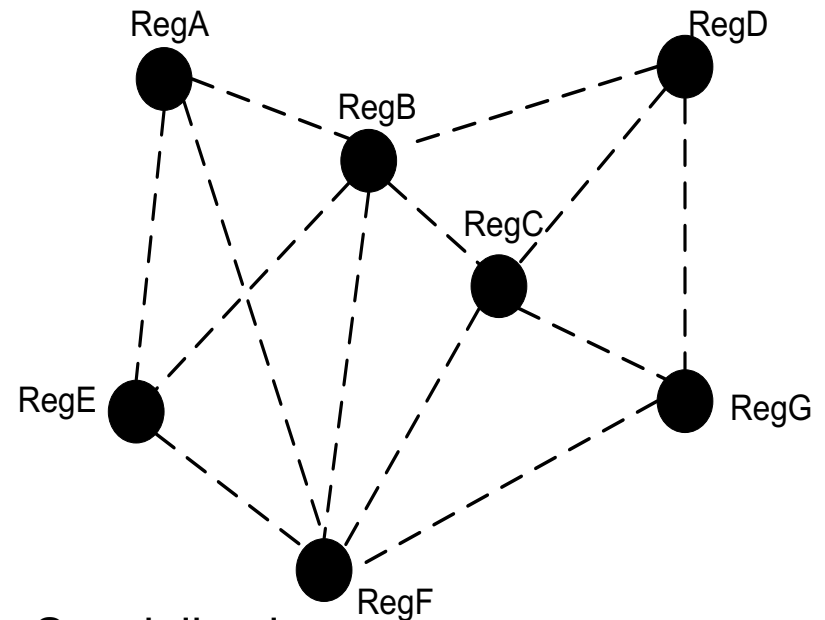
Specialized,
Networking regions:
Hubs and Nodes

Clusters and Decision Making Processes

Choosing New Strategic Directions

How to make a decision ?

Primarily using personal experience and intuition

Primarily using engineering methods and decision support models
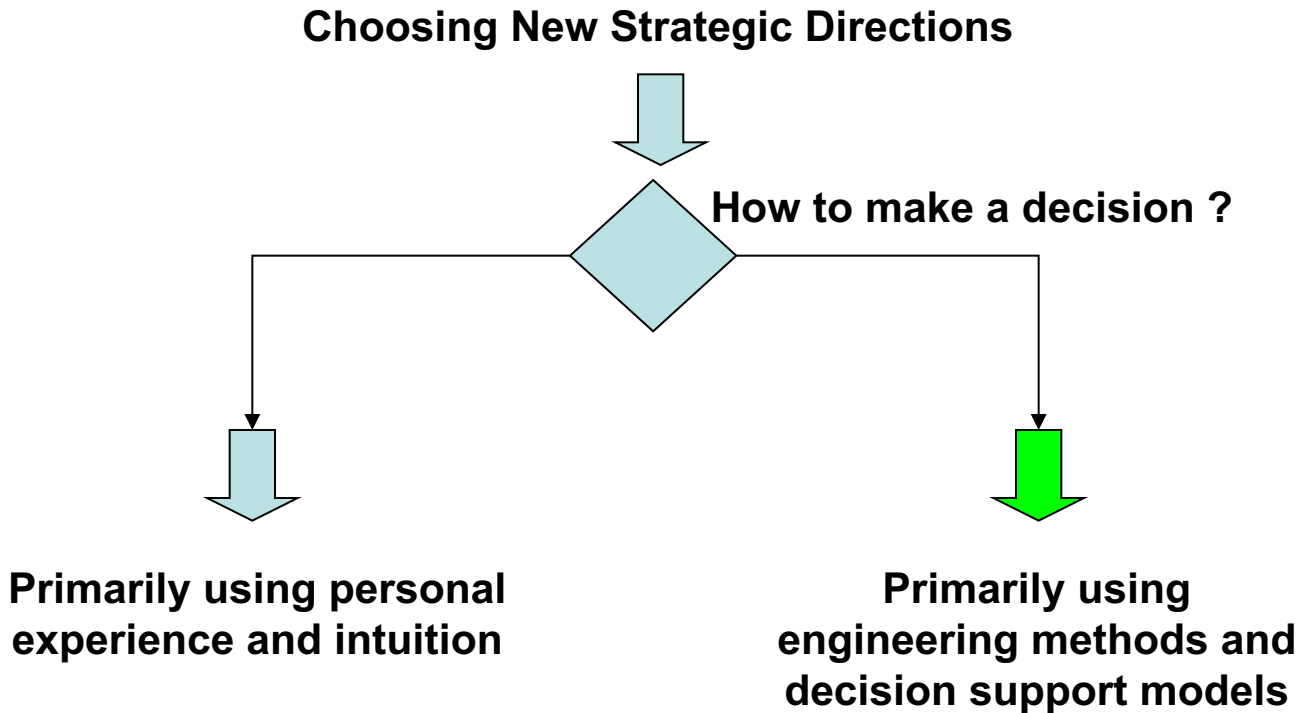
Clustering and Enterprise Engineering Methods, Standards and Best Practices

Key standards supporting engineering methods in practice

SE System Engineering Standard: ISO 15288	AD Architecture Design Standard: ISO 15704	FE Financial Engineering Standard: (EC 1083/2006)

EE
Enterprise Engineering

Other Standards and Best Practices in an Architectural Approach
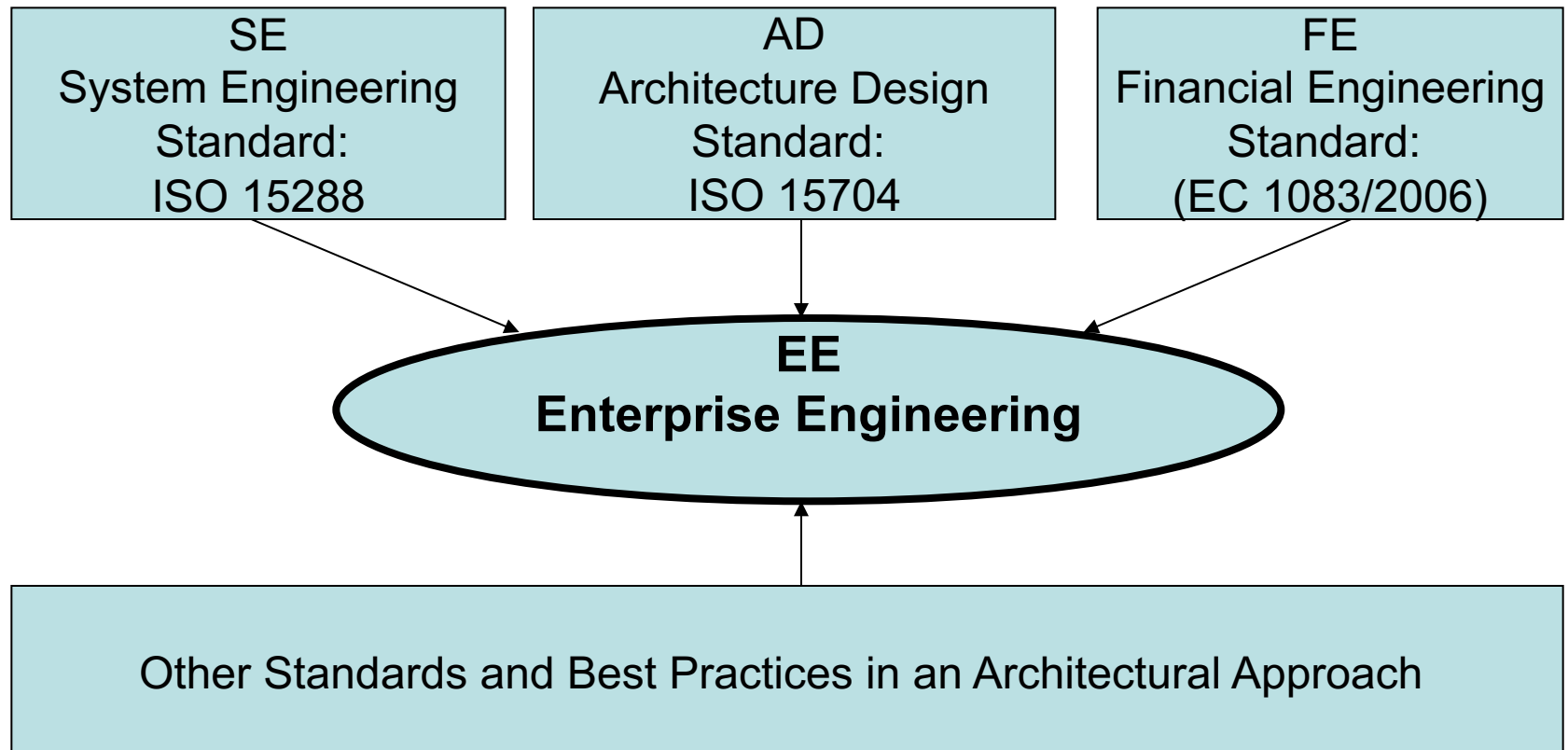
Enterprise Engineering and D2R Methodology (DEA, DSM, RAM)

Enterprise Engineering Approach supported by D2R
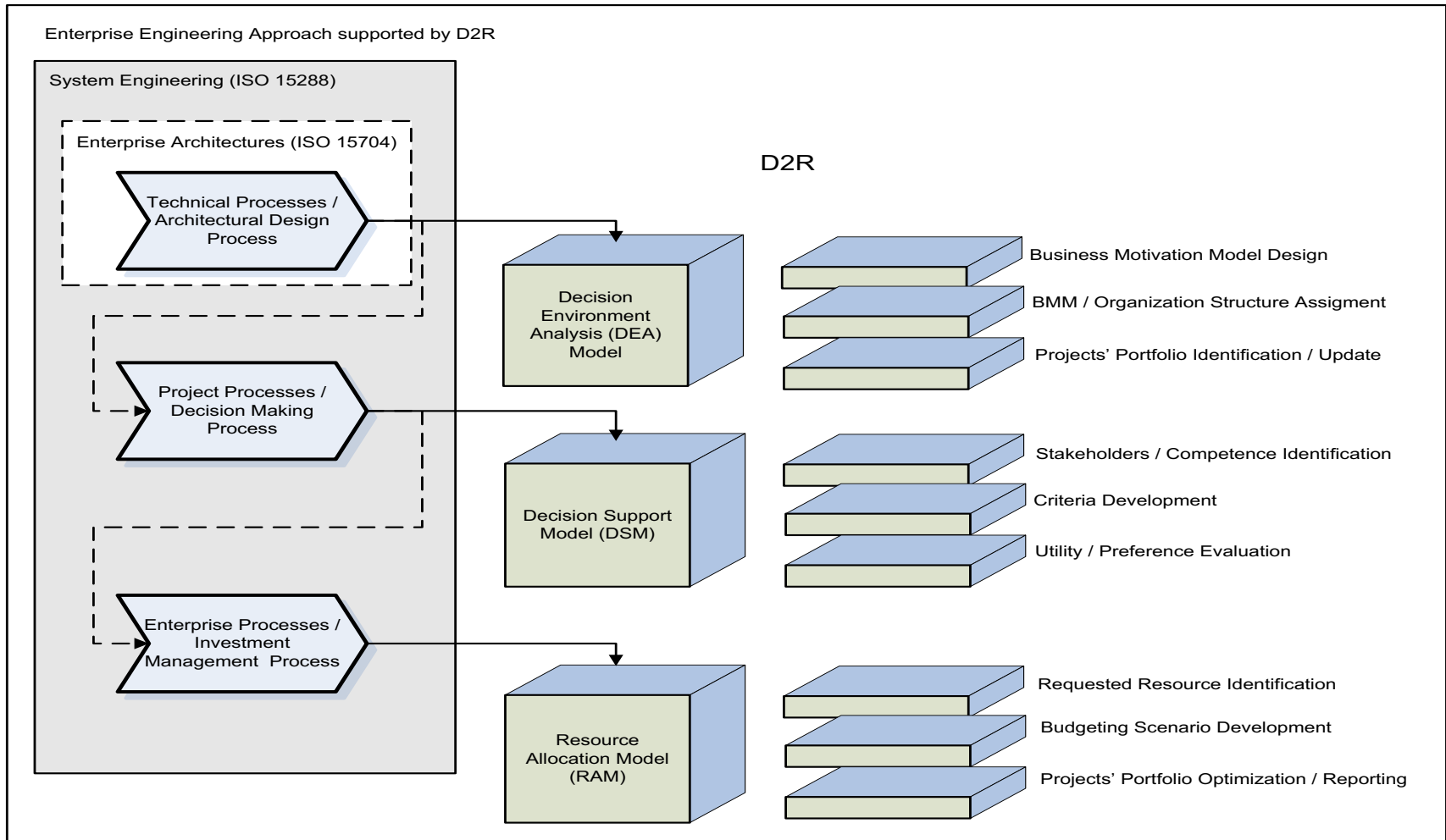
System Engineering (ISO 15288)

Enterprise Architectures (ISO 15704)

Technical Processes / Architectural Design Process

Project Processes / Decision Making Process

Enterprise Processes / Investment Management Process

D2R

Decision Environment Analysis (DEA) Model

- Business Motivation Model Design
- BMM / Organization Structure Assigment
- Projects' Portfolio Identification / Update

Decision Support Model (DSM)

- Stakeholders / Competence Identification
- Criteria Development
- Utility / Preference Evaluation

Resource Allocation Model (RAM)

- Requested Resource Identification
- Budgeting Scenario Development
- Projects' Portfolio Optimization / Reporting

How to apply D2R Methodology for Cluster Design Modeling – step by step approach

1. Partnership
2. Clustering opportunity identification
3. Cluster capability identification
4. Capability profile assignment
5. Alternatives identification and capability profil combination
6. The System criteria design (BOCR) and Decision Support Hierarchy
7. The System criteria preference evaluation
8. Alternatives evaluation using the system of criteria
9. The Choice of the most preferable alternative

European InterCluster - Partnership and Clustering Opportunity Identification

- Partnership methodology
  Goal: Cluster Initiating methodology
- European Intercluster Documents
  Goal: Cluster Directives development
- Create and develop an Intercluster:
  Goal: Business model in practice use
  - Emergency (common vision)
  - Crystallization (value-added products for all partners)
  - Maturity (economies of scale, network and learning effects, sharing of information, technological interconnection)
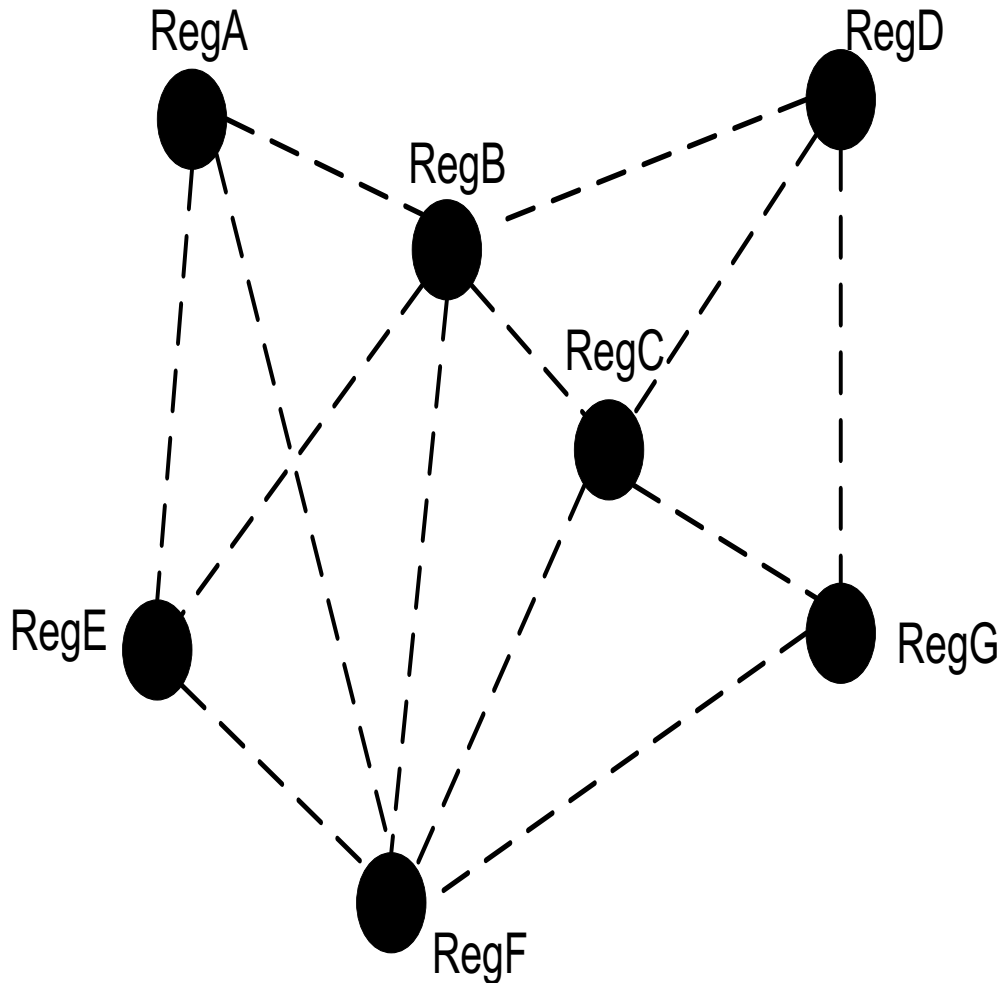
Self-content Regional Cluster has a limited Capability to increase its Business Performance
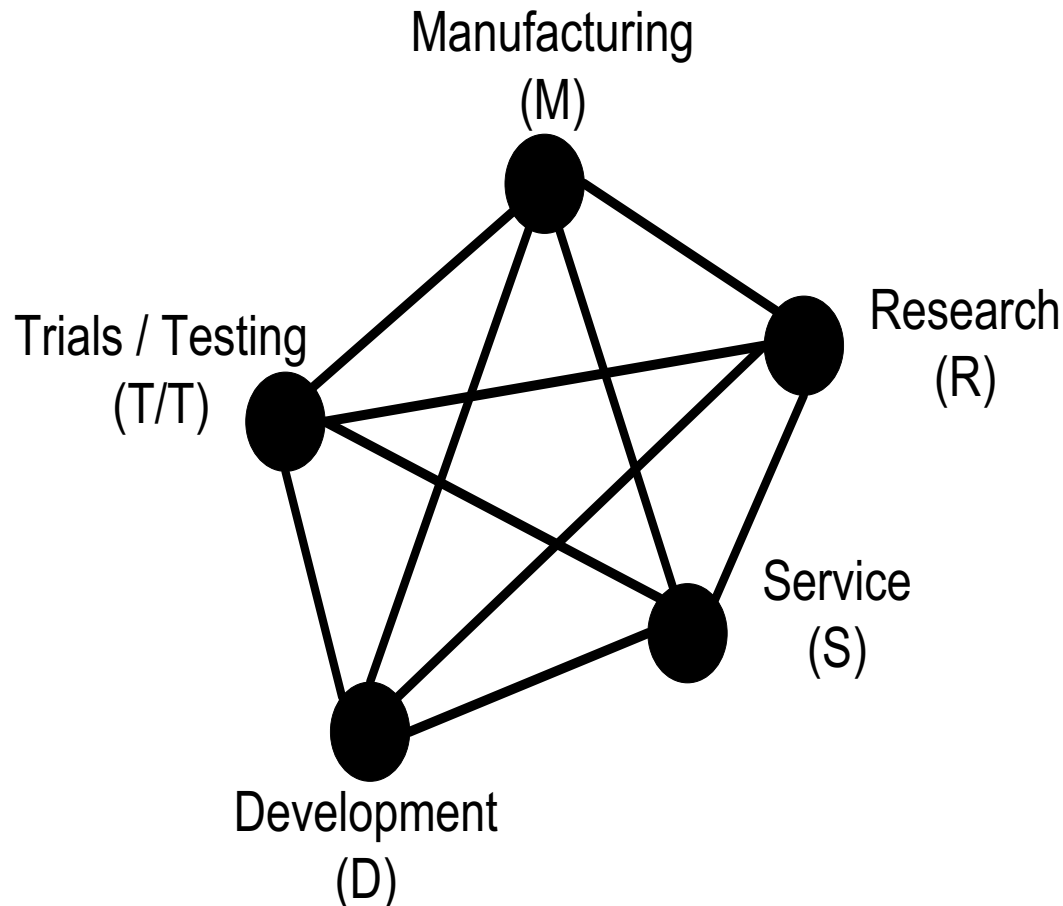
We want to design an intercluster with the highest BO / CR Ratio, where:

B – Benefit
O – Opportunity
C – Cost
R - Risk

Capability profile assignment 1

Eight regions are potential candidates to establish this intercluster. Each region has its own capability profile {M,R,S,D,T/T} where:

M – Manufacturing
R – Research
S – Service
D – Development
T/T – Trails / Testing

Capability profile assignment 2

InterClister capability profile matrix {B, O, C, R} & {M,R,S,D,T/T}
for Regions {A, B, C, D, E, F, G} for the highest BO / CR Ratio Calculation

	M				R				S				D				T/T			
	B	**O**	**C**	**R**	**B**	**O**	**C**	**R**	**B**	**O**	**C**	**R**	**B**	**O**	**C**	**R**	**B**	**O**	**C**	**R**
Region A	H	L	M	L	L	L	M	H	M	L	M	L	L	L	M	M	H	L	L	L
Region B	M	H	M	M	L	L	H	M	H	L	M	L	L	L	M	L	M	L	M	L
Region C	L	L	L	L	L	L	L	L	H	M	M	L	L	L	L	M	M	L	M	M
Region D	L	L	M	M	H	M	M	L	M	M	H	M	H	L	L	M	L	M	L	L
Region E	M	M	L	M	H	M	M	M	M	L	L	M	M	L	M	M	L	L	M	M
Region F	L	L	L	L	M	L	M	H	H	M	M	L	M	L	M	M	H	M	M	L
Region G	M	L	M	L	L	L	M	M	M	M	M	L	L	M	L	M	M	L	M	L

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Alternatives Identification and Capability Profile Combination 1

- Regions differ by their Benefit, Opportunity, Cost and Risk, that characterize each requested capability – Manufacturing, Research, Services, Development, and Trials/Testing.

- To establish a cluster we must understand which combination of characteristics will generate the highest BO / CR ratio

- Number of combinations is usually high and we need systematic approach for searching the most optimal inter-cluster cooperation.

- At the beginning of this search is an identification of reasonable combinations. We use values of capability profiles which were assigned to each region (see previous slide).

- Each reasonable combination is marked as Alternative

Alternatives identification and capability profile combination 2
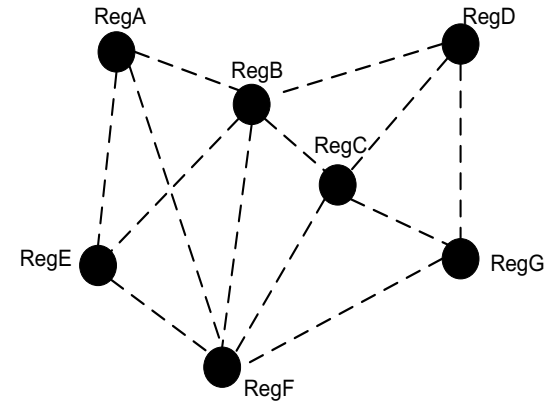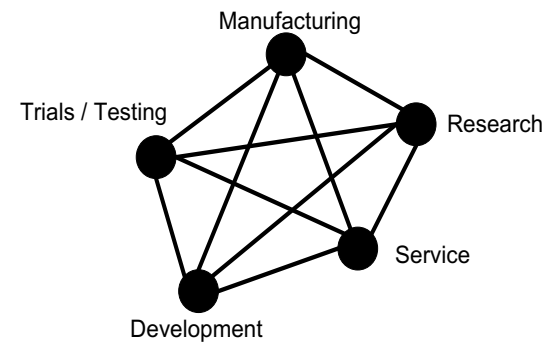
Alternative A1:

RegA {M, T/T}, RegB {S,T/T}, RegC{S}, RegD {R}, Reg {M,S}, RegF {R,S,T/T}, RegG {M,S}
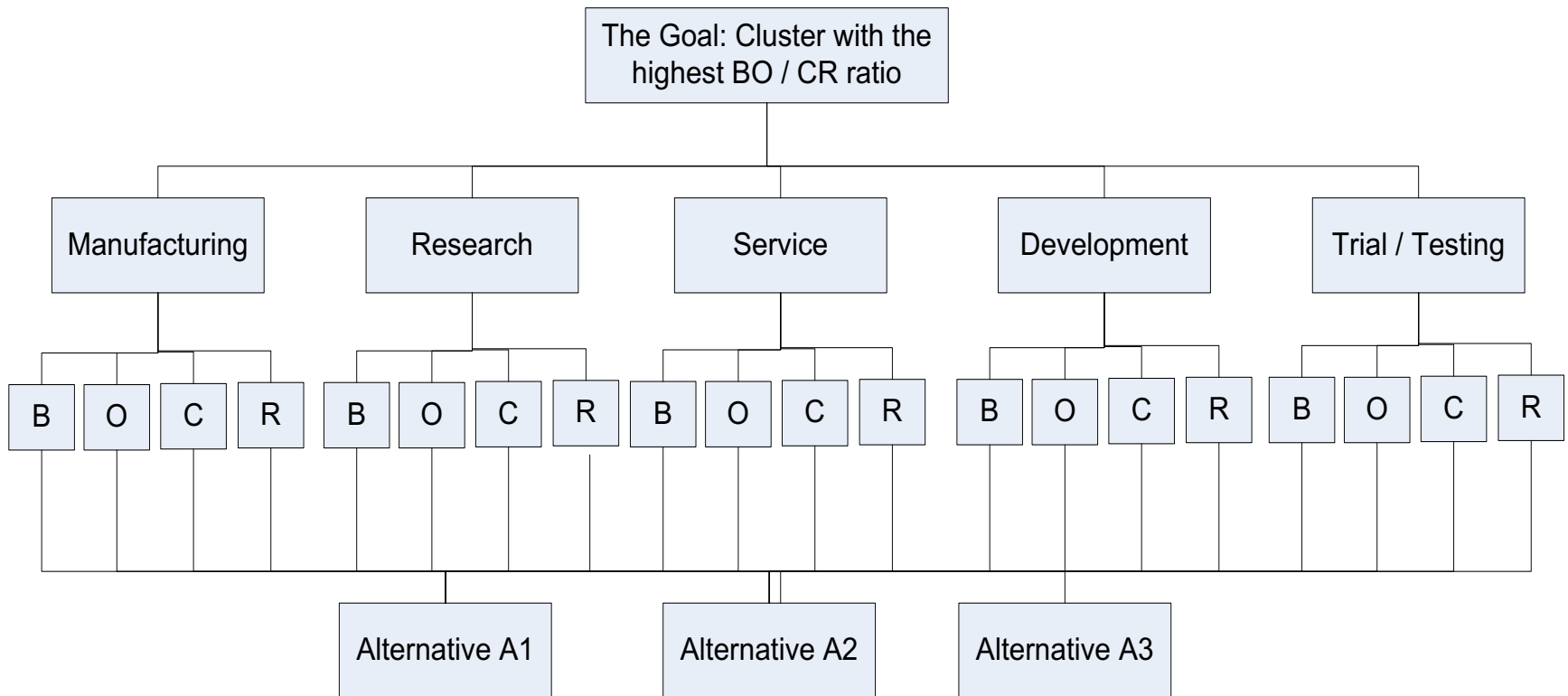
Alternative A2:

RegA {M, S,T/T}, RegB {M,S}, RegC{T/T}, RegD {R}, RegE {M,R,D}, RegF {S,T/T}, RegG {S}

Alternative A3:

RegA {S,T/T}, RegB {M,T/T}, RegC{S}, RegD {R}, RegE {R,T/T}, RegF {SRT/T}, RegG {M,S}

The System Criteria Design and Decision Support Hierarchy

The System Criteria Preference Evaluation and Alternative Preference Evaluation

The System Criteria Preference Evaluation (Only for Manufacturing)

Alternatives Evaluation using the System of Criteria

Criteria Preference Table

	M/B	M/O	M/C	M/R
M/B	*	0,5	2,0	3,0
M/O		*	4,0	6,0
M/C			*	1,5
M/R				*

Alternatives Preference Table

|	M	R	S	D	T/T	P
A1	0,30	0,25	0,40	0,20	0,40	0,31
A2	0,50	0,30	0,40	0,40	0,30	0,38
A3	0,20	0,45	0,20	0,40	0,30	0,31

Alternatives Evaluation using the System of Criteria – Performance Graph
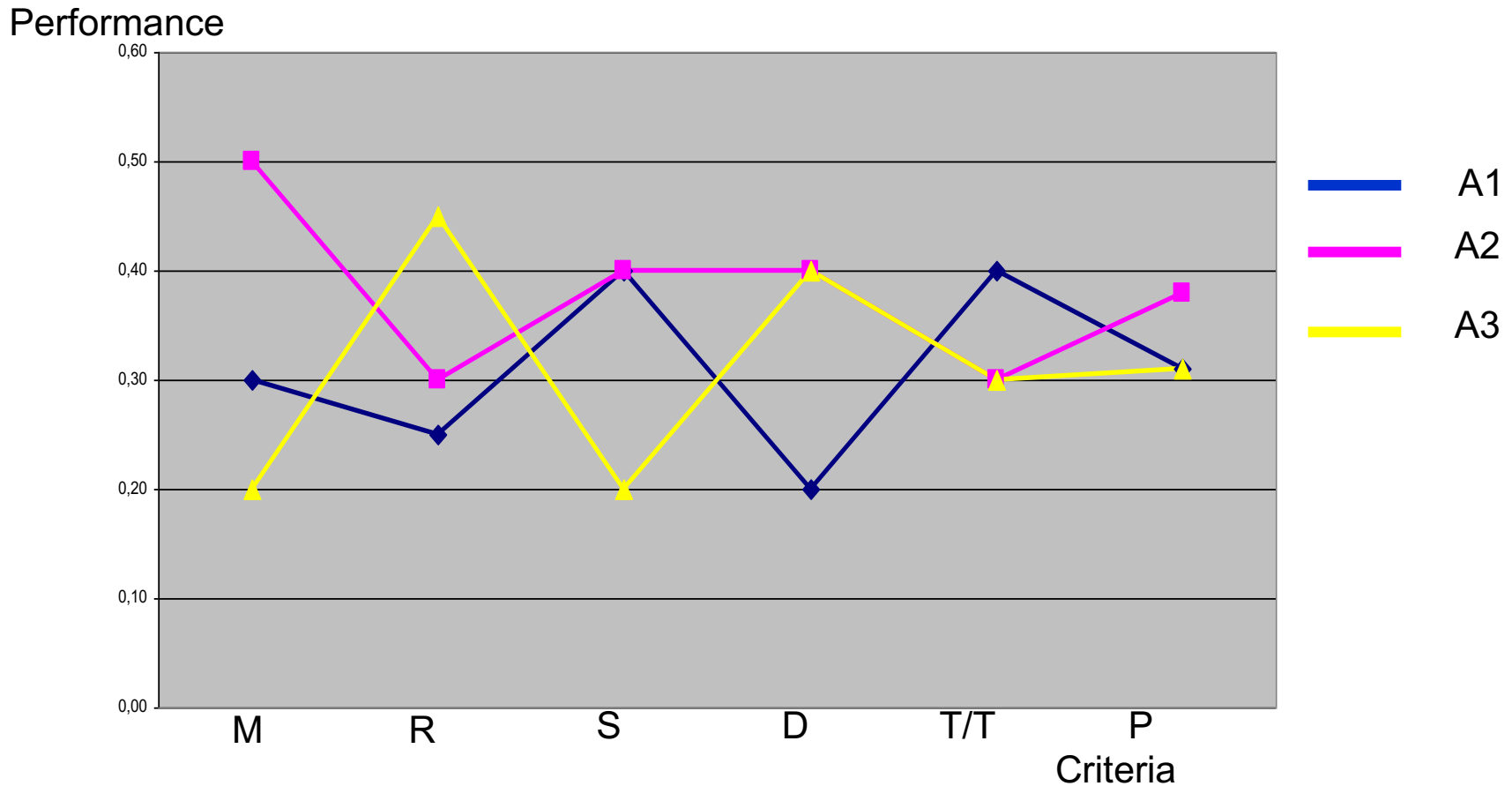
The Choice of the Most Preferable Cluster Alternative

- The most preferable Alternative how to design the cluster among regions A, B, C, D, E, F, and G is the Alternative 2 with the performance (BO / CR ratio) equal 0,38.

- Alternative 2 supposes following regional specialization:
  - **Region A: Manufacturing, Service, and Trial / Testing**
  - **Region B: Manufacturing, Service**
  - **Region C: Trial / Testing**
  - **Region D: Research**
  - **Region E: Manufacturing, Research, Development**
  - **Region F: Service, Trail / Testing**
  - **Region G: Service**

Regional Specialization generates the need of Cluster Intra - Cooperation
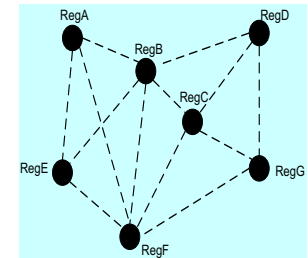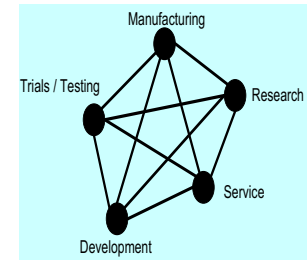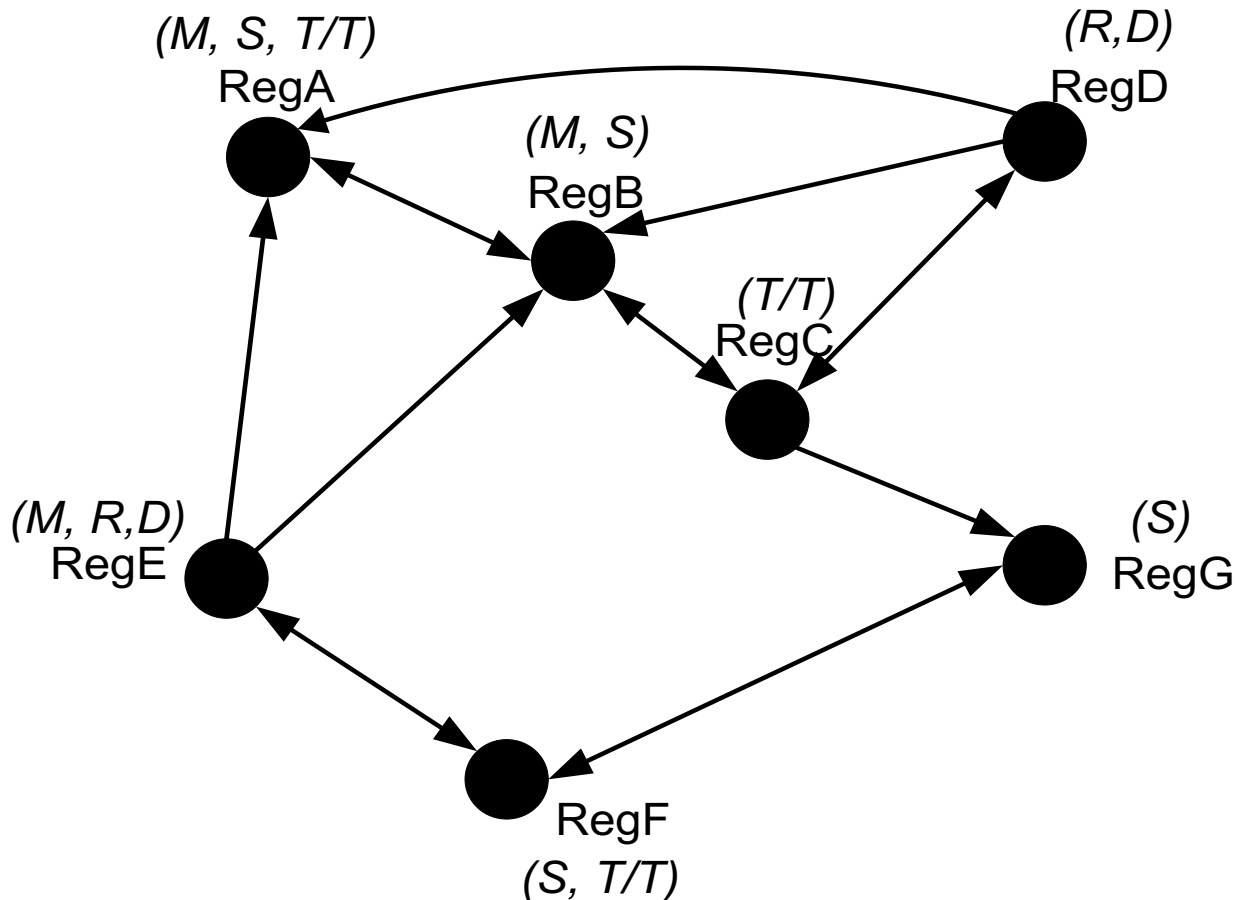
D2R – Architecture Approach (AA) Challenge and Opportunity

- What does it mean „AA and Engineering"; is it a chance?

- Why we need less Policy and more Engineering ?

- How Top Manager and Officials can be supported; by D2R?

- Where we can prove it? In European InterCluster projects ?

- Who should be interested in D2R? Interluster projects planners and owners?

- When can we do it? Now?

For example to prepare an Innova or Interreg project:
„Architecture Approach and InterCluster Methodology"
Can we ask you to join this challenge?
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