Breeding Environments, Dynamic Virtual Organizations, and Professional Virtual Communities.

ECOLEAD

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European Collaborative Networked Organizations Leadership Initiative

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Virtual Organizations Management (VOM)

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Sixth Framework Programme

Information Society Technologies

VTT

CONTENT

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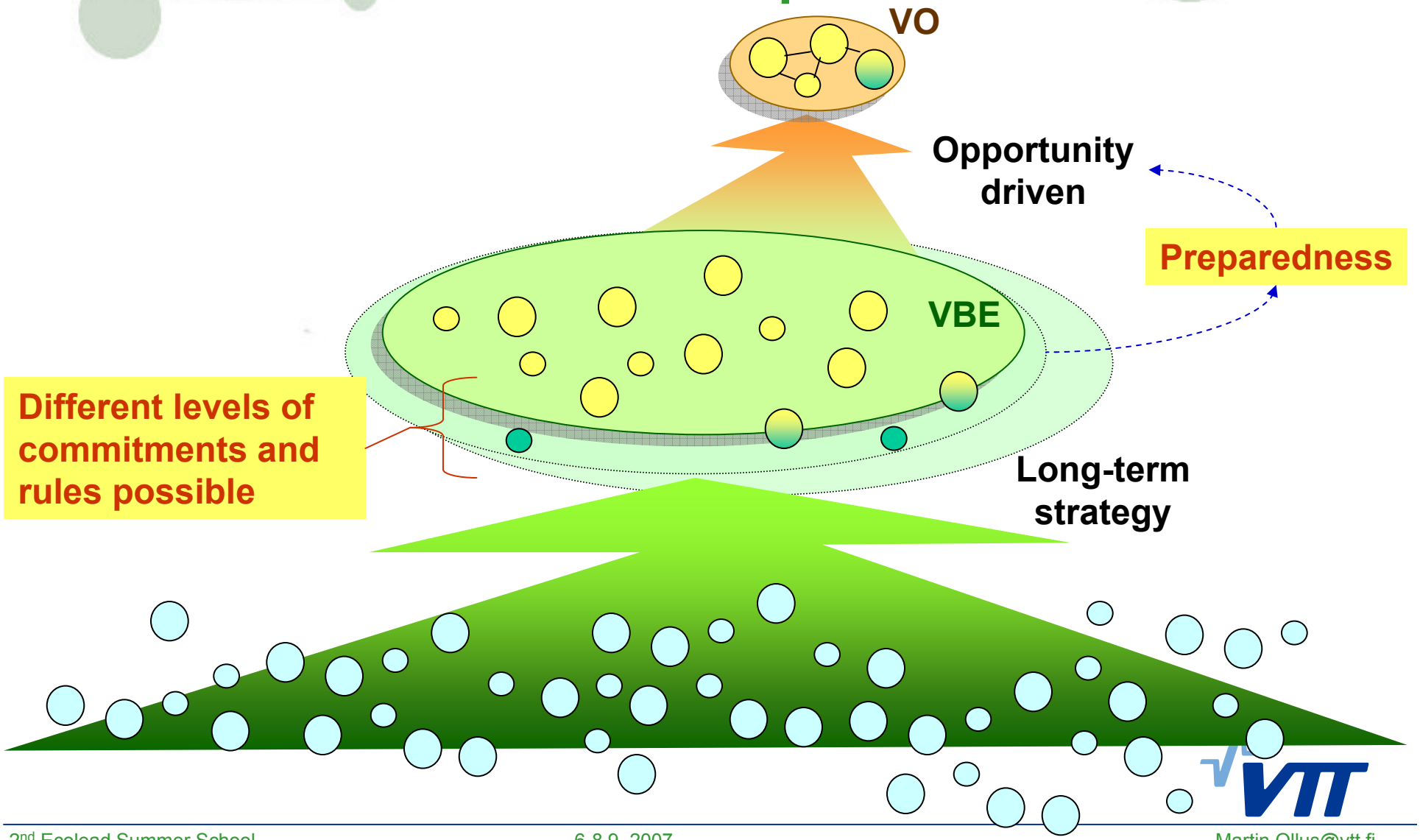
Virtual Organizations, some definitions

The Virtual Organization (VO) is a temporary consortium of partners from different organizations established to fulfil a value adding task, for example a product or service to a customer.

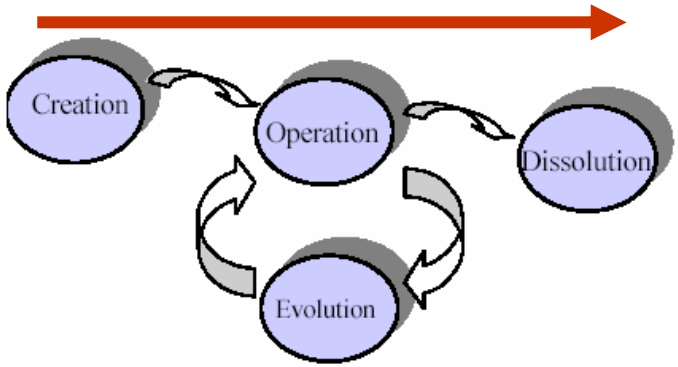
The lifetime of a VO is typically restricted: It is created from the network for a definite task and dissolved after the task has been completed.

Concepts


VO
Opportunity driven
Preparedness
VBE
Different levels of commitments and rules possible
Long-term strategy

A DEFINITION OF VO MANAGEMENT (VOM)

VO Management denotes the organisation, allocation and co-ordination of resources and their activities as well as their inter-organisational dependencies to achieve the objectives of the VO within the required time-, costs- and quality frame.



Full life-cycle of VO covered

Management in networks

Challenges for the management

- ***Independent organizations***
  - ***-> little/no forcing power***
  - ***-> own internal procedures & behaviour***
- ***Collaboration voluntary***
  - ***-> objectives & motivation not fully known***
  - ***-> hidden agendas***
  - ***-> opportunism***
- ***Simultaneous participation in several Vos***
  - ***-> conflicts***
- ***Incomplete information***
  - ***-> measurements mainly at interfaces***
- ***Different cultures & business practices***
  - ***-> impact on management means***

Goal oriented management

VO created to fulfill a task

- *Partners need to work towards a common goal*
- *Management needs to continuously know the status of the activities*
- *Management needs means for (pro)active management*

Objectives for management:

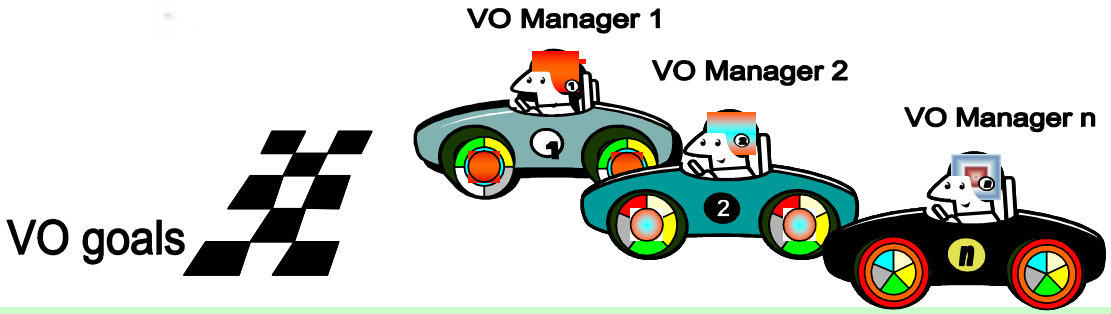
Achieve the "common" goal by collaboration

- *Performance measurement based real-time VO management*
- *Management structure & measurements: VO specific*
- *Set-up phase short as possible (Ideally in days)*
- *Management has to be beneficial during the life-time of VO*
- *Build on existing applications in partners' organizations*

Management Approach can be VO-specific

Different management approaches may depend on

- ***VO objectives***
- ***VO structure***
- ***VO manager and mangement styles***
- ***Etc.***



Some management approaches

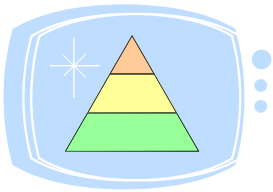
- ***Multi-organizational project management***
- ***Encouragement approach***
- ***Self-organizing approach***
- ***Time-dominated VOs***
- ***Supply Chain Management approach (not considered in ECOLEAD)***

ECOLEAD approach in VO management

"Are we earning or wasting money?"

"Are we in line with our plan?"

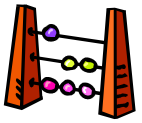
"What (where) is the reason of the problem?"



Monitor

VO Manager

Dashboard & Alert System



Decisions Support

Now

Impact of Problems & Deviations

What-if Scenarios

Past VO Performance

Communicate, Negotiate & Implement Decisions

Based on available knowledge

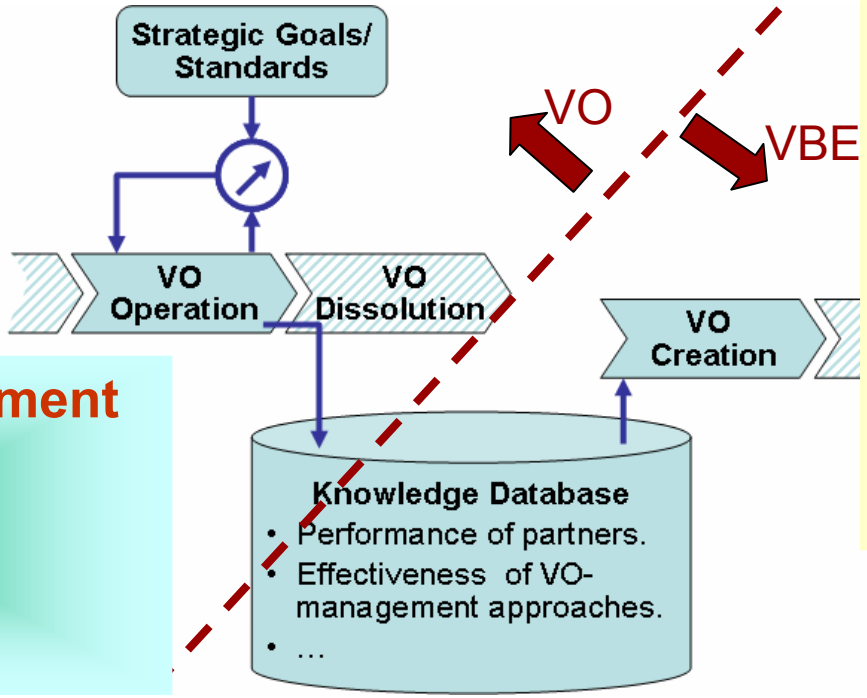
Expected VO Performance

Focus on future

Performance measurement in VOM

Categories of Performance

- fulfilling the given task
- contribution from partners
- partners' collaboration
- performance of management approach & methods



Performance info to VBE/PVC

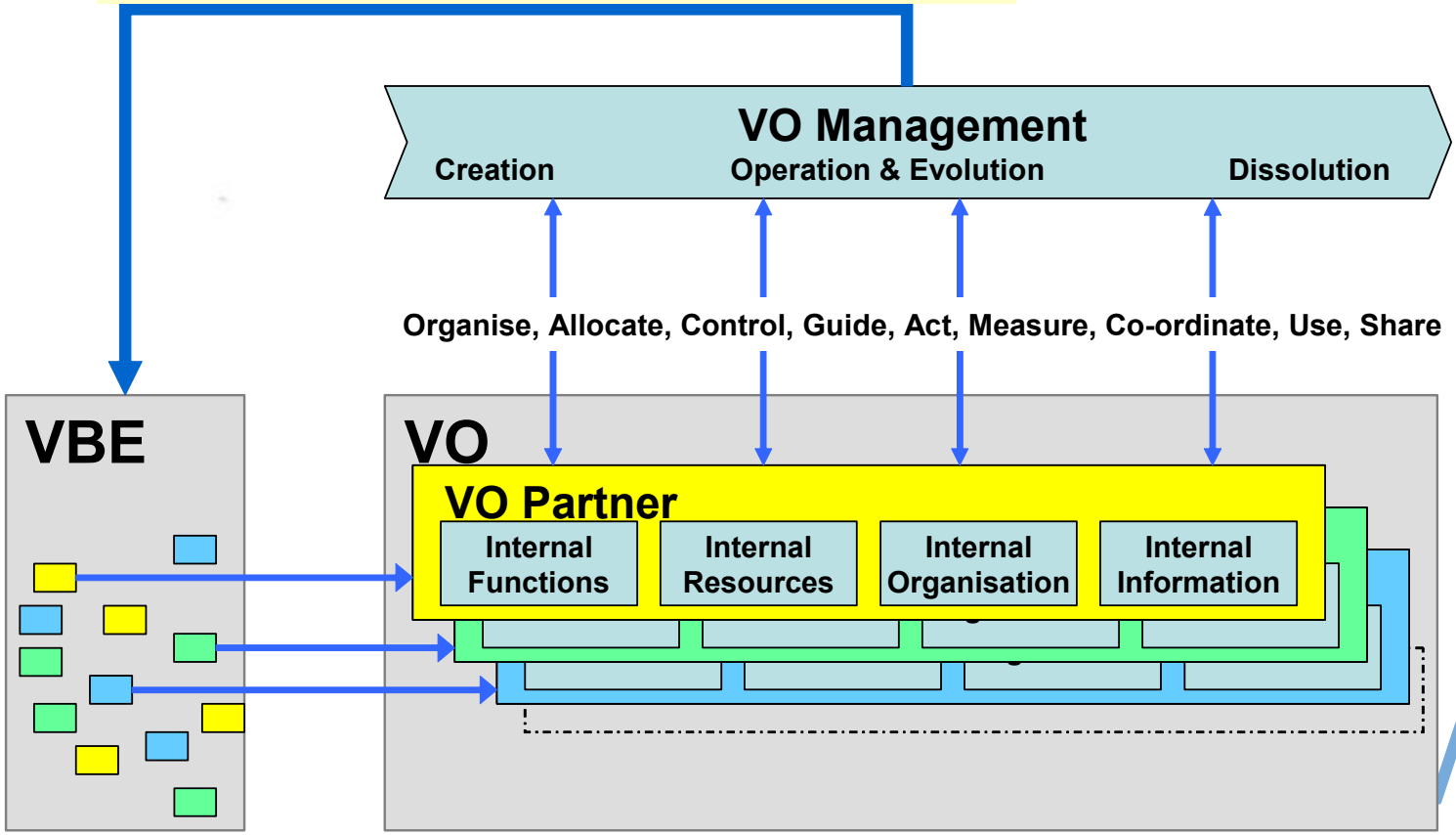
- Experience, references
- Results
- Liabilities
- Rights
- Input to value system & "bag of assets

Different management approaches etc. require their own support from the measurement

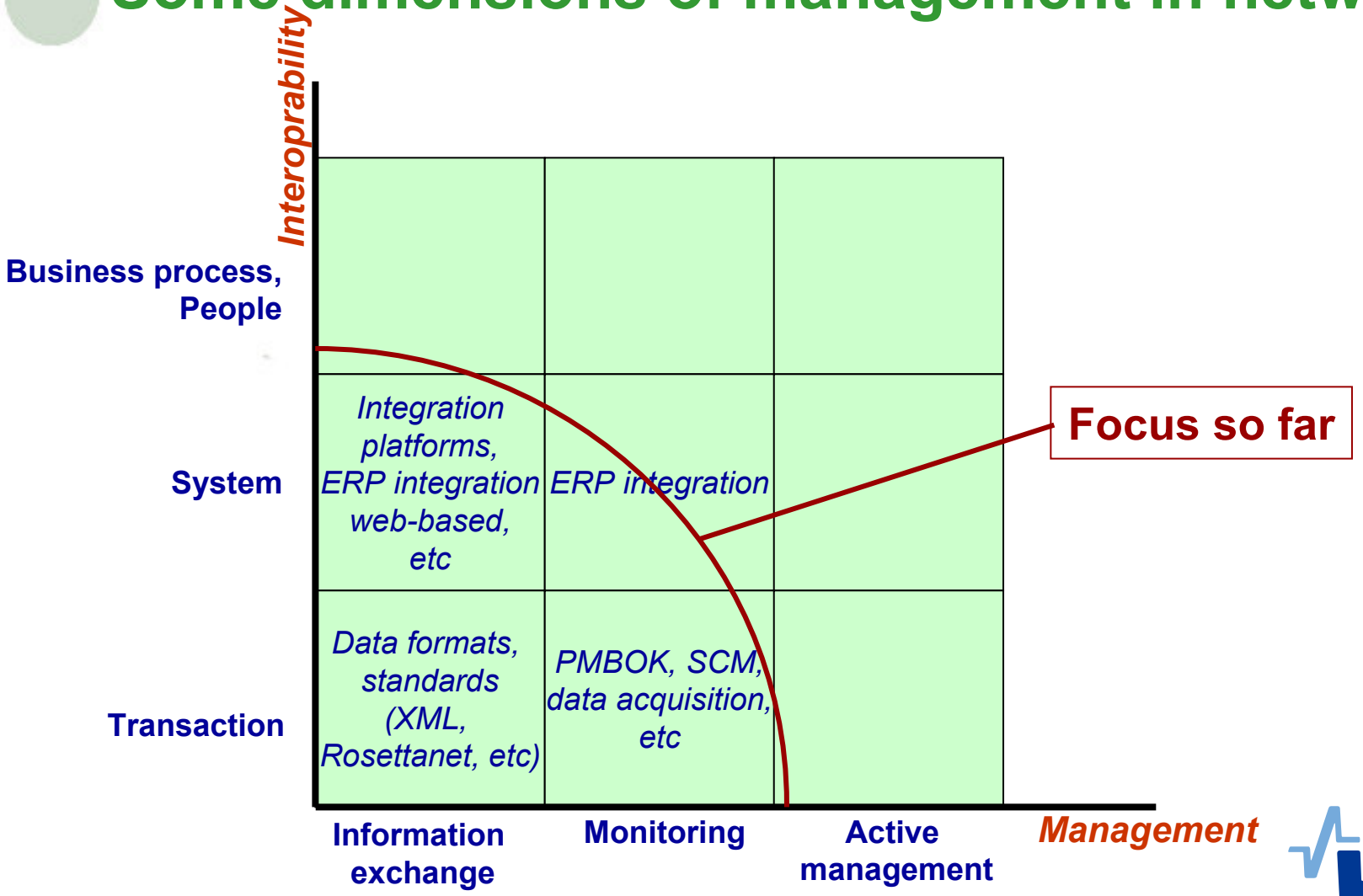
Inheritance from a VO

Experience, knowledge, liabilities, rights

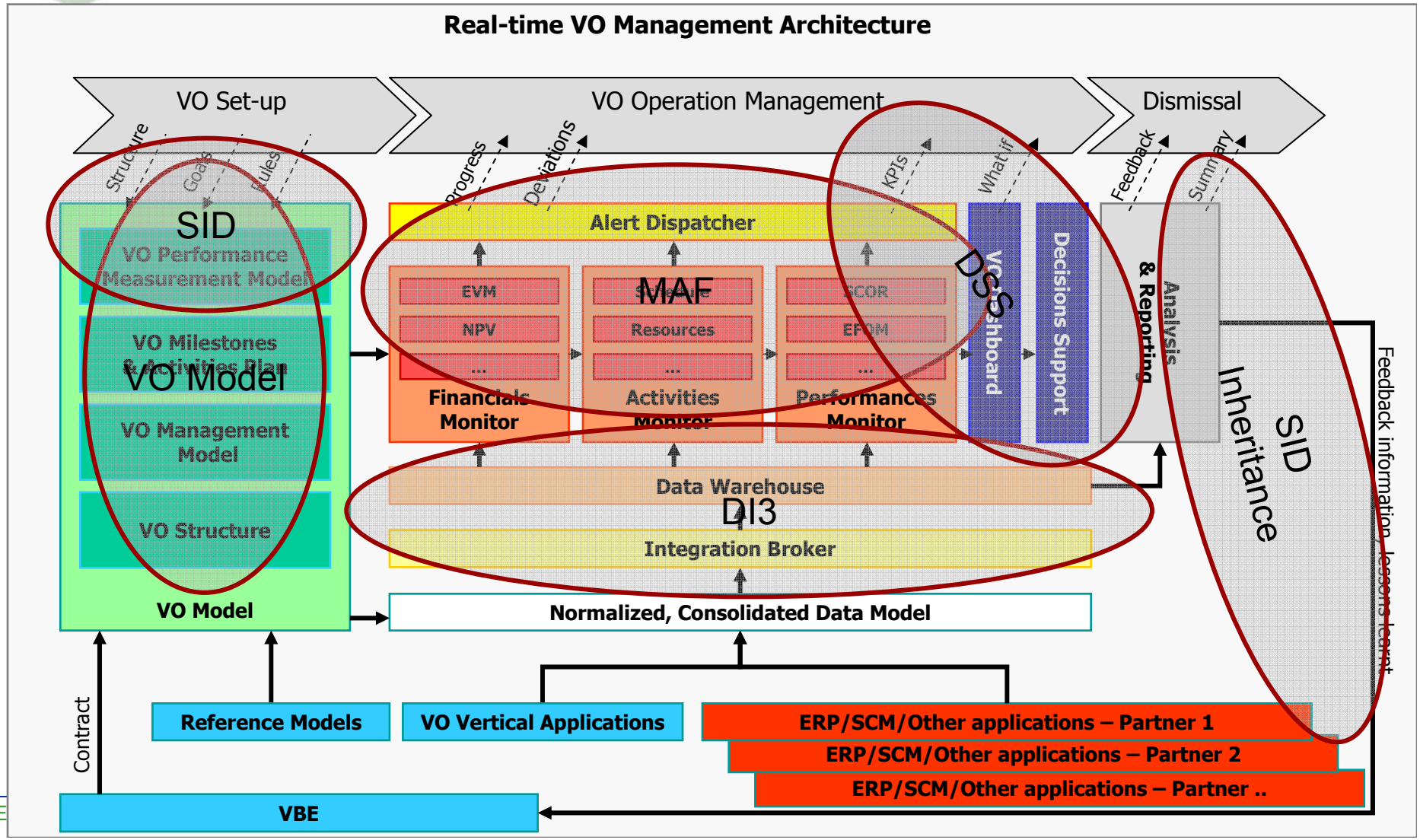
Inheritance, input to value system…



Some dimensions of management in networks



RAVO Functional architecture



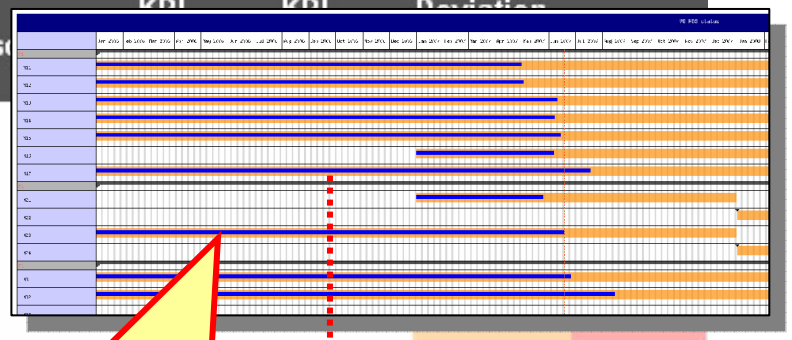
Checking status in the dashboard

The dashboard indicates when an indicator is beyond the acceptable corridor (red) or if a task is not on track (yellow)

MAF Web-dashboard

VO Model Dashboards ▾ Settings ▾ Help ▾

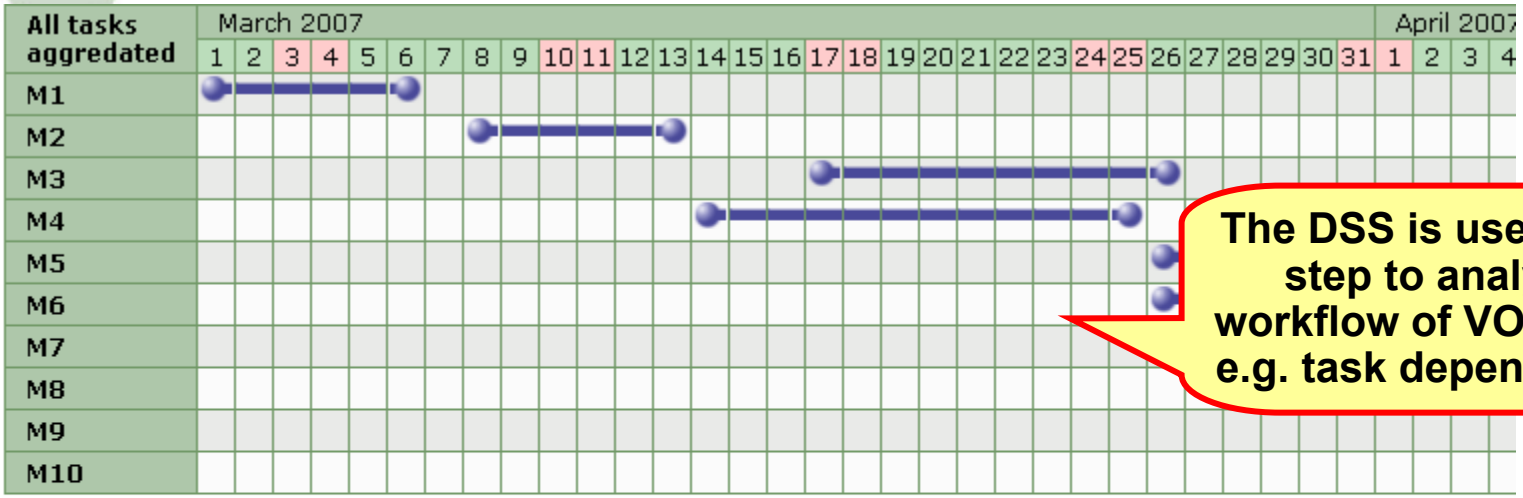
KPI	Task related	Task description
Cost deviation	M11	IB/PD
Objective deviation	M11	IB/PD
Objective deviation	M14	>
Cost deviation	M14	>



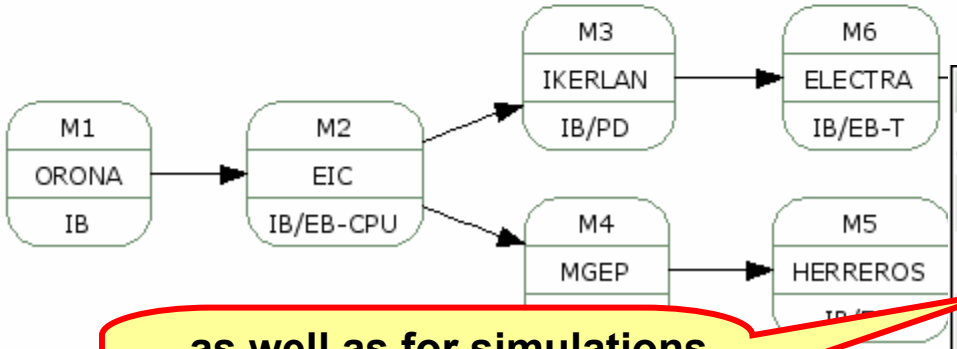
MAF provides more details and advanced features for analysing the exception
(here: monitor the budget and the completeness of each task)

Schedule Activities → Define KPI → Measure Indicators → **Monitor KPI** → What-if-analysis

What-if-analysis



The DSS is used in a first step to analyse the workflow of VO members, e.g. task dependencies …

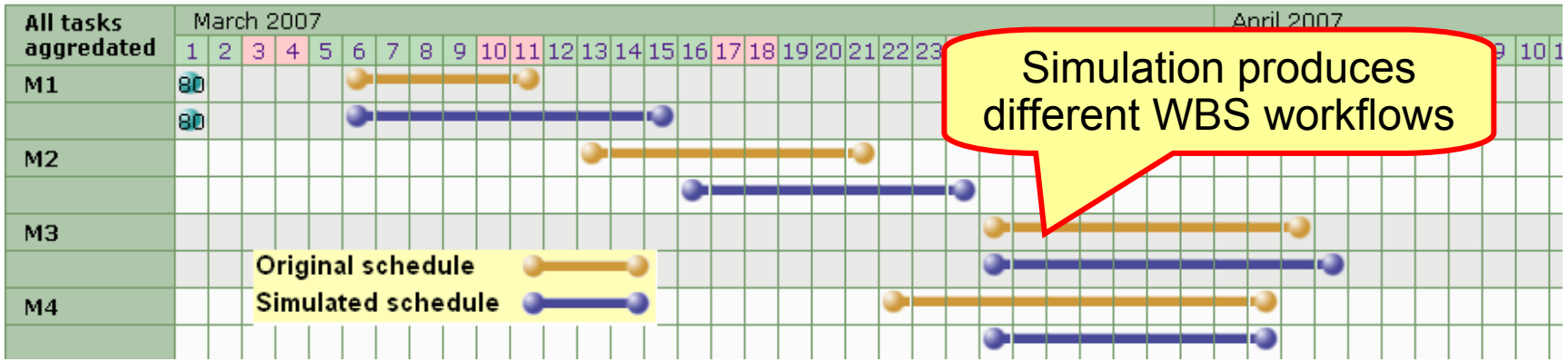


VO Member	Behavior Model
AUBRY	Hard working
EIC	Reliable
ELECTRA	Reliable
HERREROS	Hard working
IKERLAN	Reliable
MGEP	Hard working / Lazy / Reliable
ORONA	

… as well as for simulations, eg. different behaviours of the VO members

Schedule Activities → Define KPI → Measure Indicators → Monitor KPI → **What-if-analysis**

Decision support based simulation results



	Findings	Suggestions
▼	Task M3 is likely to miss its deadline (there is no buffer).	Consider adding more resources to IKERLAN partner.
▼	Task M5 is waiting for available resource. It could be executed 9 days earlier if there was an available resource.	Consider adding more resources to HERREROS partner or fill the gap with another task.
▼	Task M8 might be delayed because of unreliable partner.	Keep an eye on the responsible partner (SC-CONS) and watch the task progress carefully.
▼	All partners have tight free capacities. Tasks have n… short buffers.	This does not necessarily… blem if all

DSS analyses the simulated workflow and provides suggestions to the user who can then make decisions.

Schedule Activities → Define KPI → Measure Indicators → Monitor KPI → **What-if-analysis**

Some expectations and experiences from trials

1. Establish a common method to define and **visualize the VO model**.

   The VO-Mod tool seems to be the answer. It is needed to clarify the level of detail needed to manage the OIN VOs.

2. Establish and **agree about metrics and indicators** used for VOM.

   The SID tool is a good tool to define them. It is needed to clarify in OIN more indicators needed.

3. Make **collection of metrics** and construction of indicators from the different partners easier and reliable.

   The DI3 tool could help in this task. OIN needs to think about integration with partners' legacy systems.

4. **Visualize in "real time" the performance** of the different tasks of the VO.

   The MAF tool will be used to doing that. It is needed to think about the integration of the VO management with the roadmap inside VBE.

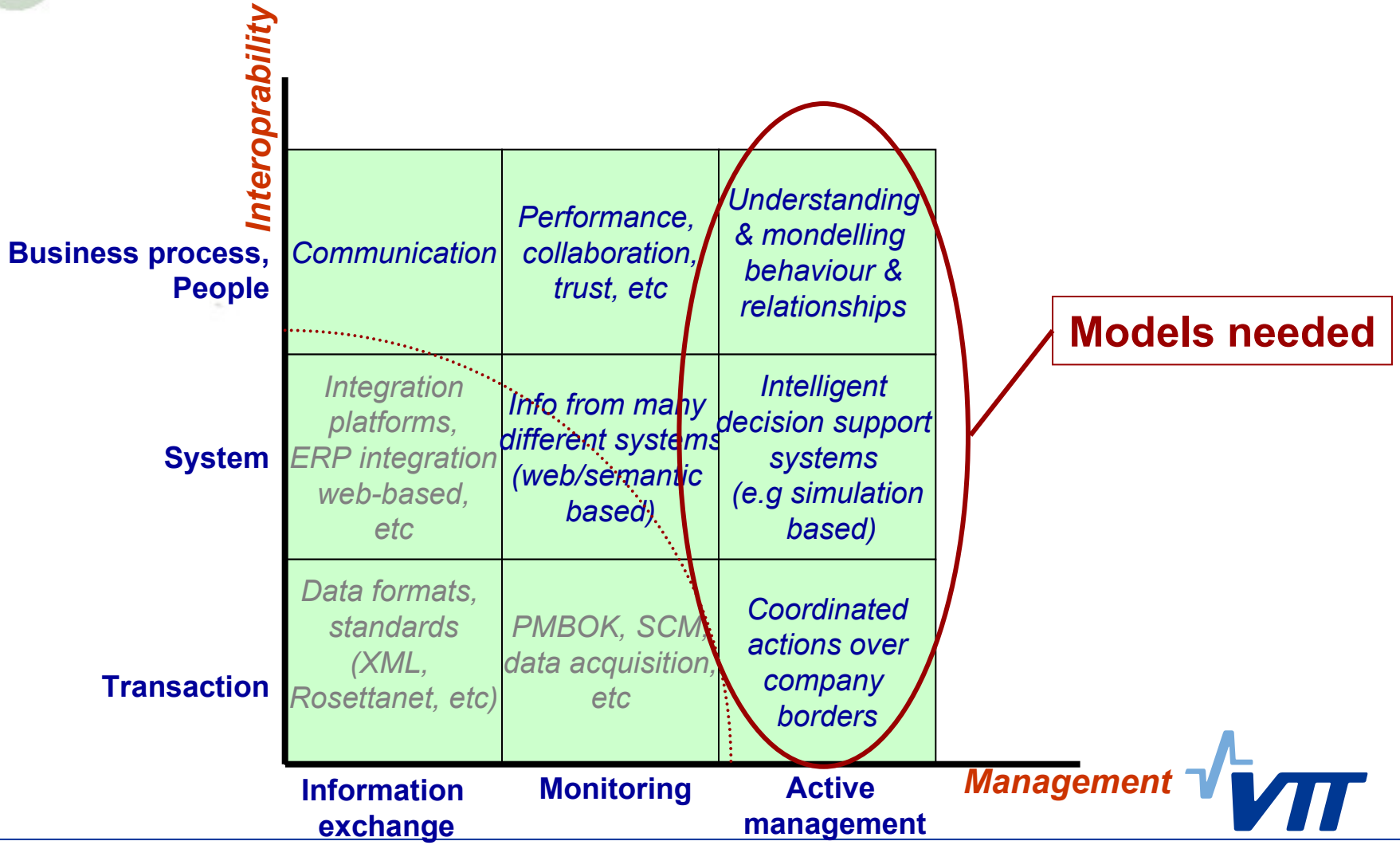
5. **Simulate and take decisions** about the possibilities of management of resources, objectives and partners.

   The DSS tool could be the answer. It is needed to go deeper in the use of this tool and adapt the definition of the VO to be more effective.

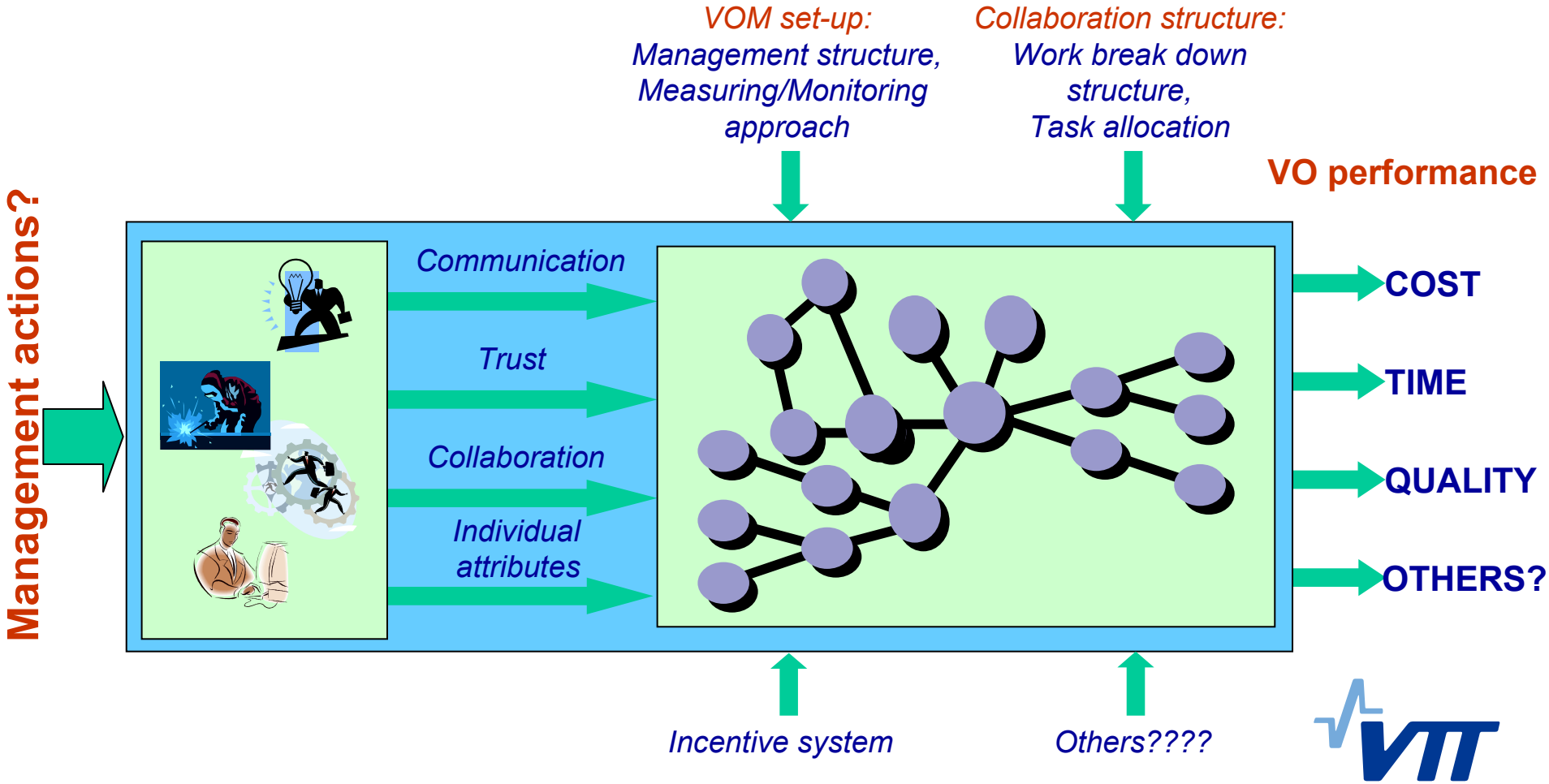
Conclusions

- *Solution and tools for efficient VOM developed*
- *Prototypes being tested in SME networks*
  - *Also network access to tools*
- *The solutions well accepted*
  - *Answer to real needs*
- *Final refinements still to be made*
  - *Based on feed-back from end-user networks*

Possible areas for future research



Aspects on model based management



Some remaining Challenges

- *Efficiency of virtual organisations depends on*
  - *Performance of the partners*
  - *Collaboration between partners*
  - *Trust between partners*
  - *Configuration of the VO*
- *Modelling of the relationship between partners' performance and task fulfilment still a major challenge*
  - *Needed for definition of management actions*
- *Measurements*
  - *All interesting measurements are not available*
  - *Management of qualitative & subjective measurements*

Some references and further reading

- ***On the Management of Collaborative Networked Organizations***

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Thank you

Further information

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