

Understanding Maturity Models

Results of a Structured Content Analysis

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Agenda



Maturity Models and their relevance to BIS

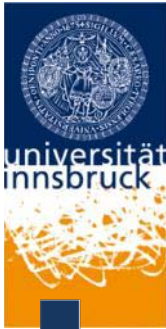
Method: Structured Content Analysis

Execution of the analysis

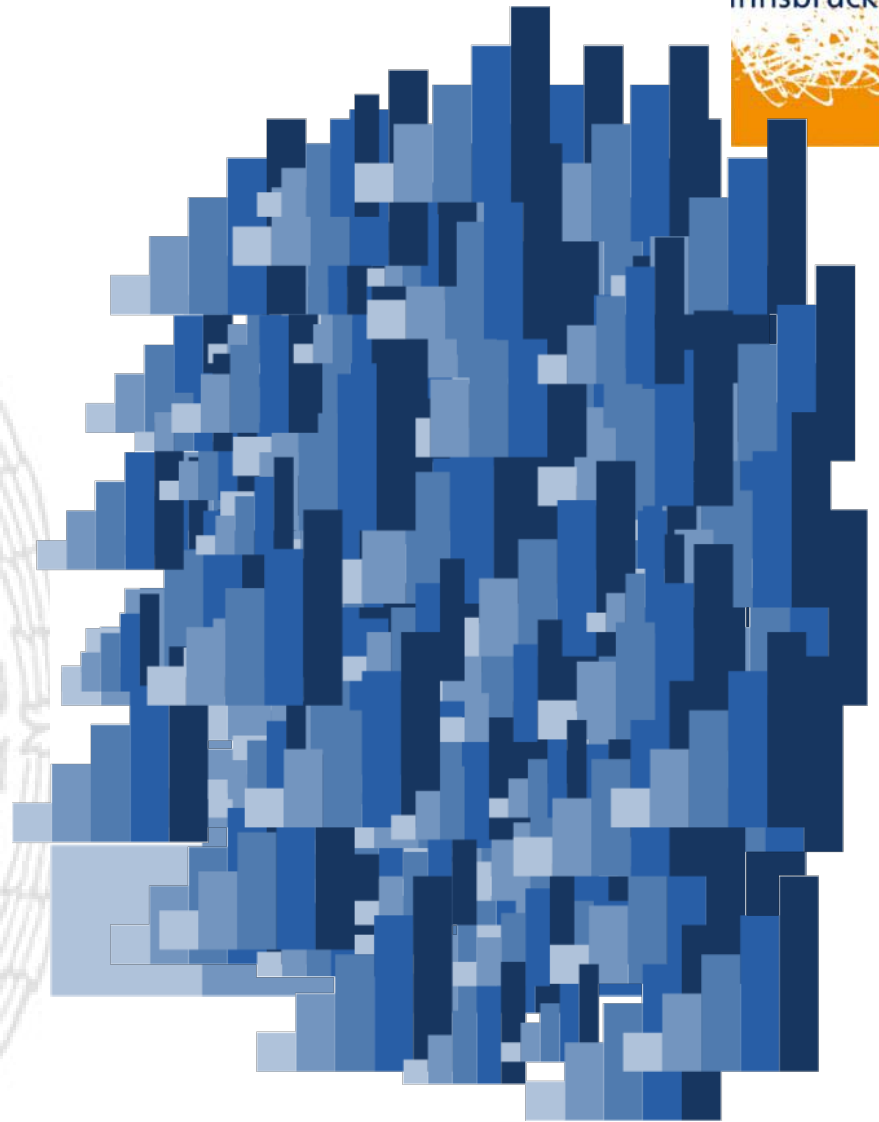
Implications for
Maturity Modelling

- Appropriation of the analysis
- Variables challenging maturity
- Sample of selected models

Maturity Models and their relevance for BIS



- Concept of maturing is used in different ways,
 - analytical
 - explanatory
 - normative
- and in many disciplines [Greenberg, et al. 1974]
 - biology
 - sociology
 - psychology
 - business information systems and computer science (74 models discovered)
- Few explicit definitions of maturity concepts taken up in the IS community e.g., [Ahleman, et al. 2005, 15]
- Reflection and reassessment of concept of maturity modelling seemed necessary





- Contribution to the state of the art report of maturity modelling to characterise the knowledge maturing model [Maier & Schmidt 2007]
 - Where are similarities/differences to existing models?
 - Which scopes have already been exploited?
- Objective: give a foundation for refinement of the knowledge maturing model (v1.0)

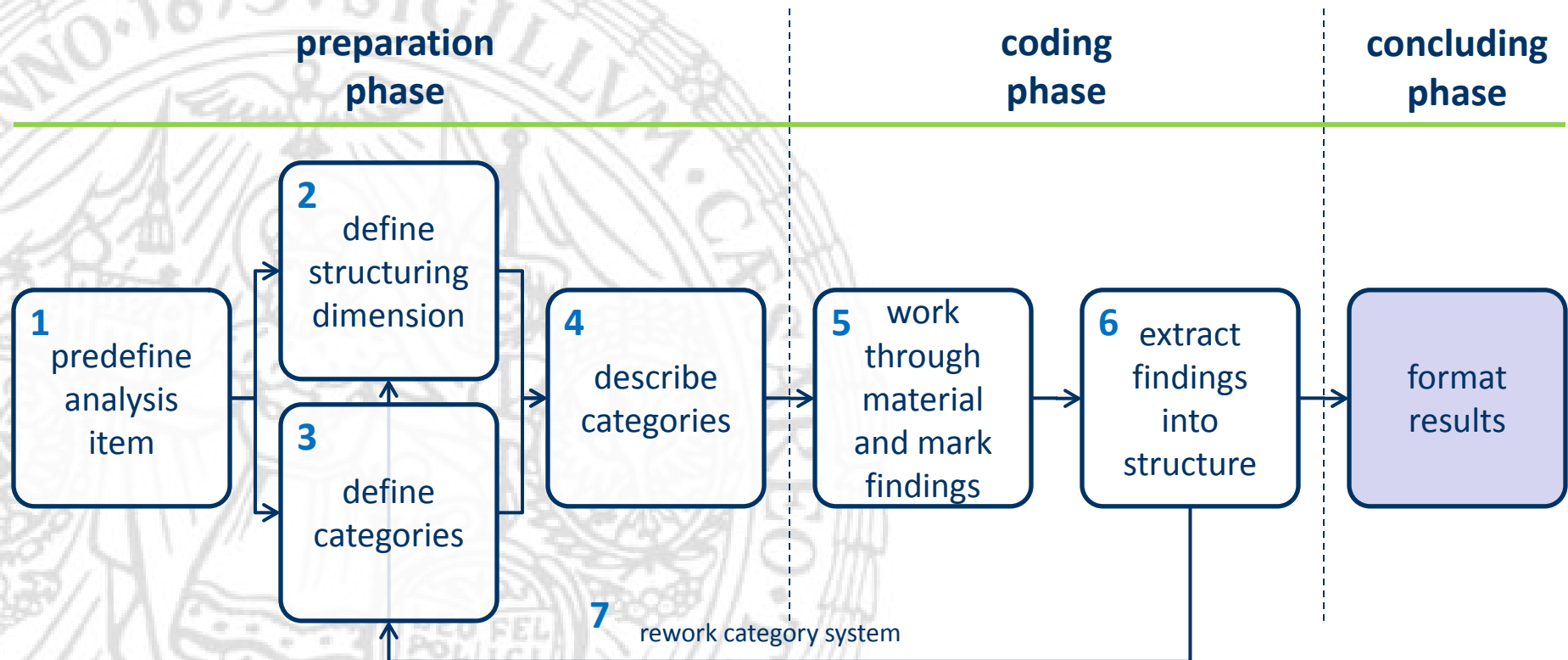
What we aimed at - Research Objectives



- Get an approximation for the population of IS related maturity models and give an overview of different concepts of maturing
- Get a deeper understanding of the nature of maturity modelling
- Inform future (re-)developments of maturity models with a special focus on the field of knowledge management i.e. knowledge maturing

- Large quantity of data, i.e. scientific papers available
- No ex ante hypotheses to test → inductive procedure
- some findings from the literature review exists
- **Structured content analysis [Mayring 2008, 82pp]**
 - Inductive/hypotheses building approach [Schambach-Hardtke 2005, 18]
 - offers possibility to integrate existing theories and findings
 - analysis guided by research question and action plan
 - build structuring system which targets research question

Process Flow of Structured Content Analysis



[Mayring 2008, 84]

Iterative Coding Process

orienting phase

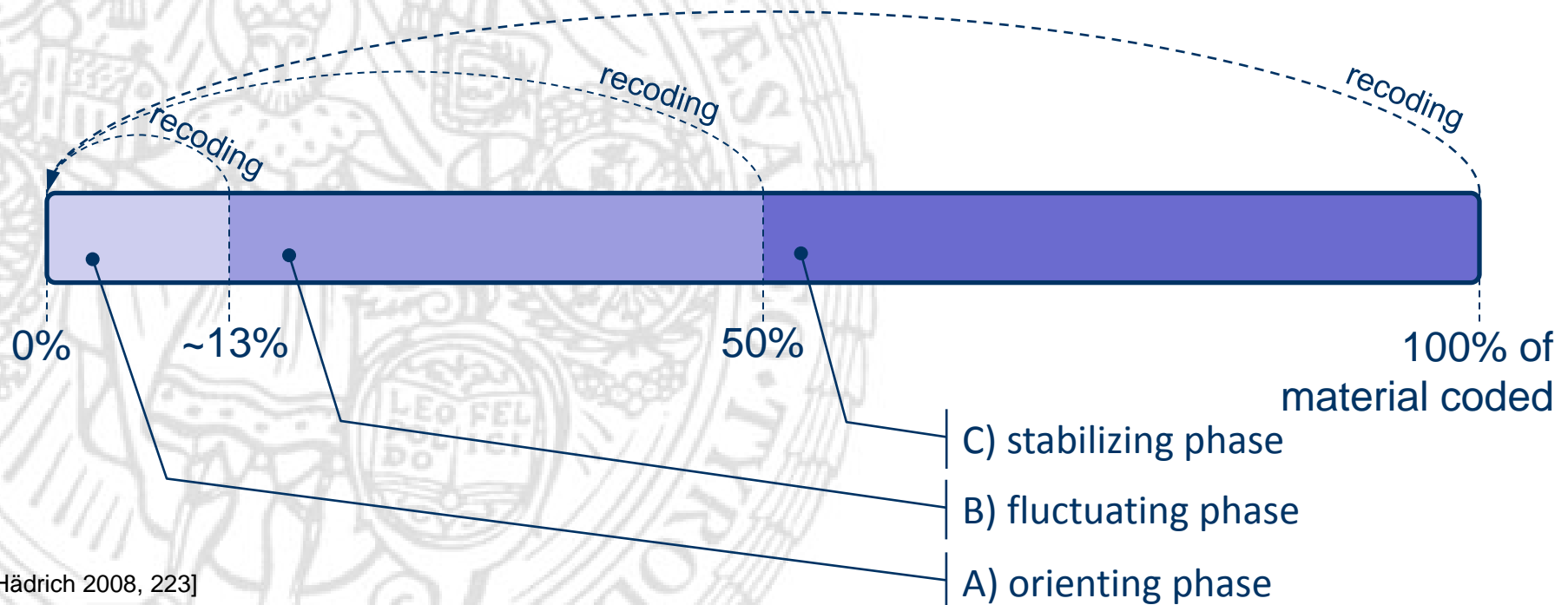
- first categories emerge (number grows rapidly)

fluctuating phase

- adding and generalising categories (number grows slowly)

stabilizing phase

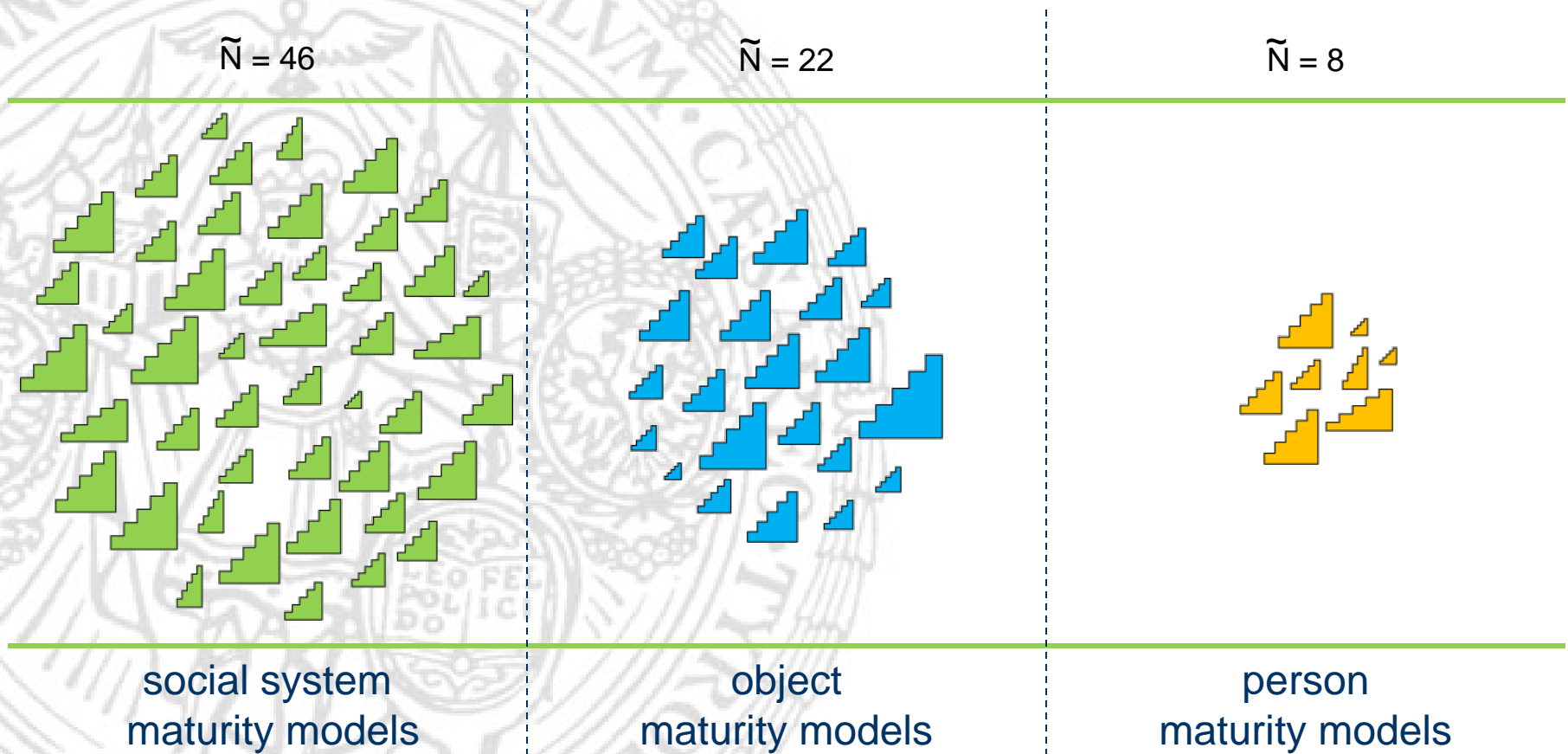
- condensing categories (number declines)



[Hädrich 2008, 223]

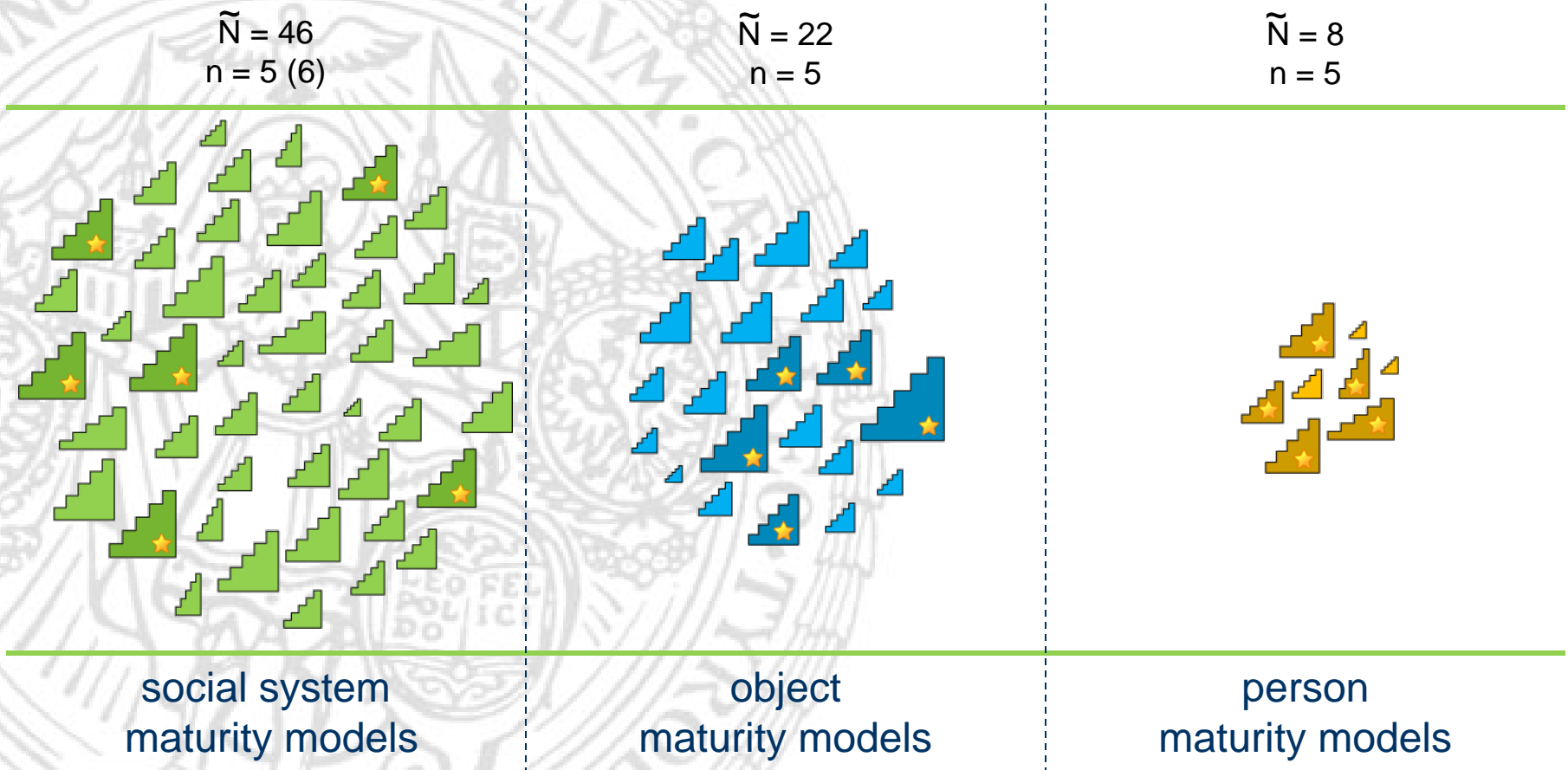
Approximation of Population

- population of maturity models was approximated by Internet search
- models were clustered concerning maturing elements using differentiation of knowledge media



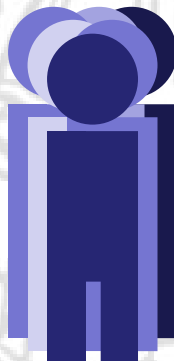


Model Sampling

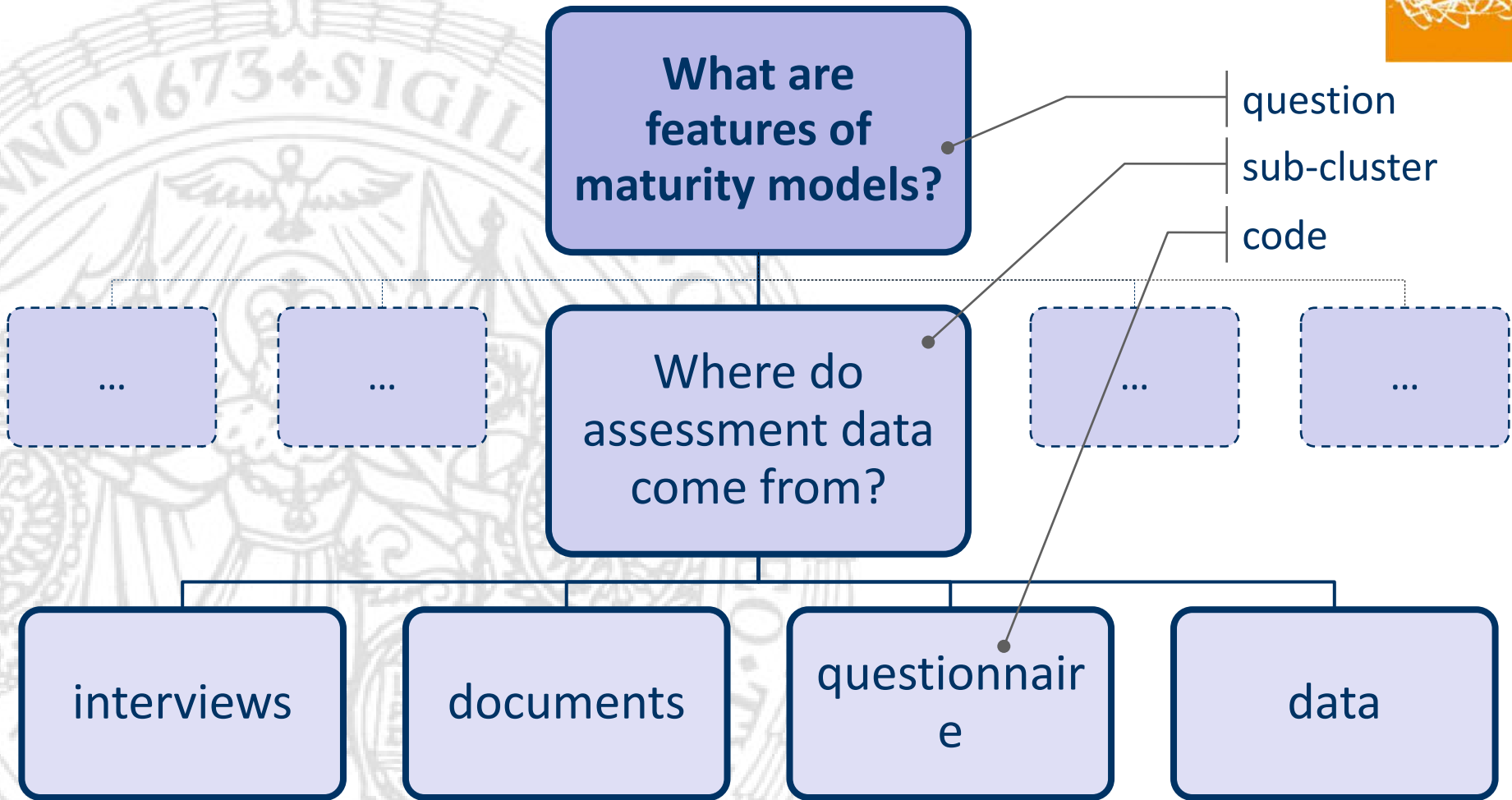
- sample of an identical number of models was drawn from each subset
- selection was based on number of search results of Google Scholar



Sample of 16 selected Models

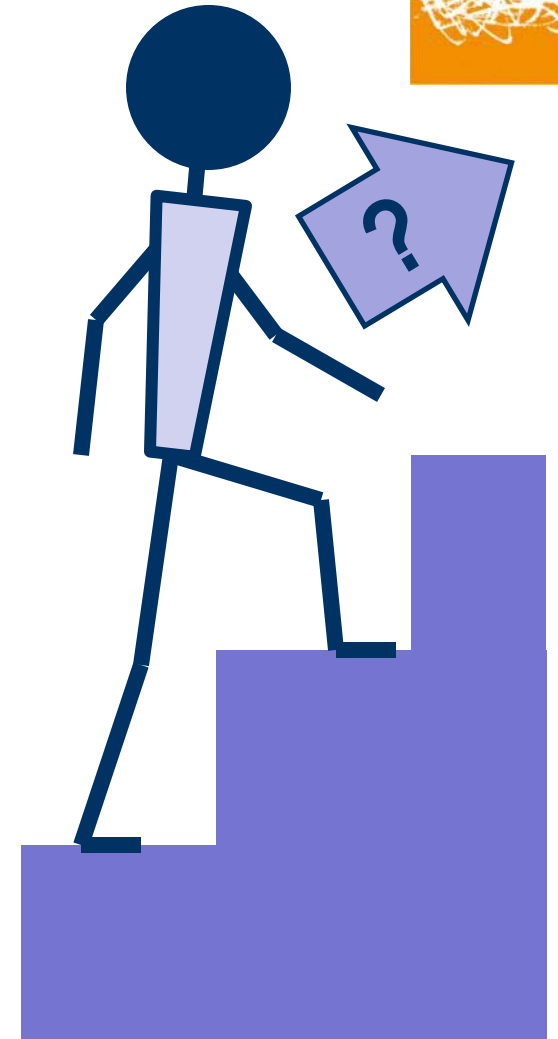
model subset	acronym	approximated diversification	source of information
person 	PSP	2,120	[Humphrey, et al. 2005]
	PCMM	561	[Curtis, et al. 1995]
	SFIA	70	[SFIA 2007]
	Dreyfus Model	31	[Dreyfus et al. 1988]
	Cross Model	0	[Cross 2007]
object 	SPICE	971	[Coletta 1995]
	UMM	138	[Earthy 1999]
	EMM	77	[Marshall, et al. 2004]
	SMMM	40	[April, et al. 2005]
	bIMM	19	[Chamoni et al. 2004]
social system 	CMM	13,600	[Paulk, et al. 1993]
	COBIT	830	[ITGI 2007]
	Nolan Model	602	[Nolan 1979]
	TMM	184	[Burnstein, et al. 1998]
	CM3	84	[Kajko-Mattson 2002]
	OIMM	37	[Clark, et al. 2001]

Coding Example



What does maturing mean?

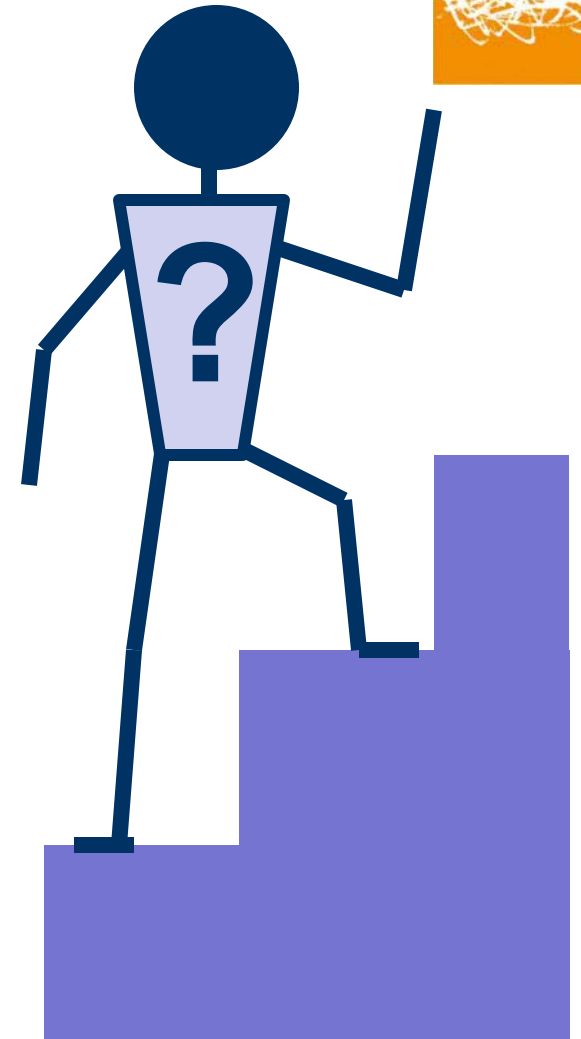
KMM: Maturing means a change in several dimensions including formality, distribution, commitment, legitimation, understandability and teachability of the maturing subject, i.e. of socially constructed knowledge in an organisation.



Implications for Maturity Modelling (2/4)

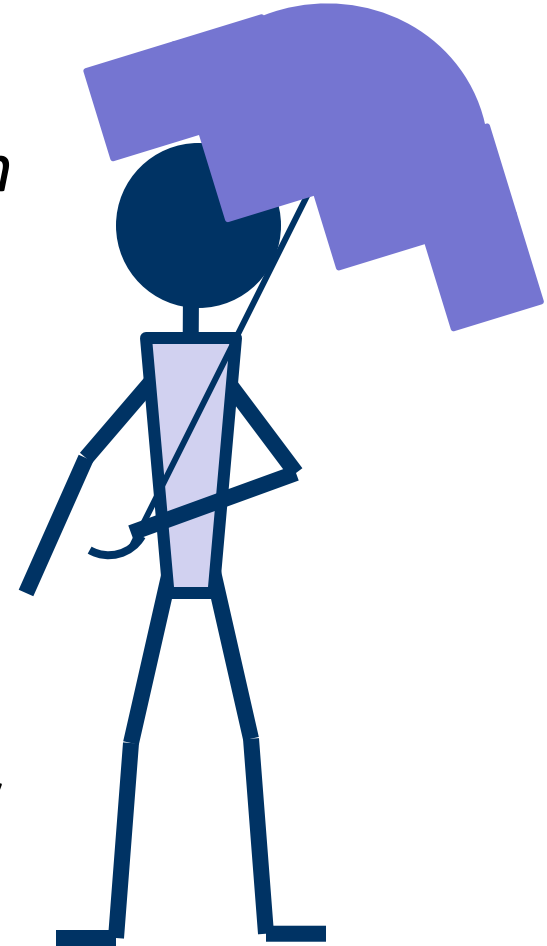
What is the maturing subject?

KMM: The maturing subject is a knowledge area in the sense of a chunk of knowledge in a socially distributed activity system.



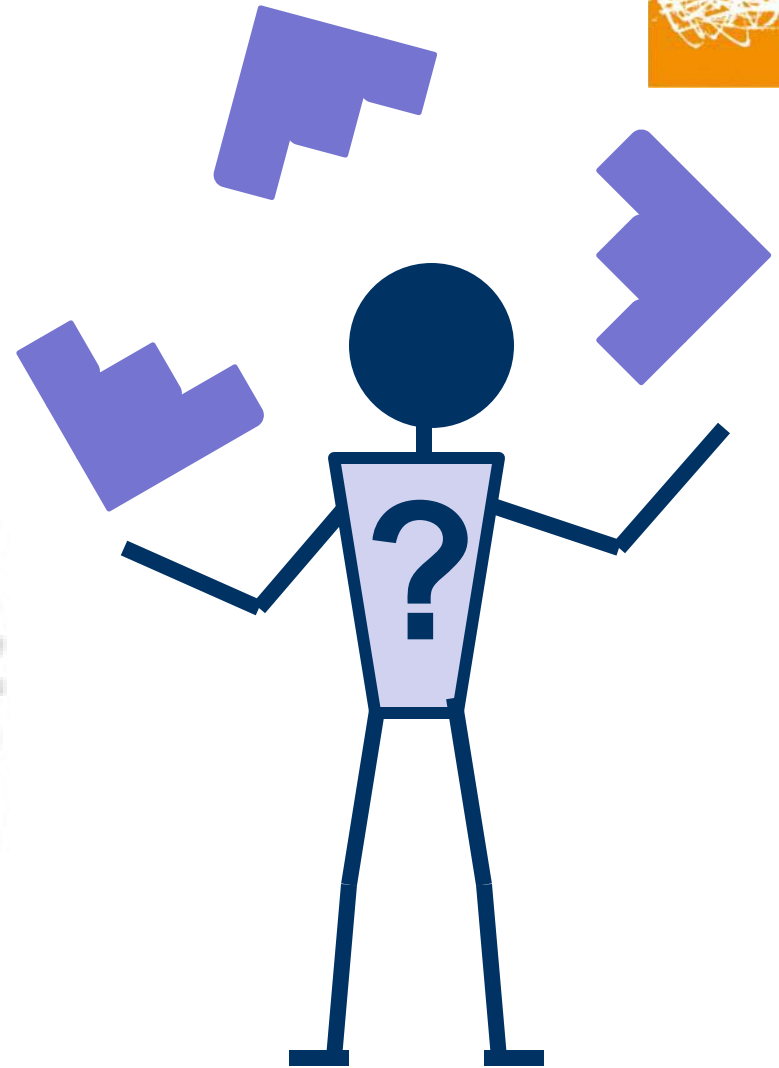
What is the model used for?

KMM: The knowledge maturing model can be used as an analytic model to help structure the analysis of existing organisational and technical infrastructures in support of goal-directed learning on a collective level and can be further enhanced to help design such infrastructures with respect to their ability to guide knowledge maturing.

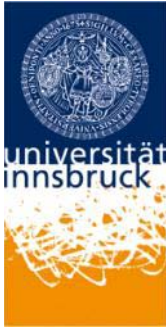


Who uses the model?

KMM: The knowledge maturing model can be used by members of organisations taking on the role of guides helping to foster and reduce barriers for knowledge maturing.



Definition



A maturity model conceptually represents

- phases of increasing quantitative or qualitative capability changes
- of a maturing element
- in order to assess its advancement
- with respect to a defined focus area.
 - Phases are commonly separated by non-metric trigger conditions
 - Element has to fulfill conditions of all lower stages and the actual stage
 - Used descriptive or normative



Thank You for Your Attention

THANK YOU FOR YOUR ATTENTION

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Development of Codes

