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Understanding understandability of conceptual models − What are we actually talking about? − Supplement

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[1] This report is a supplement to: *Houy, C., Fettke, P., and Loos, P.* (2012): Understanding Understandability of Conceptual Models – What Are We Actually Talking about?; in: *P. Atzeni, D. Cheung and S. Ram* (Eds.): Conceptual Modeling, ER 2012, LNCS 7532; Springer, Berlin; 2012, pp. 64-77.

Abstract

Investigating and improving the quality of conceptual models has gained tremendous importance in recent years. In general, model understandability is regarded one of the most important model quality goals and criteria. A considerable amount of empirical studies, especially experiments, have been conducted in order to investigate factors influencing the understandability of conceptual models. However, a thorough review and reconstruction of 42 experiments on conceptual model understandability shows that there is a variety of different understandings and conceptualizations of the term *model understandability*. As a consequence, this term remains ambiguous, research results on model understandability are hardly comparable and partly imprecise, which shows the necessity of clarification what the conceptual modeling community is actually talking about when the term *model understandability* is used. This contribution represents a supplement to the article „ Understanding understandability of conceptual models – What are we actually talking about?" published in the Proceedings of the 31st International Conference on Conceptual Modeling (ER 2012) which aimed at overcoming the above mentioned shortcoming by investigating and further clarifying the concept of model understandability. This supplement contains a complete overview of Table 1 (p. 69 in the original contribution) which could only be partly presented in the conference proceedings due to space limitations. Furthermore, an erratum concerning the overview in Table 2 (p. 71 in the original contribution) is presented.

Keywords: Conceptual Modeling, Model Understandability, Model Comprehensibility, Model Quality, Experimental Research

Content

List of Abbreviations

BPM	Business Process Management
BPMN	Business Process Modeling Notation/ Business Process Model and Notation
CC	Cross-Connectivity
DAD	Data Access Diagram
DSD	Data Structure Diagram
EER	Extended Entity Relationship
EERM	Extended Entity Relationship Model
EPC	Event-Driven Process Chain
ER	Entity Relationship
ERM	Entity Relationship Model
I.	Issue
LDS	Logical Data Structure
LNBIP	Lecture Notes in Business Information Processing
LNCS	Lecture Notes in Computer Science
NIAM	Natural language Information Analysis Method
OMT	Object Modeling Technique
OO	Object-Orientation/ Object-Oriented
OOM	Object-Oriented Model
p.	Page
PEU	Perceived Ease of Use/ Understanding
pp.	Pages
RDM	Relational Data Model
TAM	Technology Acceptance Model
UML	Unified Modeling Language
UT	Understanding Time, time needed to understand a model
Vol.	Volume

Tables

1 Introduction

This contribution represents a supplement to the article „ Understanding understandability of conceptual models – What are we actually talking about?” published in the Proceedings of the 31st International Conference on Conceptual Modeling (ER 2012). The second section contains a complete overview of Table 1 (p. 69 in the original contribution) which could only be partly presented in the conference proceedings due to space limitations. Furthermore, in section three an erratum concerning the overview in Table 2 (p. 71 in the original contribution) is presented.

2 Overview of constructs and their operationalization

Reference	**Research design**	**N**	**Independent variables**	**Depend. var.: *model understandability***	**Measurement instrument concerning *model understandability***
1. *Agarwal et al.* 1999	Laboratory experiment + replication, two groups, participants randomly assigned	36 + 35	*Modeling approach*: 1. Usage of object-oriented models (structure) 2. Usage of process-oriented models (behaviour)	1. Accuracy of model comprehension	1. *Comprehension test*: comprehension score rating participants' answers (7-point Likert scale) on eight comprehension questions
2. *Bavota et al.* 2011	Quasi-experiment + two replications	37 + 52 + 67	*Modeling notation*: 1. UML class diagrams 2. ER diagrams *Personal Factor*: 1. Modeling experience	1. Model comprehension level (Subjective preference for modeling notation)	1. *Comprehension test*: precision and recall concerning correctly answered multiple choice questions out of 10 (one or more correct answers per question) (Subjective preference for notation was measured to check the influence as a moderating variable)
3. *Bodart et al.* 2001	Three laboratory experiments, mixed designs, randomly assigned participants	52 + 52 + 96	*Representational complexity*: 1. Mandatory properties representation 2. Optional properties representation	1. Surface-level understanding 2. Deeper-level understanding (response accuracy and problem-solving)	1. *Seven measures for recall accuracy*: total number of correctly recalled construct instances (entities, relationships, attributes, attributes recalled and typed correctly, relationships recalled with correct cardinalities etc.) 2. *Response accuracy*: 10 comprehension questions, response time (in seconds), normalized accuracy (accuracy score divided by time score) and three measures for *problem-solving performance* concerning nine questions (the number of correct answers based upon information in the conceptual model; (b) the number of correct answers provided by a participant based upon extra-model knowledge; and (c) the number of incorrect answers provided by the participant.)

4. *Burton-Jones et al.* 1999	Laboratory experiment, 2x2 mixed design, randomly assigned participants	67	*Ontological Clarity of ERM* (relationships with / without attributes) *Domain knowledge of users*	1. Problem-solving performance 2. Perceived ease of understanding	1. *Problem-solving measure*: number of acceptable answers to six problem-solving questions, number of answers coming from aspects represented differently in the two groups 2. *Perceived ease of understanding* (PEU): Six items from ease of use-instruments
5. *Burton-Jones et al.* 2006	Laboratory experiment, 1*3 between-groups design, randomly assigned participants + replication	57 + 66	*Model decomposition*	1. Actual understanding (comprehension, problem-solving) 2. Perceived understanding	1. *Problem-solving test*: number of acceptable answers to problem-solving questions and cloze test (participant's ability to complete a narrative of the domain, number of filled blanks 2. Four items to measure perceived ease-of-use / understanding
6. *Burton-Jones et al.* 2008	Laboratory experiment, 2*2 between-groups design, randomly assigned participants	168	*Model decomposition quality* *Multiple forms of information* (information on model content provided by diagrams or narrative)	1. Perceived ease of understanding 2. Surface understanding (comprehension) 3. Deep understanding (problem-solving)	1. Four items to measure perceived ease-of-use/understanding (5-point Likert scale) 2. *Comprehension test* (number of acceptable answers concerning comprehension questions) 3. *Problem-solving test* (number of acceptable answers concerning problem-solving questions)
7. *Cruz-Lemus et al.* 2007	Three laboratory experiments, randomly assigned participants	233 + 27 + 24	*Model decomposition*	1. Understandability effectiveness 2. Retention (recalling model content) 3. Transfer (problem-solving)	1.Measuring understandability effectiveness: proportion of correct answers concerning the model content covering all parts of the diagram (navigation test) 2. Fill-in-the-blanks text with 10 gaps concerning the specification of the modelled system 3. Number of acceptable solutions concerning six tasks to be performed based on the information taken from the diagram
8. *De Lucia et al.* 2008	Two laboratory experiments, randomly assigned participants	40 + 30	*Modeling notation*: 1. UML class diagrams 2. ER diagrams *Personal Factors*: 1. Modeling experience 2. Modeling ability	1. Model comprehension	1. *Comprehension test*: five multiple choice comprehension questions → comprehension level: harmonic mean of aggregated recall and precision of answers
9. *Figl et al.* 2011	Laboratory experiment, randomly assigned participants	199	*Model complexity* (relationships between elements, element interactivity, element separateness)	1. Objective cognitive complexity (model comprehension) 2. Perceived subjective cognitive complexity	1. Correctly answered multiple choice comprehension questions ("right, wrong, I don't know") 2. Perceived difficulty of understanding on a 7-point Likert-Scale

10. *Fuller et al.* 2010	Laboratory experiment, randomly assigned participants	132	*Representational complexity*: Columnar organization of model elements *Personal factors* (training and experience with modeling notation)	1. Model comprehension 2. Perceived ease of use/understanding (3. Perceived usefulness 4. Satisfaction)	1. Correctly answering 19 objective comprehension questions (range 0 to 19) 2. Five common items to assess ease of use (3. Six items to assess perceived usefulness 4. Six items to assess satisfaction)
11. *Gemino et al.* 2005	Laboratory experiment, randomly assigned participants	77	*Representational complexity*: 1. Mandatory properties representation 2. Optional properties representation	1. Retention (model comprehension) 2. Transfer (problem-solving) 3. Perceived ease of interpretation 4. Understandability time	1. Multiple choice comprehension (12 questions) and cloze test (number of correctly filled blanks of a total of 45 blanks) 2. Problem-solving questions (five questions) (two measures: total number of answers and number of acceptable answers) 3. Adapted ease of use scale 4. Time needed to fulfil the tasks
12. *Genero et al.* 2008	Laboratory experiment	28	*Model complexity*: Number of elements (entities, relationship types etc.)	1. Understandability Time 2. Understandability Effectiveness 3. Understandability Efficiency 4. Subjective Understandability	1. Time needed to understand (UT) an ER diagram (in minutes) 2. Number of correct answers 3. Number of correct answers divided by UT 4. Perceived understandability of a diagram measured according to five linguistic labels (very difficult – very easy)
13. *Hardgrave et al.* 1995	Laboratory experiment, randomly assigned participants	56	*Modeling notation*: 1. Extended Entity-Relationship (EER) model 2. Object Modeling Technique (OMT) *Task complexity*: 1. Simple 2. Complex (more complex relationships etc.)	1. Model understanding 2. Time to understand 3. Perceived ease-of-use	1. *Understanding*: five correctly answered multiple-choice questions (simple task), 10 correctly answered multiple-choice questions (complex task) 2. *Time to understand*: total time taken to answer the questions 3. *Perceived ease-of-use*: instrument adopted from Technology Acceptance Model (TAM) research
14. *Juhn et al.* 1985	Laboratory experiment, randomly assigned participants	30	*Type of data model*: a. Entity-Relationship-Model (ERM) b. Relational Data Model (RDM) c. Logical Data Structure (LDS) d. Data Access Diagram (DAD)	1. Model comprehension 2. Database search task (problem-solving)	1. Number of correct answers concerning questions about the model content 2. Answering comprehension questions referring to a database search task
15. *Khatri et al.* 2006	Laboratory experiment, 2x2 mixed design, randomly assigned participants	81	*Personal factors*: 1. Application domain knowledge 2. Conceptual modeling knowledge	1. Syntactic and semantic model comprehension 2. Schema-based problem-solving	1. *Syntactic comprehension task*: 10 multiple choice questions concerning the syntax, semantic comprehension task: 20 multiple choice questions (constructs, super-types, aggregates) 2. *Schema-based problem-solving task*: six questions

16. *Kim et al.* 1995	Laboratory experiment, randomly assigned participants	28	*Type of data model*: a. Extended Entity Relationship (EER) model b. Natural language Information Analysis Method (NIAM)	1. Comprehension performance 2. Discrepancy checking performance	1. Number of correct answers to questions dealing with basic mod-el constructs 2. Number and type of model er-rors identified (entity errors, rela-tionship errors, attribute errors)
17. *Mend-ling et al.* 2007	Laboratory experiment, randomized order of models in the questionnaire	73	*Model complexity* (Number of elements, token splits, average con-nector degree etc.) *Personal factors* (theoretical know-ledge, practical experience)	1. Model comprehension 2. Perceived ease of understanding 3. Relative perceived understandability (Model ranking)	1. *SCORE variable*: set of correct answers in comparison to a set of eight closed questions about order, concurrency, exclusiveness, or repetition of tasks in the model and one open question where re-spondents were free to identify a model problem. 2. Assessment of perceived difficulty of understanding 3. *Model ranking*: For all variants of the same model, students ranked these regarding their rela-tive perceived understandability.
18. *Mend-ling et al.* 2008	Laboratory experiment, randomly assigned questionnaire	42	*Personal factors* (modeling ability, modeling experience) *Model factors* (model complexity, size, token splits, text length etc.)	Model understanding	*Three values related to model understanding*: 1. *PSCORE* → number of correct answers by the person 2. *MSCORE* → sum of correct answers for a model 3. *CORRECTANSWER* → number of correct answers concerning each individual model aspect
19. *Moody* 2002	Laboratory experiment, four groups, post-test only with one ac-tive between-groups factor	60	*Model complexity* (representation method etc.)	1. Comprehension performance (efficiency, effec-tiveness, efficacy) 2. Verification performance (efficiency, effec-tiveness, efficacy)	1. *Comprehension*: the ability to correctly answer questions about the data model from a set of 25 true/false questions. → percentage of correctly answered questions 2. *Verification*: the ability to identify discrepancies between the data model and a set of user requirements in textual form (15 discrepancies) → percentage of correctly answered questions *Efficiency*: effort required to understand a model (time input) *Effectiveness*: how well the data model is understood (output) *Efficacy*: ratio of outputs to inputs
20. *Moody* 2004	Laboratory experiment, two group, post-test only with one ac-tive between-groups factor	29	*Model complexity* (representation method etc.)	1. Comprehension time 2. Comprehension accuracy 3. Verification time 4. Verification accuracy	1. Time required to answer ques-tions about the data model from a set of 25 true/false questions. 2. Ability to correctly answer questions about the data model from a set of 25 true/false ques-tions → percentage of correctly answered questions 3. Time required to identify dis-crepancies between the data model and a set of user requirements in textual form (15 discrepancies) 4. Ability to identify discrepancies between the data model and a set of user requirements in textual form (15 discrepancies) → percentage of correctly answered questions.

21. *Nord-botten et al.* 1999	Laboratory experiment + replication, randomly assigned participants	35 + 35	*Model style category:* 1. Highly graphical 2. Minimally graphical 3. Embedded graphic models *Modeling experience*	Model comprehension	*Comprehension score*: percentage of correct interpretation (scale 0-3, 3: correct, 2: incomplete, 1: incorrect, 0: not mentioned)
22. *Otten-sooser et al.* 2012	Laboratory experiment, randomly assigned participants	196	*Content presentation form* (BPMN vs. textual description) *Personal characteristics* (familiarity with notation)	1. Model comprehension 2. Problem solving	1. C*omprehension* and 2. *Prob-lem-solving*: accuracy of answer-ing multiple-choice questions ask-ing about factual matters concern-ing business processes that help to solve a certain business issue
23. *Palvia et al.* 1992	Quasi-experiment	41	*Type of data model*: a. Entity-Relation-ship-Model (ERM) b. Data Structure Diagram (DSD) c. Object-Oriented-Model (OOM)	1.Model comprehension 2. Perceived comprehension 3. Comprehension time 4. Productivity	1. *Total Score*: Number of correct-ly answered questions concerning the model content 2. *Perceived comprehension*: 5-point Likert scale 3. Time required to answer the questions 4. Number of correctly answered questions divided by time required to answer the questions
24. *Parsons* 2003	Laboratory experiment, randomly assigned participants	32	*Form of model presentation* (model decomposi-tion/integration) 1. Two local concep-tual schemas 2. Single global conceptual schema	1. Model interpretation 2. Time needed to understand a model	1. Correctly answered questions about the model content 2. Recording the time required to extract information from the model
25. *Parsons* 2011	Laboratory experiment, randomly assigned participants	80	*Ontological Clarity of conceptual schema* (precedence)	1. Model comprehension 2. Perceived ease of understanding	1. Number of correct answers to questions about the semantics conveyed (model content) 2. Confidence in the correctness of their answer (5-point Likert-scale) as a proxy for perceived ease of understanding
26. *Patig* 2008	Laboratory experiment, randomly assigned participants	42	*Content presentation form* (graphical notation of SAP meta model vs. textual notation)	1. Semantic model comprehension 2. Response time	1. Correctly answered questions about the model content (multiple-choice-form) 2. Time required to answer the questions
27. *Poels et al.* 2005	Laboratory experiment, randomly assigned participants	37	*Representational form of cardinality in UML class diagrams*: 1. Object class 2. Associated class	Model comprehen-sion concerning cardinalities	Number of correctly answered questions on cardinality
28. *Pur-chase et al.* 2002	Laboratory experiment, randomly assigned participants	35	*Concise representa-tion of different variations of UML collaboration diagrams*	1. Model compre-hension accuracy by model verification 2. Response time 3. Subjective preference for a variant (perceived ease of use)	1. Correctly matching a given textual code description against a set of diagrams (44 diagrams in random order (yes/no)) 2. Time required to answer the questions 3. Choice of one variant and reason statement

29. *Recker et al.* 2007	Laboratory experiment, two groups, participants randomly assigned	69	*Content presentation form* (EPC models vs. BPMN models)	1. Retention (model comprehension) 2. Transfer (problem-solving) 3. Time taken to complete the comprehension task 4. Perceived ease of understanding	1. *Model comprehension test*: correctly answered multiple choice questions and the number of correctly filled blanks in a cloze test. 2. *Problem-solving*: (a) number of plausible answers based on information inferable from the model, (b) number of plausible answers showing knowledge beyond the information provided, and (c) number of implausible or missing answers. 3. *Time to understand*: task completion time 4. *Perceived ease of understanding* (four item Likert scale)
30. *Recker et al.* 2011	Laboratory experiment, two groups, participants randomly assigned	68	*Content presentation form* (EPC models vs. BPMN models) *User characteristics* (English as a second language, process modeling experience, BPM working experience)	1. Surface understanding (ability to comprehend the model → retention) 2. Deep understanding: (problem-solving → transfer) 3. Effort of understanding (time to complete understanding) 4. Perceived ease of understanding	1. *Model comprehension test*: number of correctly filled blanks in a cloze test and correctly answered multiple choice questions (yes/no/ undecided/ cannot be answered). 2. *Inferential problem-solving test*: (a) the number of plausible answers based on information inferable from the model, (b) the number of plausible answers that showed knowledge beyond the information provided in the model, and (c) the number of implausible or missing answers. 3. *Measures for effort of understanding*: task completion time 4. *Perceived ease of understanding* (four item Likert scale)
31. *Reijers et al.* 2008	Laboratory experiment, two groups, randomly assigned participants	28	*Model modularity*	Model understanding	*Level of understanding*: percentage of correctly answered questions in relation to a specific set of questions
32. *Reijers et al.* 2011a	Laboratory experiment, randomized order of models in the questionnaire	73	*Model complexity* (number of elements, token splits, average connector degree, connector heterogeneity etc.) *Personal factors* (theoretical knowledge, practical experience, educational background) *Other factors* (model purpose, problem domain, modeling notation, visual layout)	Model understanding	*SCORE variable*: set of correct answers in comparison to a set of seven closed and one open question about execution order, exclusiveness, concurrency and repeatability issues (yes/no/I don't know and free text for open question).

33. *Reijers et al.* 2011b	Laboratory experiment, two groups, randomly assigned participants	28	*Model modularity* (use of sub-processes)	Model understanding	Specific set of questions concerning the model content
34. *Sán-chez-Gon-zález et al.* 2010	Quasi exper-iment + two replications	22 + 40 + 9	*Model complexity* (Number of elements, cyclicity, average gateway degree etc.)	1.Time of understanding 2. Model understanding 3. Understandability efficiency	1. Response time 2. Number of correct answers 3. Number of correct answers divided by time
35. *Sán-chez-Gon-zález et al.* 2011	Quasi exper-iment + two replications	22 + 40 + 9	*Model complexity* (Number of elements, cyclicity, average gateway degree etc.)	1.Time of understanding 2. Model understanding 3. Understandability efficiency	1. Response time 2. Number of correct answers 3. Number of correct answers divided by time
36. *Sarshar et al.* 2005	Laboratory experiment, two groups	50	*Process Model Notation Usage*: 1. Usage of EPCs 2. Usage of Petri Nets	1. Model comprehension 2. Perceived ease-of-use	1. *Model comprehension*: number of correct answers to process related questions 2. Subjective estimation of ease-of-use
37. *Schal-les et al.* 2011	Quasi experiment	57	*Visual Properties of the Model* *Language complexity* *Personal factor*: User experience	1. Learnability 2. Memorability 3. Perceptability 4. Understanding effectiveness 5. Understanding efficiency	1. Individual learning progress: DELTA of Grade of completeness and grade of correctness of a mod-el interpretation task (two meas-urement points) 2. Knowledge test on elements, relations, syntax and application 3. Eye tracking method: duration of fixation during the model interpretation 4. Grade of completeness and grade of correctness of a model interpretation task 5. Time taken to complete a model interpretation task
38. *Serrano et al.* 2004	Laboratory experiment, within-subject design	17	*Structural model complexity* (Number of elements etc.)	1. Model understanding 2. Understanding time	1. Answering questions about model content (count the number of classes that must be visited to access to a concrete information) 2. Understanding time (time needed to understand the model and to answer the questions)
39. *Serrano et al.* 2007	Laboratory experiment, randomly assigned tests	25	*Structural model complexity* (Number of elements etc.)	1. Understanding 2. Efficiency 3. Effectiveness	1. Correct answers concerning the models' content 2. Number of correct answers in relation to required time 3. Number of correct answers in relation to total number of questions

40. *Shanks* 1997	Quasi experiment	39	*Modeling experience*: 1. Model created by expert 2. Model created by novice	Perceived model understandability	Perceived ability of the model reviewers to correctly understand a model (7-point Likert scale)
41. *Shoval et al.* 1994	Laboratory experiment, two groups, randomly assigned participants	78	*Type of data model*: 1. Extended Entity Relationship (EER) model 2. Object-Oriented (OO) model	Model understanding	Number of correctly answering questions about model content (true/false)
42. *Vander-feesten et al.* 2008	Laboratory experiment	73	*Cross-Connectivity (CC) metric* $CC = \frac{\sum_{n_1,n_2 \in N} V(n_1,n_2)}{\lvert N\rvert \cdot (\lvert N\rvert - 1)}$	Model understanding	*SCORE variable*: set of correct answers in comparison to a set of eight closed questions about order, concurrency, exclusiveness, or repetition of tasks in the model and one open question where respondents were free to identify a model problem.

Table 1: Overview of investigated constructs and their operationalization[2]

[2] See: Houy et al. (2012), p. 69.

3 Erratum: "Investigated Dimensions of Understandability"

References	definition given: y / n	Objectively measurable dimensions					Subjective dimension
		effectiveness				efficiency	effectiveness
		1. Recalling model content	2. Correctly answering questions about model content	3. Problem-solving based on the model content	4. Verification of model content	5. Time needed to understand a model	6. Perceived ease of understanding a model
1. Juhn and Naumann 1985	n		●	●			
2. Palvia et al. 1992	n		●			●	●
3. Shoval et al. 1994	y		●				
4. Hardgrave and Dalal 1995	y		●			●	●
5. Kim et al. 1995	n		●		●		
6. Shanks 1997	y						●
7. Agarwal et al. 1999	n		●				
8. Burton-Jones et al. 1999	n			●			●
9. Nordbotten et al. 1999	n		●				
10. Bodart et al. 2001	n	●	●	●			
11. Moody 2002	n		●		●	●	
12. Purchase et al. 2002	n				●	●	●
13. Parsons 2003	n		●			●	
14. Moody 2004	n		●		●	●	
15. Serrano et al. 2004	n		●			●	
16. Gemino et al. 2005	n		●	●		●	●
17. Poels et al. 2005	n		●				
18. Sarshar et al. 2005	n		●				●
19. Burton-Jones et al. 2006	y		●	●			●
20. Khatri et al. 2006	y		●	●			
21. Cruz-Lemus et al. 2007	y	●	●	●			
22. Mendling et al. 2007	y		●				●
23. Recker et al. 2007	n		●	●		●	●
24. Serrano et al. 2007	n		●			●	
25. Burton-Jones et al. 2008	y		●	●			●
26. De Lucia et al. 2008	n		●				
27. Genero et al. 2008	n		●			●	●
28. Mendling et al. 2008	y		●				
29. Patig 2008	y		●			●	
30. Reijers et al. 2008	n		●				
31. Vanderfeesten et al. 2008	n		●				
32. Fuller et al. 2010	n		●				
33. Sánchez-González et al. 2010	y		●			●	
34. Bavota et al. 2011	n		●				
35. Figl and Laue 2011	y		●				●
36. Ottensooser et al. 2011	n		●	●			
37. Parsons 2011	n		●				●
38. Recker et al. 2011	y		●	●		●	●
39. Reijers et al. 2011a	y		●				
40. Reijers et al. 2011b	n		●				
41. Sánchez-González et al. 2011	n		●			●	
42. Schalles et al. 2011	n	●	●			●	
●: understandability dimension has been observed in this contribution							

Table 2: Investigated Dimensions of Understandability

Changes in Table 2 have been marked in Grey.

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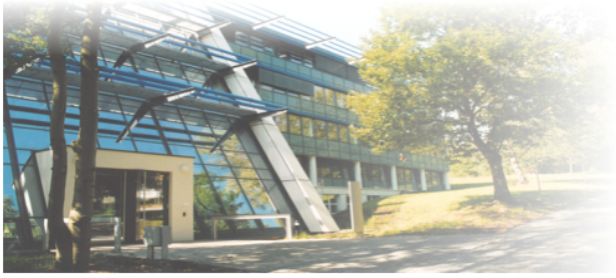

Unter der wissenschaftlichen Leitung von Professor Dr. Peter Loos sind am Institut für Wirtschaftsinformatik (IWi) im Deutschen Forschungszentrum für Künstliche Intelligenz (DFKI) mehr als 60 Mitarbeiter im Bereich der anwendungsnahen Forschung beschäftigt. Seit das Institut vor 30 Jahren durch Prof. Dr. Dr. h.c. mult. August-Wilhelm Scheer gegründet wurde, wird hier in Forschung und Lehre das Informations- und Prozessmanagement in Industrie, Dienstleistung und Verwaltung vorangetrieben. Ein besonderer Anspruch liegt dabei auf dem Technologietransfer von der Wissenschaft in die Praxis.

Die interdisziplinäre Struktur der Mitarbeiter und Forschungsprojekte fördert zusätzlich den Austausch von Spezialwissen aus unterschiedlichen Fachbereichen. Die Zusammenarbeit mit kleinen und mittelständischen Unternehmen (KMU) hat einen bedeutenden Einfluss auf die angewandte Forschungsarbeit - wie auch Projekte im Bildungs- und Wissensmanagement eine wichtige Rolle spielen. So werden in virtuellen Lernwelten traditionelle Lehrformen revolutioniert. Das Institut für Wirtschaftsinformatik berücksichtigt den steigenden Anteil an Dienstleistungen in der Wirtschaft durch die Unterstützung servicespezifischer Geschäftsprozesse mit innovativen Informationstechnologien und fortschrittlichen Organisationskonzepten. Zentrale Themen sind Service Engineering, Referenzmodelle für die öffentliche Verwaltung sowie die Vernetzung von Industrie, Dienstleistung und Verwaltung.

Am Standort im DFKI auf dem Campus der Universität des Saarlandes werden neben den Lehrtätigkeiten im Fach Wirtschaftsinformatik die Erforschung zukünftiger Bildungsformen durch neue Technologien wie Internet und Virtual Reality vorangetrieben. Hier führt das Institut Kooperationsprojekte mit nationalen und internationalen Partnern durch: Lernen und Lehren werden neu gestaltet; Medienkompetenz und lebenslanges Lernen werden Realität. Zudem beschäftigen sich die Mitarbeiterinnen und Mitarbeiter mit dem Einsatz moderner Informationstechniken in der Industrie. In Kooperation mit industrieorientierten Lehrstühlen der technischen Fakultäten saarländischer Hochschulen werden Forschungsprojekte durchgeführt. Hauptaufgabengebiete sind die Modellierung und Simulation industrieller Geschäftsprozesse, Workflow- und Groupware-Systeme sowie Konzepte für die virtuelle Fabrik.

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