Issue 191

November 2010

Institut für Wirtschaftsinformatik

IWI

# On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering − Supplemental Considerations and further Application Examples

Peter Fettke, Constantin Houy, Peter Loos

Publications of the Institute for Information Systems
at the German Research Center for Artificial Intelligence (DFKI)

Editor: Prof. Dr. Peter Loos

P. FETTKE, C. HOUY, P. LOOS

# On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Supplemental Considerations and further Application Examples[1]

Publications of the Institute for Information Systems (IWi)
Editor: Prof. Dr. Peter Loos

Issue 191

ISSN 1438-5678

Institute for Information Systems (IWi)
at the German Research Center for Artificial Intelligence (DFKI) GmbH
Stuhlsatzenhausweg 3, Geb. D3 2, 66123 Saarbrücken, Germany
Telefon: +49 (0) 6 81 / 85775 – 31 06, Fax: +49 (0) 6 81 / 85775 – 36 96
E-Mail: iwi@iwi.uni-sb.de, URL: http:/ / www.iwi.uni-sb.de/

November 2010

[1] This report represents a supplement to: Fettke, P., Houy, C., and Loos, P. (2010): On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Conceptual Foundations, Application Example, and Implications; Business Information Systems Engineering (BISE), Vol. 2. 2010, I. 6; pp. 347-358.

## Abstract

This contribution represents a supplement to the article „On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering – Conceptual Foundations, Application Example, and Implications" in the special issue on Science of Business and Information Systems Engineering of the Journal Business and Information Systems Engineering (BISE) in 2010. It contains further application examples concerning the introduced reference framework for systemizing design knowledge. Besides the comprehensive documentation of design knowledge concerning event-driven process chains (EPC) with the dedicated literary sources and an evaluation of the evidence of the provided statements, in this report the framework is furthermore applied for the documentation of design knowledge about the Process Grammar Approach, another technique for process design presented by Lee et al. in MIS Quarterly in 2008. Subsequently the results are discussed.



**Keywords**: Design Knowledge, Design Science, Design-Oriented Research, Event-driven Process Chains (EPC), Process Grammar Approach

# Content

Content ....................................................................................................................i

List of Abbreviations ......................................................................................... ii

Tabels ...................................................................................................................... iii

1 Introduction ...........................................................................................................1

2 Framework for the Documentation of Design Knowledge ........................................2

3 Design Knowledge about Event-driven Process Chains ............................................5

4 Design Knowledge about the Process Grammar Approach ......................................10

4.1 Overview ...........................................................................................................10

4.2 Discussion...........................................................................................................13

5 Summary...............................................................................................................16

References ...............................................................................................................17

# List of Abbreviations

| | |
|---|---|
| ARIS | Architecture of Integrated Information Systems |
| BISE | Business and Information Systems Engineering |
| BPMN | Business Process Modeling Notation |
| $C_x$ | Criterion x |
| EPC | Event-Driven Process Chain |
| ERP | Enterprise Resource Planning |
| ET | Decision table (in German: Entscheidungstabelle) |
| I. | Issue |
| MIS | Management Information Systems |
| modEPC | Modified EPC |
| oEPC | Object-oriented EPC |
| p. | page |
| pp. | pages |
| PR | Process Recombinator |
| rEPC | Real-Time-Extension of the EPC |
| sEPC | 1. semantic representation of EPC (*Thomas et al. 2006*)<br>2. service-oriented EPC (*Huth et al. 2008*) |
| $T_x$ | Technique x |
| UML | Unified Modeling Language |
| Vol. | Volume |
| xEPK | Agent-oriented EPC |
| XML | Extensible Markup Language |
| YAWL | Yet Another Workflow Language |
| yEPC | Yet Another EPC |
| zEPK | Collaboration-oriented EPC (in German: zusammenarbeitsorientierte EPK) |

# Tabels

Table 1: Framework for the Documentation of Design Knowledge 3

Table 2: Design Knowledge about Event-driven Process Chains 10

Table 3: Design Knowledge about the Process Grammar Approach 13

# 1 Introduction

In the article „On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering – Conceptual Foundations, Application Example, and Implications" in Business and Information System Engineering (BISE) it is argued that design knowledge plays an important role in the context of the construction and design of information systems.[2] Design knowledge can be understood as knowledge about relevant design goals, knowledge about techniques which can be used for specific tasks in the context of designing information systems as well as knowledge about the effects of the use of a particular technique. It is furthermore argued that this knowledge can be produced, evaluated and used considering scientific standards in order to produce, evaluate and use *scientific* design knowledge. The above mentioned contribution presents necessary conceptual foundations and explains the relevance of design knowledge in design-oriented research in Business and Information Systems Engineering based on an introduced model of system design, the delimitation and typification of design knowledge and some explanations and remarks on the importance of design knowledge during the process of designing information systems. Based on this argumentation the contribution presents a framework for systemizing and documenting scientific design knowledge as well as an approach for evaluating the evidence of documented statements representing design knowledge. In the mentioned article this framework is exemplarily used to present, explain and discuss scientific design knowledge about the business process modeling technique of Event-driven Process Chains (EPC). Due to space limitations only a shortened version of the compendium of extracted design knowledge could be presented in the journal article.

This contribution serves as a supplement for the mentioned article. It provides further information on the application example and a comprehensive table with the documented design knowledge about Event-driven Process Chains. The dedicated references in literature supporting the statements on characteristics of a technique, like effects, repeatability, impersonality, relevance, side effects etc. are also provided. Furthermore this contribution presents an additional application example which could also not be in-

---

[2] Fettke, P., Houy, C., and Loos, P. (2010): On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Conceptual Foundations, Application Example, and Implications; Business Information Systems Engineering (BISE), Vol. 2. 2010, I. 6; pp. 347-358.

cluded in the journal article due to space limitations. The framework is used for systemizing and documenting design knowledge about the "Process Grammar Approach", a process design technique which has been presented by Lee et al. in issue 4 of *MIS Quarterly* in 2008.[3] The design knowledge about the Process Grammar Approach and its relevance for information systems design are moreover discussed in this report.

The remainder of this contribution is as follows: at first the framework for the documentation of design knowledge is illustrated. Thereafter the complete tables containing the documented design knowledge about EPC and the Process Grammar Approach are presented. The design knowledge about the latter technique is then discussed in more detail. A summary closes the report.

## 2 Framework for the Documentation of Design Knowledge

In the following the framework for systemizing design knowledge which has been introduced in the underlying article will be shortly presented. Basically the framework which is visualized in table 1 on the next page consists of three sections. The first section includes the context and a brief description of a technique as well as the superior design goal of the technique. The second section provides a detailed characterization of the technique. In this context it is particularly explained how a technique fulfils minimum and comparative requirements. Minimum requirements in this context represent requirements which at least have to be fulfilled in order to be able to talk about a technique at all (effect, repeatability and impersonality). They represent more or less analytic consequences of the concept of a technique as something that reliably functions as a means to achieve a goal. Comparative requirements allow a system designer to assess several techniques in relation to each other (e.g. relevance, side effects, degree of maturity, costs etc.). Thus, knowledge about comparative requirements is relevant for choosing an adequate one if several techniques are available. In addition, the framework comprises a third section including variants of the technique and alternative techniques.

[3] Lee, J., Wyner, G.M., and Pentland, B.T. (2008): Process Grammar as a Tool for Business Process Design; MIS Quarterly, Vol. 32. 2008, I. 4; pp. 757-778.

<table>
<tr><th colspan="4">Design Knowledge about a technique</th></tr>
<tr><td colspan="4">Context and short description of the technique</td></tr>
<tr><td colspan="4">Superior design goal</td></tr>
<tr><td rowspan="10">Characteristics of the technique</td><td rowspan="3">Minimum requirements for the technique</td><td>Effect</td><td rowspan="10">Evidence</td></tr>
<tr><td>Repeatability</td></tr>
<tr><td>Impersonality</td></tr>
<tr><td rowspan="7">Comparative requirements for the technique</td><td>Relevance</td></tr>
<tr><td>Application domain</td></tr>
<tr><td>Side effects</td></tr>
<tr><td>Degree of maturity</td></tr>
<tr><td>Degree of routine</td></tr>
<tr><td>Costs</td></tr>
<tr><td>Efficiency</td></tr>
<tr><td colspan="4">Variants of the technique</td></tr>
<tr><td colspan="4">Alternative techniques</td></tr>
</table>

*Table 1: Framework for the Documentation of Design Knowledge*[4]

The framework moreover allows for the assessment of the evidence of single statements on the characteristics of a technique. “Basically, we can assume that design knowledge is awarded different degrees of credibility. Ideally, a design knowledge statement can have a maximum of evidence: The statement is proven true and has to be accepted in all circumstances. At the other extreme, the truth value of the statement is unknown, but the statement has a certain plausibility. For a further differentiation we propose to start with using the number of times specific statements are mentioned. Based on this measure, the acceptance and relevance of certain statements can be roughly estimated. However, it is undisputed that the frequent reference of an obviously false allegation does not make the content of the assertion more evident. Therefore, we propose to additionally distinguish five levels of evidence that differ as regards content:

- Level I: Plausible statement without further justification. The statement is not visibly false and neither conceptually nor empirically supported. Example: *Technique T is easy to use.*

[4] See: Fettke, P., Houy, C., and Loos, P. (2010): On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Conceptual Foundations, Application Example, and Implications; Business Information Systems Engineering (BISE), Vol. 2. 2010, I. 6; p. 354.

- Level II: Plausible statement which is proven by merely conceptual consideration without empirical evidence. Example: *Technique T is easy to use since during its design the key success factor of a clear user interface was taken into consideration.*

- Level III: Statement that is backed up by exemplary experience. Example: *Technique T is easy to use. This was illustrated by three case studies in which T has been exemplarily used.*

- Level IV: Statement that has held good in a variety of applications. Example: *A field experiment with a representative group showed that the technique T is easy to use for a significantly higher proportion of users (90 %). Conflicting observations were made for some few participants.*

- Level V: Statement which applies without exception or which can be deductively derived from acknowledged statements. Example: *Accepted assumption: Process modeling languages support communication about business processes. Fact: Technique T is a process modeling language. Conclusion: T supports communications on business processes.*"[5]

[5] Fettke, P., Houy, C., and Loos, P. (2010): On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Conceptual Foundations, Application Example, and Implications; Business Information Systems Engineering (BISE), Vol. 2. 2010, I. 6; pp. 353f.

# 3 Design Knowledge about Event-driven Process Chains

<table>
<tr><th colspan="4">Design Knowledge about the technique „Event-driven Process Chains“</th></tr>
<tr><td>Context</td><td colspan="3">Context and short description of the technique<br>Business processes are essential design objects in the context of the introduction and design of information systems. The development of graphical representations of business processes is an important task that is usually covered by a process or system designer and, among others, serves the communication about processes. The technique has been developed in order to support the graphical representation of semantic business process models from a dynamic point of view. EPC represent the chronological sequence of functions and connect the different elements belonging to the different views of the Architecture of Integrated Information systems (ARIS) (Keller et al. 1992).</td></tr>
<tr><td>Superior goal</td><td colspan="3">Superior goal<br>The intended design goal of EPC, as explicitly formulated in the fundamental contribution of Keller et al. (1992), is the identification and documentation of business processes in a company. Its usage is supposed to assure the company’s success by supporting process-oriented organization.</td></tr>
<tr><td rowspan="8">Characteristics of the technique</td><td>Characteristics regarding the minimum requirements of the technique</td><td>Number of references / levels of evidence</td><td>References</td></tr>
<tr><td colspan="3">Effects</td></tr>
<tr><td>1. EPC support the communication between persons involved in the process.</td><td>11 Sources / Level III</td><td>Dehnert 2002; Dehnert et al. 2001; Fichtenbauer et al. 2002; Gruhn et al. 2005; Krumnow et al. 2008; Loos et al. 2001; Mendling et al. 2007; Recker et al. 2009; Rittgen 2000b; Thomas et al. 2006a; van Dongen et al. 2007</td></tr>
<tr><td>2. Through formalizing the EPC the method allows for an automated execution of processes.</td><td>13 Sources / Level III</td><td>Allweyer 2007; Barborka et al. 2006; Kahl et al. 2005; Kopp et al. 2007; Kruczynski 2008; Lübke 2006; Moldt et al. 2000; Seidlmeier et al. 2007; Störrle 2006; Thomas et al. 2006a; van Dongen et al. 2005; van Dongen et al. 2007; van Hee et al. 2005</td></tr>
<tr><td>3. Through formalizing the EPC the method allows for an automated analysis of processes.</td><td>14 Sources / Level III</td><td>Barborka et al. 2006; Denne 2006; Gruhn et al. 2005; Gruhn et al. 2008; Kern et al. 2007; Krumnow et al. 2008; List et al. 2006; Moldt et al. 2000; Rodenhagen 2002; Störrle 2006; Thomas et al. 2006a; van der Aalst 1999; van Dongen et al. 2005; van Dongen et al. 2007</td></tr>
<tr><td>4. The semi-formal semantics of EPC allows for developing expressive models with a high degree of freedom.</td><td>5 Sources / Level II</td><td>Dehnert 2002; Fettke et al. 2003; Rittgen 2000b; Scheer et al. 2005a; Wehler 2007</td></tr>
<tr><td>5. EPC enables intuitive graphical process models.</td><td>11 Sources / Level II</td><td>Becker et al. 2003; Dehnert 2001; Dehnert 2002; Kopp et al. 2006; Kruczynski 2008; Mendling et al. 2003a; Mendling et al. 2007; van der Aalst 1999; van Dongen et al. 2005; van Dongen et al. 2007; Wehler 2007</td></tr>
<tr><td>6. EPC models can easily be interpreted.</td><td>1 Source / Level I</td><td>Thomas et al. 2004</td></tr>
</table>

| | | | |
|---|---|---|---|
| | **Repeatability** | | |
| | 1. EPC are a widely used modeling language. | 40 Sources / Level IV | *Brüning et al.* 2008; *Dehnert* 2001; *Dehnert* 2002; *Dünnebacke et al.* 2009; *Fettke* 2009; *Fettke et al.* 2003; *Gadatsch* 2009; *Green et al.* 1999; *Green et al.* 2000; *Gruhn et al.* 2006; *Gruhn et al.* 2007; *Kahl et al.* 2005; *Kruczynski* 2008; *Loos et al.* 2001; *Lübke et al.* 2005; *Mendling et al.* 2004; *Mendling et al.* 2003a; *Mendling et al.* 2003b; *Mendling et al.* 2003c; *Mendling et al.* 2003d; *Mendling et al.* 2007; *Mendling et al.* 2008; *Moldt et al.* 2000; *Nüttgens et al.* 2002a; *Recker et al.* 2009; *Rittgen* 2000b; *Rittgen* 2000c; *Rodenhagen* 2002; *Sarshar et al.* 2005; *Scheer et al.* 2005a; *Schneider et al.* 2003a; *Simon et al.* 2006; *Thomas et al.* 2002; *Thomas et al.* 2005; *Thomas et al.* 2004; *van der Aalst* 1999; *van Dongen et al.* 2005; *van Hee et al.* 2005; *vom Brocke et al.* 2009; *Wehler* 2007 |
| | **Impersonality** | | |
| | 1. The EPC method is easy to understand. | 12 Sources / Level III | *Becker et al.* 2003; *Dehnert* 2001; *Dehnert* 2002; *Green et al.* 2000; *Kruczynski* 2008; *Krumnow et al.* 2008; *List et al.* 2006; *Loos et al.* 2001; *Mendling et al.* 2005b; *Rittgen* 2000c; *Thomas et al.* 2004; *van der Aalst* 1999 |
| | 2. The EPC method is easy to learn. | 5 Sources / Level II | *Dehnert* 2001; *Dehnert* 2002; *Dehnert et al.* 2001; *Loos et al.* 2001; *Rittgen* 2000c |
| | 3. EPC are flexibly applicable. | 3 Sources / Level I | *Dehnert et al.* 2001; *Rittgen* 2000b; *Rittgen* 2000c |
| | 4. Numerous users and consultants are familiar with the EPC method. | 3 Sources / Level III | *Mendling et al.* 2005b; *Moldt et al.* 2000; *Rittgen* 2000a |
| | 5. EPC are easily applicable. | 1 Source / Level I | *Rittgen* 2000a |
| | **Characteristics regarding the comparative requirements of the technique** | **Number of references / levels of evidence** | **References** |
| | **Relevance** | | |
| | 1. The EPC method enables intuitive graphical process models. | 11 Sources / Level II | *Becker et al.* 2003; *Dehnert* 2001; *Dehnert* 2002; *Kopp et al.* 2006; *Kruczynski* 2008; *Mendling et al.* 2003a; *Mendling et al.* 2007; *van der Aalst* 1999; *van Dongen et al.* 2005; *van Dongen et al.* 2007; *Wehler* 2007 |
| | 2. EPC are able to adequately represent complex real facts. | 1 Source / Level II | *Schneider et al.* 2003a |
| | 3. The EPC method is an application-oriented method. | 4 Sources / Level I | *Scheer et al.* 2005b; *Thomas et al.* 2002; *Thomas et al.* 2005; *Thomas et al.* 2004 |
| | 4. EPC are in step with actual practice. | 2 Sources / Level I | *Rittgen* 2000c; *Rodenhagen* 2002 |
| | 5. The EPC method is not without controversy. | 1 Source / Level II | *Rittgen* 2000c |
| | 6. The EPC method is an imprecise modeling method. | 1 Source / Level I | *Rittgen* 2000c |

| | | | |
|---|---|---|---|
| | **Application domain** | | |
| | 1. EPC are suited to support process orientation in the administrative environment. | 4 Sources / Level III | *Becker et al.* 2003; *Sarshar et al.* 2005a; *Scheer et al.* 2005b; *Thomas et al.* 2004 |
| | **Side effects** | | |
| | 1. EPC models can be ambiguous. | 17 Sources / Level III | *Cuntz et al.* 2005; *Cuntz et al.* 2004; *Dehnert* 2001; *Dehnert et al.* 2001; *Fettke et al.* 2003; *Fichtenbauer et al.* 2002; *Mendling et al.* 2003a; *Mendling et al.* 2006; *Recker et al.* 2009; *Rittgen* 2000a; *Rittgen* 2000b; *Rittgen* 2000c; *Rodenhagen* 2002; *Thomas et al.* 2006b; *van der Aalst et al.* 2002; *van der Aalst* 1999; *Wehler* 2007 |
| | 2. EPC models can be misunderstood. | 4 Sources / Level III | *Dehnert* 2001; *Dehnert et al.* 2001; *Rittgen* 2000b; *Schmidt et al.* 2009 |
| | 3. Ambiguities in EPC models lead to different understandings of a process. | 2 Sources / Level II | *Dehnert* 2001; *Dehnert et al.* 2001 |
| | **Degree of maturity** | | |
| | 1. EPC are a widely used modeling language. | 40 Sources / Level IV | *Brüning et al.* 2008; *Dehnert* 2001; *Dehnert* 2002; *Dünnebacke et al.* 2009; *Fettke* 2009; *Fettke et al.* 2003; *Gadatsch* 2009; *Green et al.* 1999; *Green et al.* 2000; *Gruhn et al.* 2006; *Gruhn et al.* 2007; *Kahl et al.* 2005; *Kruczynski* 2008; *Loos et al.* 2001; *Lübke et al.* 2005; *Mendling et al.* 2004; *Mendling et al.* 2003a; *Mendling et al.* 2003b; *Mendling et al.* 2003c; *Mendling et al.* 2003d; *Mendling et al.* 2007; *Mendling et al.* 2008; *Moldt et al.* 2000; *Nüttgens et al.* 2002a; *Recker et al.* 2009; *Rittgen* 2000b; *Rittgen* 2000c; *Rodenhagen* 2002; *Sarshar et al.* 2005; *Scheer et al.* 2005a; *Schneider et al.* 2003a; *Simon et al.* 2006; *Thomas et al.* 2002; *Thomas et al.* 2005; *Thomas et al.* 2004; *van der Aalst* 1999; *van Dongen et al.* 2005; *van Hee et al.* 2005; *vom Brocke et al.* 2009; *Wehler* 2007 |
| | 2. EPC modeling is comprehensively supported by tools. | 11 Sources / Level III | *Barborka et al.* 2006; *Becker et al.* 2003; *Dehnert* 2001; *Dehnert* 2002; *Dehnert et al.* 2001; *Geissler et al.* 2002; *Mendling et al.* 2005b; *Thomas et al.* 2006a; *Thomas et al.* 2002; *Thomas et al.* 2005; *Thomas et al.* 2004 |
| | 3. EPC represent an established standard method for process modeling. | 10 Sources / Level II | *Kahl et al.* 2005; *Kruczynski* 2008; *Krumnow et al.* 2008; *Petsch et al.* 2008; *Schneider et al.* 2003a; *Seel et al.* 2005; *Seidlmeier et al.* 2007; *Thomas et al.* 2006a; *Thomas et al.* 2005; *Thomas et al.* 2004 |
| | 4. There exist several different XML-based exchange formats for EPC models. | 7 Sources / Level III | *Barborka et al.* 2006; *Geissler et al.* 2002; *Mendling* 2003; *Mendling et al.* 2004; *Mendling et al.* 2003b; *Mendling et al.* 2003d; *Mendling et al.* 2005b |

| | | | |
|---|---|---|---|
| | 5. There exists a plenty of different verification approaches for EPC models. | 3 Sources / Level III | *Gruhn et al.* 2008; *van Dongen et al.* 2005; *van Dongen et al.* 2007 |
| | 6. Numerous users and consultants are familiar with the EPC method. | 3 Sources / Level III | *Mendling et al.* 2005b; *Moldt et al.* 2000; *Rittgen* 2000a |
| | 7. In practice there already exist a lot of EPC process models. | 1 Source / Level III | *Moldt et al.* 2000 |
| | **Degree of routine of the application** | | |
| | 1. Through formalizing the EPC the method allows for an automated execution of processes. | 13 Sources / Level III | *Allweyer* 2007; *Barborka et al.* 2006; *Kahl et al.* 2005; *Kopp et al.* 2007; *Kruczynski* 2008; *Lübke* 2006; *Moldt et al.* 2000; *Seidlmeier et al.* 2007; *Störrle* 2006; *Thomas et al.* 2006a; *van Dongen et al.* 2005; *van Dongen et al.* 2007; *van Hee et al.* 2005 |
| | 2. Through formalizing the EPC the method allows for an automated analysis of processes. | 14 Sources / Level III | *Barborka et al.* 2006; *Denne* 2006; *Gruhn et al.* 2005; *Gruhn et al.* 2008; *Kern et al.* 2007; *Krumnow et al.* 2008; *List et al.* 2006; *Moldt et al.* 2000; *Rodenhagen* 2002; *Störrle* 2006; *Thomas et al.* 2006a; *van der Aalst* 1999; *van Dongen et al.* 2005; *van Dongen et al.* 2007 |
| | 3. The EPC method is easy to understand. | 12 Sources / Level III | *Becker et al.* 2003; *Dehnert* 2001; *Dehnert* 2002; *Green et al.* 2000; *Kruczynski* 2008; *Krumnow et al.* 2008; *List et al.* 2006; *Loos et al.* 2001; *Mendling et al.* 2005b; *Rittgen* 2000c; *Thomas et al.* 2004; *van der Aalst* 1999 |
| | 4. The EPC method is easy to learn. | 5 Sources / Level II | *Dehnert* 2001; *Dehnert* 2002; *Dehnert et al.* 2001; *Loos et al.* 2001; *Rittgen* 2000c |
| | **Costs** | | |
| | The exact costs of application are unknown. | The works examined here state nothing about the costs of using the EPC method. A distinction is to be made here in e.g. the cost of procurement for the tool, which can vary a lot since EPC are used by different tools with or without costs, as well as training costs, etc. | |
| | **Efficiency** | | |
| | Exact values about the efficiency of the method are unknown. | As the costs of the application cannot be specified exactly it is also impossible to predict the efficiency of the method. | |
| **Variants of the technique** | **Variants of the technique**<br>The technique has been continuously evolved since its introduction in 1992. In this context the method has been extended by different additional functionalities and approaches, e.g. for further formalization. A selection of variants is presented in the following overview which extends the list presented by Sarshar et al. (2005). The overview distinguishes between comprehensive extensions (EPC variants) and smaller extensions by other constructs. EPC extensions are normally based on specific requirements and objectives which are also documented in the following overview. | | |

| | | Objective supported by a variant or an extension | Name of the variant or extension | References |
|---|---|---|---|---|
| | EPC variants | Modeling processes for context-sensitive real-time systems | Real-Time-Extension of EPC (rEPC) | *Hoffmann et al.* 1993 |
| | | Integrated modeling of processes and involved objects | Object-oriented EPC (oEPC) | *Scheer et al.* 1997 |
| | | Formalization of EPC for automation respectively for software design | Modified EPC (modEPC) | *Rittgen* 1999 |
| | | | Formal definition of syntax and semantics | *Nüttgens et al.* 2002b |
| | | | Reference framework for the definition of non-local semantics | *Kindler* 2003 |
| | | Process modeling for agent-oriented information systems | Agent-oriented variant (xEPC) | *Kirn et al.* 2000 |
| | | Modeling of fuzzy process knowledge | Fuzzy EPC | *Thomas et al.* 2002 |
| | | Introduction of necessary constructs for the representation of established workflow patterns | Yet another EPC (yEPC) | *Mendling et al.* 2005a |
| | | Modeling of collaboration in inter-organizational processes | Collaboration-oriented EPC (zEPC) | *Hinderer* 2005 |
| | | Modeling of services in EPC | Service-oriented EPC (sEPC) | *Huth et al.* 2008 |
| | Extension by other constructs | Simplification of EPC structures | Optional sequence of functions: SEQ-connector | *Priemer* 1995 |
| | | | Placement of decision tables: ET-operator | *Rosemann* 1996 |
| | | | Reduction of the number of information objects: $IOR_1$-operator | |
| | | | Representation and hierarchization of important process components by process objects | *Rosemann* 1996 |
| | | Differentiation between events and states in EPC | Event-state-constructs | *Schütte* 1998 |
| | | Description of organizational structures and responsibilities in inter-organizational processes | Visualization of the organization view in EPC | *Schüppler* 1998 |
| | | Description of objects, object states and object interactions in processes | Extension of EPC with UML elements | *Loos et al.* 1998 |
| | | Representation and description of process objects in inter-organizational processes | Process objects migration function | *Kugeler* 2002 |
| | | Generation of multiple instances of a sub-process in a superior process | Connector for multiple instantiations | *Rodenhagen* 2002 |
| | | Representation and evaluation of risks in EPC models | Information-object-type "risk" | *Brabänder et al.* 2002 |
| | | Visualization and description of customer integration | Elements of customer integration | *Schneider et al.* 2003b |
| | | Modeling of inter-organizational business processes | Inter-organizational extensions | *Klein et al.* 2004 |

| | | | | |
|---|---|---|---|---|
| | | Representation of fuzzy rules in EPC models | Attribution of EPC constructs and rule integration | *Thomas et al.* 2006a |
| | | Semantic annotation of EPC models | Semantic representation of EPC (sEPC) | *Thomas et al.* 2006b |
| | | Integration of web services in EPC | Service elements and service attributes | *Marx Gómez et al.* 2007 |
| | | Extension of EPC for modeling risks in order to support risk management | Risk elements | *Winkelmann et al.* 2008 |
| **Alternative techniques** | | Common alternative techniques include the Business Process Modeling Notation (BPMN), UML activity diagrams, Petri nets or YAWL (Yet Another Workflow Language). These alternative techniques use different graphical elements in order to focus on different aspects of process modeling and their representation. | | |

*Table 2: Design Knowledge about Event-driven Process Chains*

# 4 Design Knowledge about the Process Grammar Approach

## 4.1 Overview

In the following another application example of the framework for systemizing design knowledge is presented. Therefore design knowledge concerning the Process Grammar Approach is documented and systemized by means of the framework. The feasibility of the framework is thus not only demonstrated by means of an established technique like EPC but also with this rather "young" technique.

Lee et al. present the Process Grammar Approach in an article in *MIS Quarterly*.[6] A search in international data bases like *EBSCOhost* (http://search.ebscohost.com) or *Scopus* (http://www.scopus.com) has shown that no further contributions concerning this technique have so far been published. Thus, the design knowledge about the Process Grammar Approach visualized in table 3 on the next page is based on a reconstruction of knowledge presented in the original contribution of Lee et al.

[6] Lee, J., Wyner, G.M., and Pentland, B.T. (2008): Process Grammar as a Tool for Business Process Design; MIS Quarterly, Vol. 32. 2008, I. 4; pp. 757-778.

<table>
<tr><th colspan="4">Design Knowledge about the technique T "Process Grammar Approach"</th></tr>
<tr><td>Context</td><td colspan="3">Context and short description of the technique T<br>Business processes are considered as an important design object in designing information systems. In this context the Process Grammar Approach by Lee et al. (2008) represents an adequate design technique. In general it can be assumed that a plenty of different variants of one business process exists.<br><br>The technique T consists of a set three sub-techniques:<br><br>- Technique $T_1$ and $T_2$ (design method): The design method is conceptually based on so called process grammars. In order to concretize the technique the authors describe several steps for a successful construction (technique $T_1$) and application (technique $T_2$) of process grammars in the context of a particular application scenario (sales scenario).<br><br>- Technique $T_3$ (software prototype): The application of the technique T is supported by a software prototype which has additionally been developed by the authors. This software prototype provides its users with methodical help during the process of constructing and applying process grammars.<br><br>The technique T is only partly documented in the publication. The techniques $T_1$ and $T_2$ are described in a detailed way. $T_3$ is only documented by means of a few screen shots. Thus only little knowledge about the software prototype is publicly available.</td></tr>
<tr><td>Superior goal</td><td colspan="3">Superior goal<br>The superior goal of the Process Grammar Approach is to support an information system designer in the context of the identification and evaluation of different business process design alternatives. The authors mention four essential criteria which support the evaluation of their technique. By means of these criteria the effects and the potential success of the technique can be assessed:<br><br>Criterion $C_1$: The extent to which the commonly observed alternatives are generated by the technique T.<br><br>Criterion $C_2$: The number of generated alternatives that are not currently observed.<br><br>Criterion $C_3$: The extent to which the technique T helps us to understand why some alternatives are commonly observed and why others are not.<br><br>Criterion $C_4$: The usability and usefulness of the technique T for the task of process alternative design.</td></tr>
<tr><td rowspan="5">Characteristics of the technique</td><th>Characteristics regarding the minimum requirements of the technique</th><th>Levels of evidence</th><th>Comments</th></tr>
<tr><td colspan="3">Effects<br>Concerning the effects of the technique T only the observations of Lee et al. (2008) in reference to the four mentioned criteria are documented</td></tr>
<tr><td>1. The technique T achieves the objective in terms of criterion $C_1$. Commonly observed process variants are generated by the technique T.</td><td>III</td><td>(p. 774)</td></tr>
<tr><td>2. The technique T achieves the objective in terms of criterion $C_2$. Also less commonly observed process variants and alternatives are generated by the technique T.</td><td>III</td><td>(p. 774)</td></tr>
<tr><td>3. The technique T achieves the objective in terms of criterion $C_3$. T helps the user to understand why some alternatives are commonly observed and why others are not. Relationships between several developed process variants are made transparent which supports the understanding of why some alternatives are feasible and others are not.</td><td>III</td><td>(p. 774)</td></tr>
</table>

| | | | |
|---|---|---|---|
| | 4. The technique T achieves the objective in terms of criterion $C_4$. The usability of T is comparatively high. T supports the user in the context of choosing process alternatives without overcharging his cognitive ability with too many different process alternatives. | II | (pp. 774f.) |
| | **Repeatability** | | |
| | The sub-techniques of T have been documented and implemented in a software prototype. Thus they can repeatedly be used. | III | The minimum requirement of repeatability is met which has been shown be the application of the technique in the example sales process (pp. 770f.). |
| | **Impersonality** | | |
| | The sub-techniques of T can be used by every system designer. | II | The minimum requirement of impersonality is met. The instruction for use has been clearly documented so that every system designer can use the technique. (p. 761 and pp. 765ff.) |
| | **Characteristics regarding the comparative requirements of the technique** | **Levels of evidence** | **Comments** |
| | **Relevance** | | |
| | The technique T can make an interesting contribution in the context of business process design which makes it a technique of high relevance. | II | The relevance of technique T has been documented and explained in the introduction (pp. 757f.) and in the evaluation part of the article (p. 775). |
| | The technique T is furthermore of high relevance because of its improved usability in comparison to different process-grammar-based design approaches. | II | The advantage of technique T in comparison to alternative techniques has been formulated regarding its usability (pp. 774f.). |
| | **Application domain** | | |
| | The application domain of technique T is business process design. The approach supports the design and evaluation of different process design alternatives. | III | The application domain of technique T has been documented in the introduction of the article of Lee et al. (pp. 757f.). |
| | **Side effects** | | |
| | Side effects and not intended effects of the technique T are currently unknown. | | Side effects and not intended effects are not described in the article of Lee et al. |
| | **Degree of maturity** | | |
| | The technique T has been prototypically implemented. | III | Except the description of Lee et al. no knowledge concerning the application and the degree of maturity of the technique T has been published so far. The technique is still at its initial stage (pp.761ff.). |

| | | | |
|---|---|---|---|
| | **Degree of routine of the application** | | |
| | A detailed instruction for use has been documented for the technique T. | III | The use of the technique T has been documented and exemplarily shown in the context of a sales process. (pp. 765ff.). |
| | **Costs** | | |
| | The exact costs of application are unknown. | | Costs generated by the use of the technique T have not been documented so far. It can be expected that the use of T will result in usual costs for the use of software (e.g. training etc.) |
| | **Efficiency** | | |
| | Exact values about the efficiency of the method are unknown. | | As the costs of application cannot be specified exactly it is currently not possible to predict the efficiency of the method. |
| **Variants of the technique** | **Variants of the technique**<br>Variants of the Process Grammar Approach are currently not known. | | |
| **Alternative techniques** | **Alternative techniques**<br>A mentioned alternative technique for a process-grammar-based design of business processes is the so called "process recombinator" (PR) of *Bernstein et al.* 1999. Furthermore some additional potential alternative techniques are described in the section „Previous Work" (pp. 758ff.). These techniques also represent process-grammar-based approaches in the context of process-oriented business engineering. However, these techniques do not support the design and evaluation of process alternatives but the execution of business processes. Thus, they are only to a certain extent alternative techniques. | | |

*Table 3: Design Knowledge about the Process Grammar Approach*

## 4.2 Discussion

The documentation of design knowledge about the Process Grammar Approach is restricted to the knowledge presented in the underlying source of Lee et al. The provided overview in table 3 offers a system designer a concentrated summary of the potentials of the approach. The description of the context, the superior goal of the technique and in particular the representation of central characteristics of the technique allow for a precise assessment of the suitability for achieving a practical design goal. The system designer is provided a concentrated description of the technique and new options for action in the context of identifying and evaluating business process variants. Furthermore the system designer learns that the Process Grammar Approach is supposed to offer a better usability in comparison to similar techniques for process design. Based on the rather restricted application experiences with this technique the documentation of the particular characteristics is relatively short and only rudimentary design knowledge can be provided in comparison to the other application example concerning EPCs. Nevertheless, first intended effects are documented and can support the decision on the testing or application of the Process Grammar Approach.

The minimum requirements of a technique are demonstrated for the Process Grammar Approach by the description of occurring effects, the repeatability of these effects and the property of the technique that it can be used by every system designer based on the given instruction for use. The criteria $C_1$- $C_4$ which describe the particular objectives of the application of the technique are not operationalized in detail. The description of the criteria is rather general. Thus, an exact assessment, measurement or comparison of the achievement of objectives by the Process Grammar Approach with that of a different technique is not possible. Furthermore the design knowledge about the Process Grammar Approach is so far only documented in one literary source. Thus, no critical examination of the technique's characteristics has been documented until now. Nevertheless, by means of the provided level of evidence of the statements about the technique it can be assessed how well-supported the particular design knowledge is, e. g. by a plausible statement without further justification (Level I) or by the description of exemplary experience with the software prototype (Level III) etc.

The knowledge about the comparative requirements of a technique, e.g. like its relevance for business process design, its usability and its exact application domain, support the system designer in the context of assessing its potentials regarding his practical design objectives. As side effects or not intended effects of the application of the Process Grammar Approach are so far not documented, the system designer can only assess and estimate the risks of application of the technique on the basis of his experiences with comparable techniques. The degree of maturity and the potential risks of practical application is pointed out to the system designer by the fact that the knowledge about the technique is still at its early stages. Based on the detailed instruction for use, the system designer can receive an impression of the potential degree of routine of the application of the Process Grammar Approach. This supports the estimation of personnel-related costs to a certain extent. More precise knowledge about other costs and the efficiency of the technique's application has not been documented so far. Thus, the system designer does not have well-grounded information for taking a decision on the practical use of the technique. For the system designer who is interested in the identification and evaluation of different variants of a business process the documented knowledge about the Process Grammar Approach is relevant in several regards:

- Economic relevance: The documented knowledge describes the fundamental functionalities and effects of the Process Grammar Approach which are per se of economic relevance in the context of system design. The Process Grammar Approach is a novel technique for the design of business processes and represents an innovative solution in this field. If a system designer has got the knowledge about this technique, then he expects it to support a more effective and efficient design of business processes. Based on the detailed instruction for use and the documented effects, the system design expects the technique to be applicable with comparably low personnel-related expenses. The exact expenses remain unclear by reason of the novelty of the technique and have to be assessed based on application tests.
- Relevance for problem solving: By providing an innovative approach for process design the technique helps solving relevant problems in this field. The system designer is offered new possibilities for identifying and evaluating alternative process designs. The software prototype presents these alternatives in a clearly-arranged overview. If the system designer knows the technique and its characteristics or he has access to the documented knowledge about the technique, then he can consider the technique in the context of solving his practical problems. If the system designer does not know the technique he cannot benefit from its potentials.
- Theoretical relevance: The documentation of knowledge about the Process Grammar Approach, its characteristics and potentials is of great relevance for the theory of Business and Information Systems Engineering.[7] Innovative and novel functionalities of techniques are examined and potentially explained by the theory of business and information systems engineering. Innovative knowledge about interdependencies and potential cause-effect-relations concerning a technique is generated by the examination and explanation of the technique and can serve as a basis for further development in the context of software-supported process design.

[7] In this context the term „Theory of BISE" has to be understood according to the research framework in section 2 of the underlying article, pp. 348f.

# 5 Summary

The presented supplemental considerations and application examples offer a deeper insight into the possibilities of the framework for systemizing and documenting design knowledge which has been introduced in the article „On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering – Conceptual Foundations, Application Example, and Implications" in the special issue on Science of Business and Information Systems Engineering. Through the additional application example concerning the Process Grammar Approach and the following discussion, the possibilities of the framework could be pointed out in more detail. The authors hope that this supplement helps to bring forward further fruitful discussions on the relevance of design knowledge in the design-oriented research.

# References

Allweyer, T. (2007): Erzeugung detaillierter und ausführbarer Geschäftsprozessmodelle durch Modell-zu-Modell-Transformationen; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 23-38.

Barborka, P., Helm, L., Köldorfer, G., Mendling, J., Neumann, G., van Dongen, B.F., Verbeek, E., and van der Aalst, W.M.P. (2006): Integration of EPC-related Tools with ProM; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 105-120.

Becker, J., Algermissen, L., and Niehaves, B. (2003): Prozessmodellierung in eGovernment-Projekten mit der eEPK; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2003 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Bamberg, 2003, pp. 31-44.

Bernstein, A., Klein, M., and Malone, T.W. (1999): The Process Recombinator: A Tool for Generating New Business Process Ideas;" in: *Proceedings of the 20th International Conference on Information systems (ICIS),* P. De and J.I. DeGross (Eds.), Charlotte, NC, 1999, pp. 178-192.

Brabänder, E., and Ochs, H. (2002): Analyse und Gestaltung prozessorientierter Risikomanagementsysteme mit Ereignisgesteuerten Prozessketten; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 17-35.

Brüning, J., and Forbrig, P. (2008): Zur Automatischen Ermittlung von Testszenarien aus EPK-Schemata; in: P. Loos, M. Nüttgens, K. Turowski and D. Werth (Eds.): Proceedings of the Workshops colocated with the MobIS2008 Conference: Including EPK2008, KobAS2008 and ModKollGP2008, Saarbrücken, Germany, 2008, pp. 31-43.

Dehnert, J. (2001): Four Systematic Steps Towards Sound Business Process Models; in: Proceedings of the 2nd International Colloquium on Petri Net Technologies for Modelling Communication Based Systems, Berlin, 2001, pp. 55-64.

Dehnert, J. (2002): Making EPCs fit for Workflow Management; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 51-69.

Dehnert, J., and Rittgen, P. (2001): Relaxed Soundness of Business Processes; in: K.L. Dittrich, A. Geppert and M.C. Norrie (Eds.): Proceedings of the 13th Conference on Advanced Information Systems Engineering (CAISE'01), Interlaken, Schweiz, 2001, pp. 157-170.

Denne, S. (2006): Verifying Properties of (Timed) Event Driven Process Chains by Transformation to Hybrid Automata; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 157-176.

Dünnebacke, D., and Rhensius, T. (2009): Unternehmensindividuelle Auswahl von Prozessmodellierungstools; ERP Management, Vol. 5. 2009, I. 2; pp. 47-51.

Fettke, P. (2009): Ansätze der Informationsmodellierung und ihre betriebswirtschaftliche Bedeutung: Eine Untersuchung der Modellierungspraxis in Deutschland; zfbf - Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung, Vol. 61. 2009, I. 8; pp. 550-580.

Fettke, P., Houy, C., and Loos, P. (2010): On the Relevance of Design Knowledge for Design-Oriented Business and Information Systems Engineering - Conceptual Foundations, Application Example, and Implications; Business Information Systems Engineering (BISE), Vol. 2. 2010, I. 6; pp. 347-358.

Fettke, P., and Loos, P. (2003): Ontologische Evaluierung von Ereignisgesteuerten Prozessketten; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2003 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Bamberg, 2003, pp. 61-78.

Fichtenbauer, C., Rumpfhuber, M., and Stary, C. (2002): Sprachgerechte unternehmensnahe Modellierung von Ereignisgesteuerten Prozessketten - Zur ädaquaten Aus- und Weiterbildung von ModelliererInnen; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 109-118.

Gadatsch, A. (2009): Integriertes Geschäftsprozess- und Workflow-Management – Konzeption, Rollen und organisatorische Einbindung; HMD- Praxis der Wirtschaftsinformatik, 2009, I. 266; pp. 35-42.

Geissler, M., and Krüger, A. (2002): Eine XML-Notation für Ereignisgesteuerte Prozessketten (EPK); in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 81-86.

Green, P., and Rosemann, M. (1999): An Ontological Analysis of Integrated Process Modelling; in: M. Jarke and A. Oberweis (Eds.): Proceedings of the 11th International Conference on Advanced Information Systems Engineering, Heidelberg, Germany, 1999, pp. 225-240.

Green, P., and Rosemann, M. (2000): Integrated Process Modelling: An Ontological Evaluation; Information Systems, Vol. 25. 2000, I. 2; pp. 73-87.

Gruhn, V., and Laue, R. (2005): Einfache EPK-Semantik durch praxistaugliche Stilregeln; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005, pp. 176-189.

Gruhn, V., and Laue, R. (2006): Validierung syntaktischer und anderer EPK-Eigenschaften mit PROLOG; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 69-84.

Gruhn, V., and Laue, R. (2007): Forderungen an hierarchische EPK-Schemata; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 59-76.

Gruhn, V., Laue, R., Kern, H., and Kühne, S. (2008): EPK-Validierung zur Modellierungszeit in der bflow* Toolbox; in: P. Loos, M. Nüttgens, K. Turowski and D. Werth (Eds.): MobIS 2008 - Modellierung betrieblicher Informationssysteme – Modellierung zwischen SOA und Compliance Management, Saarbrücken, Germany, 2008, pp. 181-194.

Hinderer, H.A. (2005): Eine Vorgehensweise zur Erstellung von Informationssystemen für die zwischenbetriebliche Zusammenarbeit im Vertrieb technischer Produkte; Jost-Jetter, Heimsheim; 2005.

Hoffmann, W., Wein, R., and Scheer, A.-W. (1993): Konzeption eines Steuerungsmodells für Informationssysteme - Basis für die Real-Time-Erweiterung der EPK (rEPK); Veröffentlichungen des Instituts für Wirtschaftsinformatik, Heft 106, Saarbrücken.

Huth, S., and Wieland, T. (2008): Geschäftsprozessmodellierung mittels Software-Services auf Basis der EPK; in: V. Nissen, M. Petsch and H. Schorcht (Eds.): Service-orientierte Architekturen - Chancen und Herausforderungen bei der Flexibilisierung und Integration von Unternehmensprozessen; Gabler, Wiesbaden; 2008, pp. 61-76.

Kahl, T., and Kupsch, F. (2005): Transformation und Mapping von Prozessmodellen in verteilten Umgebungen mit der EPK; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005, pp. 54-73.

Keller, G., Nüttgens, M., and Scheer, A.-W. (1992): Semantische Prozeßmodellierung auf der Grundlage "Ereignisgesteuerter Prozeßketten" (EPK); Veröffentlichungen des Instituts für Wirtschaftsinformatik, Heft 89, Saarbrücken.

Kern, H., and Kühne, S. (2007): Forderungen an hierarchische EPK-Schemata; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 97-109.

Kindler, E. (2003): On the semantics of EPCs: A framework for resolving the vicious circle; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2003 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Bamberg, 2003, pp. 7-18.

Kirn, S., Heine, C., Petsch, M., Puppe, F., Klügl, F., and Herrler, R. (2000): Agentenorientierte Modellierung vernetzter Logistikkreiläufe als Ausgangspunkt agentenbasierter Simulation; in: S. Kirn and M. Petsch (Eds.): Tagungsband zum 2. Kolloquium des DFG-Schwerpunktprogramm "Intelligente Softwareagenten und Betriebswirtschaftliche Anwendungsszenarien", TU Ilmenau, 2000.

Klein, R., Kupsch, F., and Scheer, A.-W. (2004): Modellierung interorganisationaler Prozesse mit ereignisgesteuerten Prozessketten; Veröffentlichungen des Instituts für Wirtschaftsinformatik, Heft 178, Saarbrücken.

Kopp, O., Eberle, H., Unger, T., and Leymann, F. (2007): From Process Models to Business Landscapes; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 7-21.

Kopp, O., Unger, T., and Leymann, F. (2006): Nautilus Event-driven Process Chains: Syntax, Semantics, and their Mapping to BPEL; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 85-104.

Kruczynski, K. (2008): Prozessmodellierung im Wettbewerb: EPK vs. BPMN; is report, Vol. 12. 2008, I. 6; pp. 30-35.

Krumnow, S., Decker, G., and Weske, M. (2008): Modellierung von EPKs im Web mit Oryx; in: P. Loos, M. Nüttgens, K. Turowski and D. Werth (Eds.): Proceedings of the Workshops colocated with the MobIS2008 Conference: Including EPK2008, KobAS2008 and ModKollGP2008, Saarbrücken, Germany, 2008, pp. 5-17.

Kugeler, M. (2002): SCM und CRM - Prozessmodellierung für Extended Enterprises; in: J. Becker, M. Kugeler and M. Rosemann (Eds.): Prozessmanagement - Ein Leitfaden zur prozessorientierten Organisationsgestaltung; Springer, Berlin et al.; 3. Ed.; 2002, pp. 457-485.

Lee, J., Wyner, G.M., and Pentland, B.T. (2008): Process Grammar as a Tool for Business Process Design; MIS Quarterly, Vol. 32. 2008, I. 4; pp. 757-778.

List, B., and Korherr, B. (2006): An Evaluation of Conceptual Business Process Modelling Languages; in: ACM symposium on Applied computing Dijon, France, 2006, pp. 1532-1539.

Loos, P., and Allweyer, T. (1998): Process Orientation and Object-Orientation - An Approach Integrating UML and Event-Driven Process Chains (EPC); Veröffentlichungen des Instituts für Wirtschaftsinformatik, Heft 144, Saarbrücken.

Loos, P., and Fettke, P. (2001): Towards an Integration of Business Process Modeling and Object-Oriented Software Development; in: Proceedings of the Fifth International Symposium on Economic Informatics Bucharest, 2001, pp. 835-843.

Lübke, D. (2006): Transformation of Use Cases to EPC Models; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 137-156.

Lübke, D., Marx Gómez, J., and Schneider, K. (2005): Serviceorientierte Architekturen und Prozessmanagement; ERP Management, Vol. 1. 2005, I. 3; pp. 19-22.

Marx Gómez, J., Schneider, K., Lübke, D., Intas, S., and Brehm, N. (2007): Einbindung von Webservices in Ereignisgesteuerte Prozessketten; ERP Management, Vol. 3. 2007, I. 2; pp. 46-50.

Mendling, J. (2003): Event-Driven-Process-Chain-Markup-Language (EPML): Anforderungen, Konzeption und Anwendung eines XMLSchemas für Ereignisgesteuerte Prozessketten (EPK); in: H. Höpfner and G. Saake (Eds.): Beitragsband zum Studierenden- Programm bei der 10. Fachtagung "Datenbanksyeteme für Business, Technologie und Web", Fakultät für Informatik, Universität Magdeburg, 2003, pp. 48-50.

Mendling, J., Brabenetz, A., and Neumann, G. (2004): Generating SVG Graphics from EPML Processes; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2004 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Luxemburg, 2004, pp. 55-64.

Mendling, J., Neumann, G., and Nüttgens, M. (2005a): Yet Another Event-driven Process Chain - Modeling Workflow Patterns with yEPCs; Enterprise Modelling and Information Systems Architectures, Vol. 1. 2005a, I. 1; pp. 3-13.

Mendling, J., and Nüttgens, M. (2003a): EPC Modelling based on Implicit Arc Types; in: M. Godlevsky, S.W. Liddle and H.C. Mayr (Eds.): Information Systems Technology and its Applications, International Conference ISTA'2003, Kharkiv, Ukraine, 2003a, pp. 131-142.

Mendling, J., and Nüttgens, M. (2003b): EPC Syntax Validation with XML Schema Languages; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2003 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Bamberg, 2003b, pp. 19-30.

Mendling, J., and Nüttgens, M. (2003c): Konzeption eines XML-basierten Austauschformates für Ereignisgesteuerte Prozessketten (EPK); in: Informationssystem Architekturen, Wirtschaftsinformatik Rundbrief der GI Fachgruppe WI-MobIS 10 (2003) 2, 2003c, pp. 89-103.

Mendling, J., and Nüttgens, M. (2003d): XML-basierte Geschäftsprozessmodellierung; in: W. Uhr, E. Schoop and W. Esswein (Eds.): Proceedings der 6. Internationalen Tagung Wirtschaftsinformatik 2003: Medien - Märkte Mobilität, Dresden, 2003d, pp. 161-180.

Mendling, J., van Dongen, B.F., and van der Aalst, W.M.P. (2007): On the Degree of Behavioral Similarity between Business Process Models; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 39-57.

Mendling, J., Verbeek, H.M.W., van Dongen, B.F., van der Aalst, W.M.P., and Neumann, G. (2008): Detection and prediction of errors in EPCs of the SAP reference model; Data & Knowledge Engineering, Vol. 64. 2008, I. 1; pp. 312-329.

Mendling, J., and Ziemann, J. (2005b): EPC Verification in the ARIS for MySAP reference model database; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005b, pp. 41-53.

Moldt, D., and Rodenhagen, J. (2000): Ereignisgesteuerte Prozeßketten und Petrinetze zur Modellierung von Workflows; in: H. Giese and S. Philippi (Eds.): Visuelle Verhaltensmodellierung verteilter und nebenläufiger Software-Systeme, Proceedings des 8. Workshop des Arbeitskreises "Grundlagen objektorientierter Modellierung" (GROOM) der GI-Fachgruppe 2.1.9 ("Objektorientierte Softwareentwicklung"), Bericht Nr. 24/00-I, Münster 2000, pp. 57-63.

Nüttgens, M., and Rump, F.J. (2002a): Syntax und Semantik Ereignisgesteuerter Prozessketten (EPK); in: J. Desel and M. Weske (Eds.): Promise 2002 - Prozessorientierte Methoden und Werkzeuge für die Entwicklung von Informationssystemen, Proceedings des GI-Workshops und Fachgruppentreffens, Potsdam, 2002a, pp. 64-77.

Nüttgens, M., and Rump, F.J. (2002b): Syntax und Semantik Ereignisgesteuerter Prozessketten (EPK); in: J. Desel and M. Weske (Eds.): Prozessorientierte Methoden und Werkzeuge für die Entwicklung von Informationssystemen - Promise 2002 - 9.-11. Oktober 2002 in Potsdam, Bonn; 2002b, pp. 64-77.

Petsch, M., Schorcht, H., Nissen, V., and Himmelreich, K. (2008): Ein Transformationsmodell zur Überführung von Prozessmodellen in eine Simulationsumgebung; in: P. Loos, M. Nüttgens, K. Turowski and D. Werth (Eds.): MobIS 2008 - Modellierung betrieblicher Informationssysteme – Modellierung zwischen SOA und Compliance Management, Saarbrücken, Germany, 2008, pp. 209-220.

Priemer, J. (1995): Entscheidungen über die Einsetzbarkeit von Software anhand formaler Modelle; Pro Universitate, Sinzheim; 1995.

Recker, J., Rosemann, M., Indulska, M., and Green, P. (2009): Business Process Modeling - A Comparative Analysis; Journal of the Association for Information Systems, Vol. 10. 2009, I. 4; pp. 333-363.

Rittgen, P. (1999): Modified EPCs and Their Formal Semantics; Institut für Wirtschaftsinformatik, Arbeitsbericht Nr. 19, Koblenz-Landau.

Rittgen, P. (2000a): EMC - A Modeling Method for Developing Web-based Applications; in: International Conference of the International Resources Management Association (IRMA) 2000, Anchorage, Alaska, USA, 2000a, pp. 135-140.

Rittgen, P. (2000b): Paving the Road to Business Process Automation; in: European Conference on Information Systems (ECIS) 2000, Vienna, Austria, 2000b, pp. 313-319.

Rittgen, P. (2000c): Quo vadis EPK in ARIS? Ansätze zu syntaktischen Erweiterungen und einer formalen Semantik; Wirtschaftsinformatik, Vol. 42. 2000c, I. 1; pp. 27-35.

Rodenhagen, J. (2002): Ereignisgesteuerte Prozessketten (EPK) - Multiinstanziierungsfähigkeit und referentielle Persistenz; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 95-107.

Rosemann, M. (1996): Komplexitätsmanagement in Prozeßmodellen. Methodenspezifische Gestaltungsempfehlungen für die Informationsmodellierung; Gabler Verlag, Wiesbaden; 1996.

Sarshar, K., and Loos, P. (2005): Modellierung überbetrieblicher Behandlungsprozesse durch Objekt-Petrinetze; Wirtschaftsinformatik, Vol. 47. 2005, I. 3; pp. 203-210.

Scheer, A.-W., Nüttgens, M., and Zimmermann, V. (1997): Objektorientierte Ereignisgesteuerte Prozeßkette (oEPK) - Methode und Anwendung; Veröffentlichungen des Instituts für Wirtschaftsinformatik, Heft 141, Saarbrücken.

Scheer, A.-W., and Thomas, O. (2005a): Geschäftsprozessmodellierung mit der ereignisgesteuerten Prozesskette; Das Wirtschaftsstudium, Vol. 34. 2005a, I. 8-9; pp. 1069-1078.

Scheer, A.-W., Thomas, O., and Adam, O. (2005b): Process Modeling Using Event-driven Process Chains; in: M. Dumas, W.M.P. van der Aalst and A.H.M. ter Hofstede (Eds.): Process-Aware Information Systems : Bridging People and Software Through Process Technology; Wiley, Hoboken, New Jersey; 2005b, pp. 119-145.

Schmidt, W., Fleischmann, A., and Gilbert, O. (2009): Subjektorientiertes Geschäftsprozessmanagement; HMD- Praxis der Wirtschaftsinformatik, 2009, I. 266; pp. 52-62.

Schneider, K., and Schreiner, P. (2003a): Ein methodischer Ansatz zur Messung der Kundenintegration in der Dienstleistungserbringung; Information Management & Consulting, Vol. 18. 2003a, I. 3; pp. 51-57.

Schneider, K., and Thomas, O. (2003b): Kundenorientierte Dienstleistungsmodellierung mit Ereignisgesteuerten Prozessketten; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2003 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Bamberg, 2003b, pp. 87-93.

Schüppler, D. (1998): Informationsmodelle für überbetriebliche Prozesse - Ein Ansatz zur Gestaltung von Interorganisationssystemen; Peter Lang, Frankfurt a. M.; 1998.

Schütte, R. (1998): Grundsätze ordnungsmäßiger Referenzmodellierung – Konstruktion konfigurations- und anpassungsorientierter Modelle; Gabler, Wiesbaden; 1998.

Seel, C., and Vanderhaeghen, D. (2005): Meta-Model based Extensions of the EPC for Inter-Organisational Process Modelling; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005, pp. 117-136.

Seidlmeier, H., and Scherfler, G. (2007): Modellgetriebene Integration und Migration - vom Fachprozess zur ausführbaren Anwendung; HMD- Praxis der Wirtschaftsinformatik, 2007, I. 257; pp. 93-105.

Simon, C., Freiheit, J., and Olbrich, S. (2006): Using BPEL Processes defined by Event-driven Process Chains; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 121-136.

Störrle, H. (2006): A Comparison of (e)EPCs and UML 2 Activity Diagrams; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006, pp. 177-188.

Thomas, O., and Dollmann, T. (2006a): Fuzzy-EPK-Modelle: Attributierung und Regelintegration; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006a, pp. 49-68.

Thomas, O., and Fellmann, M. (2006b): Semantische Integration von Ontologien und Ereignisgesteuerten Prozessketten; in: M. Nüttgens, F.J. Rump and J. Mendling (Eds.): EPK 2006 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Wien, 2006b, pp. 7-24.

Thomas, O., Hüsselmann, C., and Adam, O. (2002): Fuzzy-Ereignisgesteuerte Prozessketten - Geschäftsprozessmodellierung unter Berücksichtigung unscharfer Daten; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2002 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Trier, 2002, pp. 7-16.

Thomas, O., Kaffai, B., and Loos, P. (2005): Referenzmodellbasiertes Event-Management mit Ereignisgesteuerten Prozessketten; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005, pp. 74-96.

Thomas, O., Seel, C., Seel, C., Kaffai, B., and Martin, G. (2004): EPK-Referenzmodelle für Verwaltungsverfahren; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2004 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, Luxemburg, 2004, pp. 39-54.

van der Aalst, W.M.P. (1999): Formalization and verification of event-driven process chains; Information & Software Technology, Vol. 41. 1999, I. 10; pp. 639-650.

van Dongen, B.F., and Jansen-Vullers, M.H. (2005): EPC Verification in the ARIS for MySAP reference model database; in: M. Nüttgens and F.J. Rump (Eds.): EPK 2005 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens Hamburg, 2005, pp. 24-40.

van Dongen, B.F., Jansen-Vullers, M.H., Verbeek, H.M.W., and van der Aalst, W.M.P. (2007): Verification of the SAP reference models using EPC reduction, state-space analysis, and invariants; Computers in Industry, Vol. 58. 2007, I. 6; pp. 578-601.

van Hee, K., Oanea, O., and Sidorova, N. (2005): Colored Petri nets to verify extended event-driven process chains; in: Lecture Notes in Computer Science, vol. 3760; Springer, Berlin et al.; 2005, pp. 183-201.

vom Brocke, J., Sonnenberg, C., and Simons, A. (2009): Wertorientierte Gestaltung von Informationssystemen: Konzeption und Anwendung einer Potenzialmodellierung am Beispiel Serviceorientierter Architekturen; Wirtschaftsinformatik, Vol. 51. 2009, I. 3; pp. 261-272.

Wehler, J. (2007): Boolean and free-choice semantics of Event-driven Process Chains; in: M. Nüttgens, F.J. Rump and A. Gadatsch (Eds.): EPK 2007 - Geschäftsprozessmanagement mit Ereignisgesteuerten Prozessketten, Proceedings des GI-Workshops und Arbeitskreistreffens, St. Augustin, 2007, pp. 77-96.

Winkelmann, A., and Rieke, T. (2008): Risikomanagement auf Basis von Ereignisgesteuerten Prozessketten; ERP Management, Vol. 4. 2008, I. 4; pp. 16-19.

The Publications of the Institute for Information Systems (IWi) at the German Research Center for Artificial Intelligence (DFKI) appear at irregular intervals:

**Issue 190:** Oliver Thomas, Thorsten Dollmann: Entscheidungsunterstützung auf Basis einer Fuzzy-Regel-basierten Prozessmodellierung: Eine fallbasierte Betrachtung anhand der Kapazitätsplanung, June 2008

**Issue 189:** Oliver Thomas, Katrina Leyking, Florian Dreifus, Michael Fellmann, Peter Loos: Serviceorientierte Architekturen: Gestaltung, Konfiguration und Ausführung von Geschäftsprozessen, January 2007

**Issue 188:** Christine Daun, Thomas Theling, Peter Loos: ERPeL - Blended Learning in der ERP-Lehre, December 2006

**Issue 187:** Oliver Thomas: Das Referenzmodellverständnis in der Wirtschaftsinformatik: Historie, Literaturanalyse und Begriffsexplikation, January 2006

**Issue 186:** Oliver Thomas, Bettina Kaffai, Peter Loos: Referenzgeschäftsprozesse des Event-Managements, November 2005

**Issue 185:** Thomas Matheis, Dirk Werth: Konzeption und Potenzial eines kollaborativen Data-Warehouse-Systems, June 2005

**Issue 184:** Oliver Thomas: Das Modellverständnis in der Wirtschaftsinformatik: Historie, Literaturanalyse und Begriffsexplikation, May 2005

**Issue 183:** August-Wilhelm Scheer, Dirk Werth: Geschäftsprozessmanagement und Geschäftsregeln, February 2005

**Issue 182**: Dominik Vanderhaeghen, Sven Zang, August-Wilhelm Scheer: Interorganisationales Geschäftsprozessmanagement durch Modelltransformation, February 2005

**Issue 181:** Anja Hofer, Otmar Adam, Sven Zang, August-Wilhlem Scheer: Architektur zur Prozessinnovation in Wertschöpfungsketten, February 2005.

**Issue 180:** Gunnar Martin, Guido Grohmann, August-Wilhelm Scheer: WINFOLine – Ein Ansatz zur strukturellen Implementierung und nachhaltigen Gestaltung von eLearning-Szenarien an Hochschulen, January 2005.

**Issue 179:** Oliver Thomas, Christian Seel, Christian Seel, Bettina Kaffai, Gunnar Martin: Referenzarchitektur für E-Government (RAFEG): Konstruktion von Verwaltungsverfahrensmodellen am Beispiel der Planfeststellung, December 2004.

**Issue 178:** Ralf Klein, Florian Kupsch, August-Wilhelm Scheer: Modellierung inter-organisationaler Prozesse mit Ereignisgesteuerten Prozessketten, November 2004.

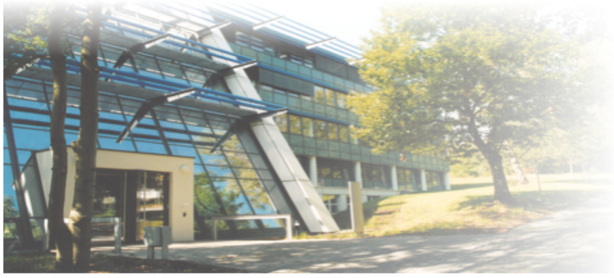
**Issue 177:** Oliver Thomas, August-Wilhelm Scheer: Referenzmodellbasiertes Customizing unter Berücksichtigung unscharfer Daten, October 2004.

**Issue 176:** August-Wilhelm Scheer (Hrsg): Proceedings – 5th International Conference – MITIP, September 4-6, 2003, Saarbrücken/Germany

**Issue 175:** Kristof Schneider, August-Wilhelm Scheer: Konzept zur systematischen und kundenorientierten Entwicklung von Dienstleistungen, April 2003.

**Issue 174:** Guido Grohmann, August-Wilhelm Scheer: Die Universität als Learning Service Provider, April 2003.

Earlier Issues can be downloaded at: http://www.uni-saarland.de/de/campus/fakultaeten/professuren/rechts-und-wirtschaftswissenschaft/betriebswirtschaftslehre/professuren-fr-13-betriebswirtschaftslehre/prof-dr-peter-loos/publikationen/iwi-hefte.html



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.

Stuhlsatzenhausweg 3
D-66123 Saarbrücken
Tel.: +49 (0) 681 / 85775 - 3106
Fax: +49 (0) 681 / 85775 - 3696
iwi@iwi.uni-sb.de
www.iwi.uni-sb.de
www.dfki.de