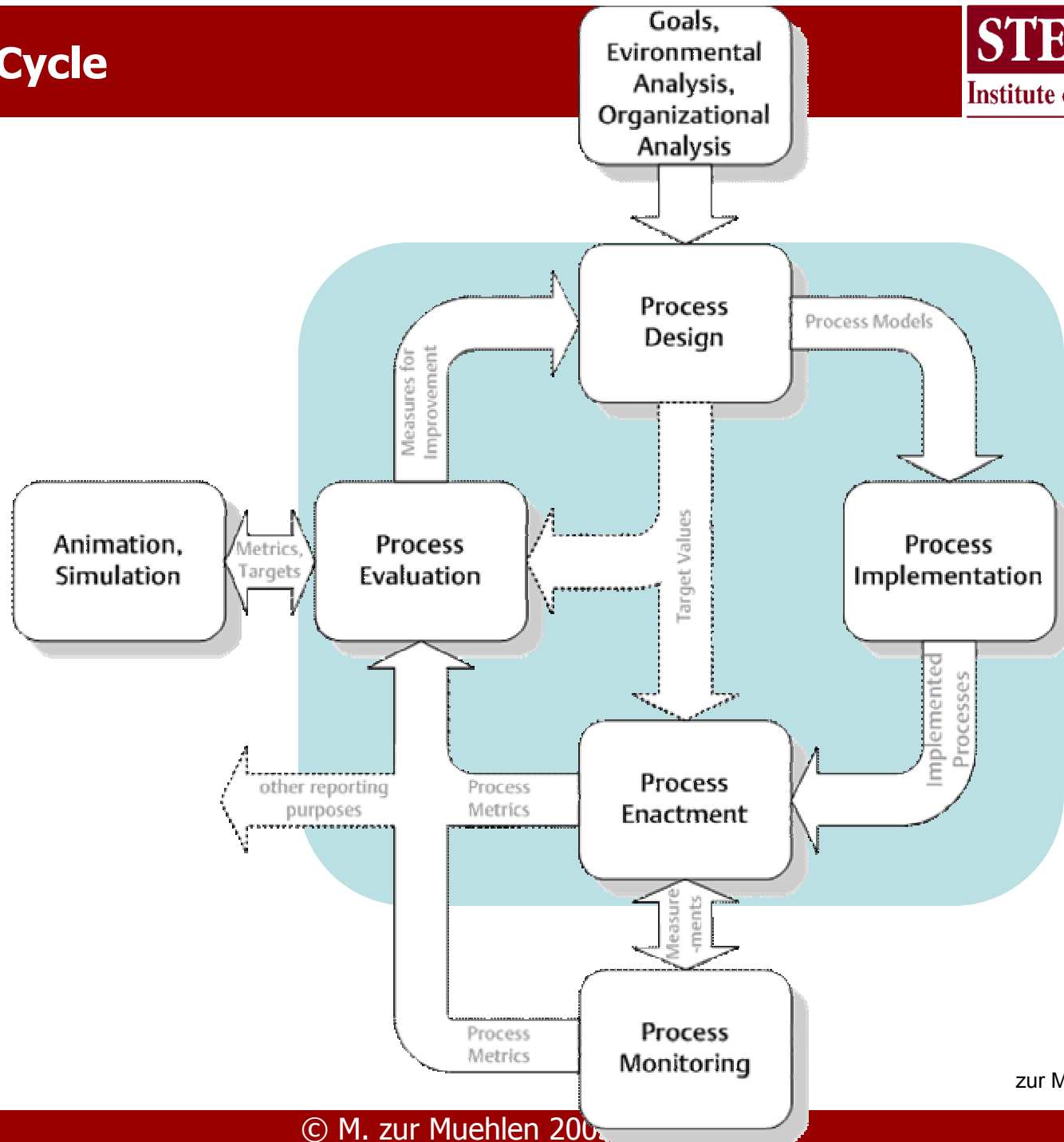


Interface 5 – Issues and Directions

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Process Life Cycle



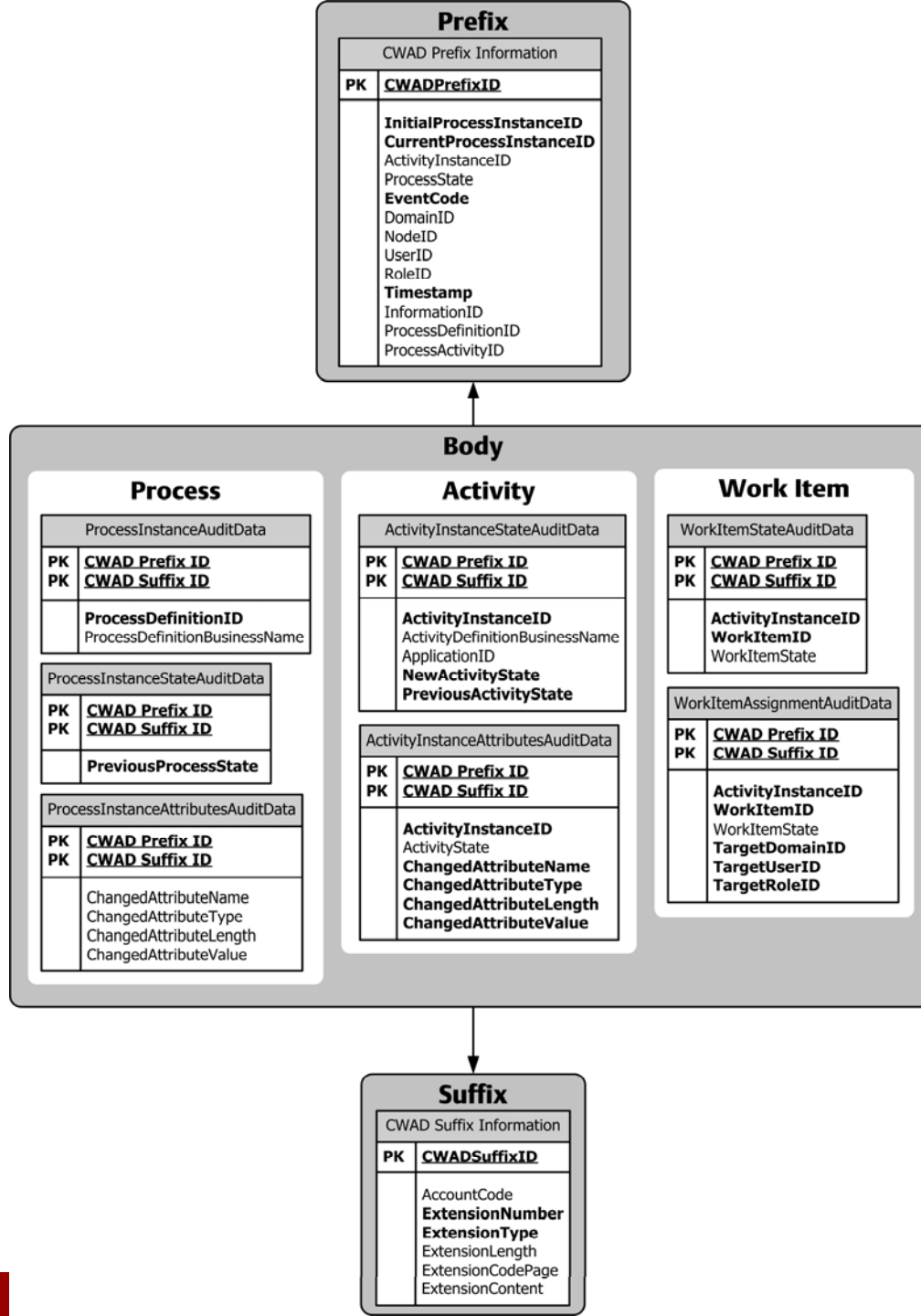
Attribute	Possible Values				
Focus	Technical Information		Business Information		
Presentation	Active		Passive		
Timeframe	Running Processes		Completed Processes		
Aggregation	Single Instance		Multiple Instances		
Data Scope	Process	Process + Business Objects		Enterprise	
Object	Event	Activity	Process	Resource	Business Object
Process Scope	Activity	Segment	Process	Process Chain	

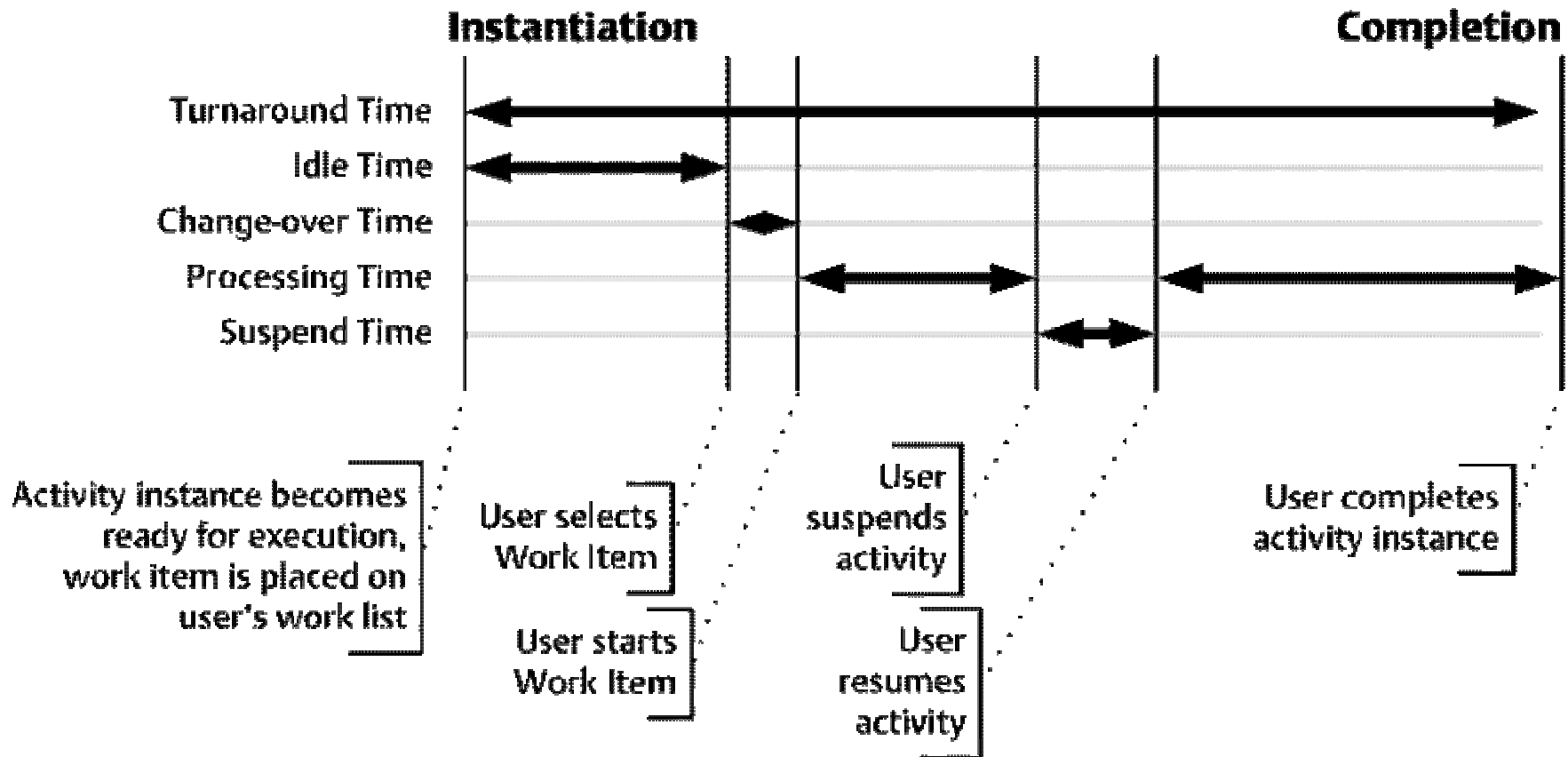
Presentation

Information

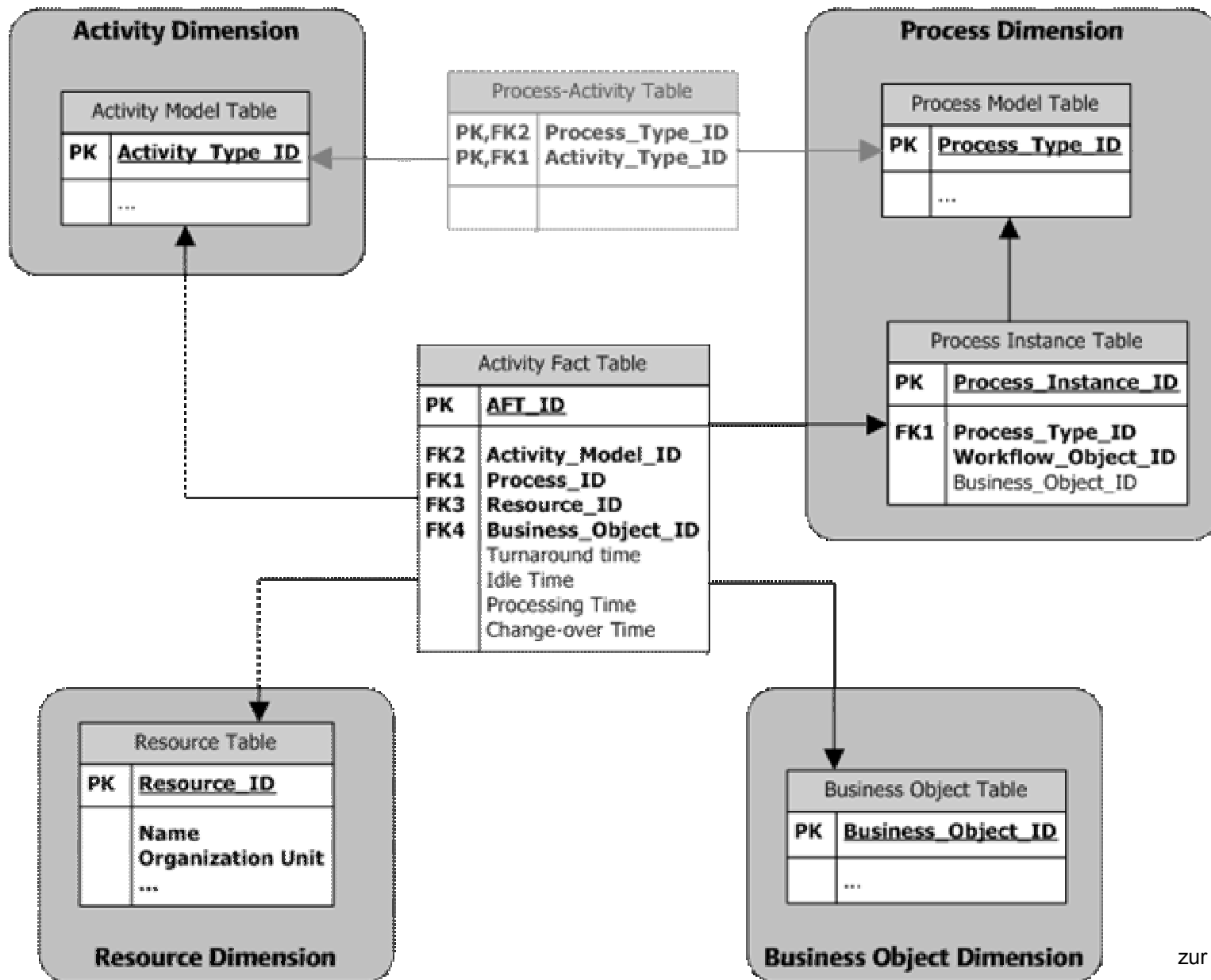
zur Muehlen (2003)

Interface 5 Data Model



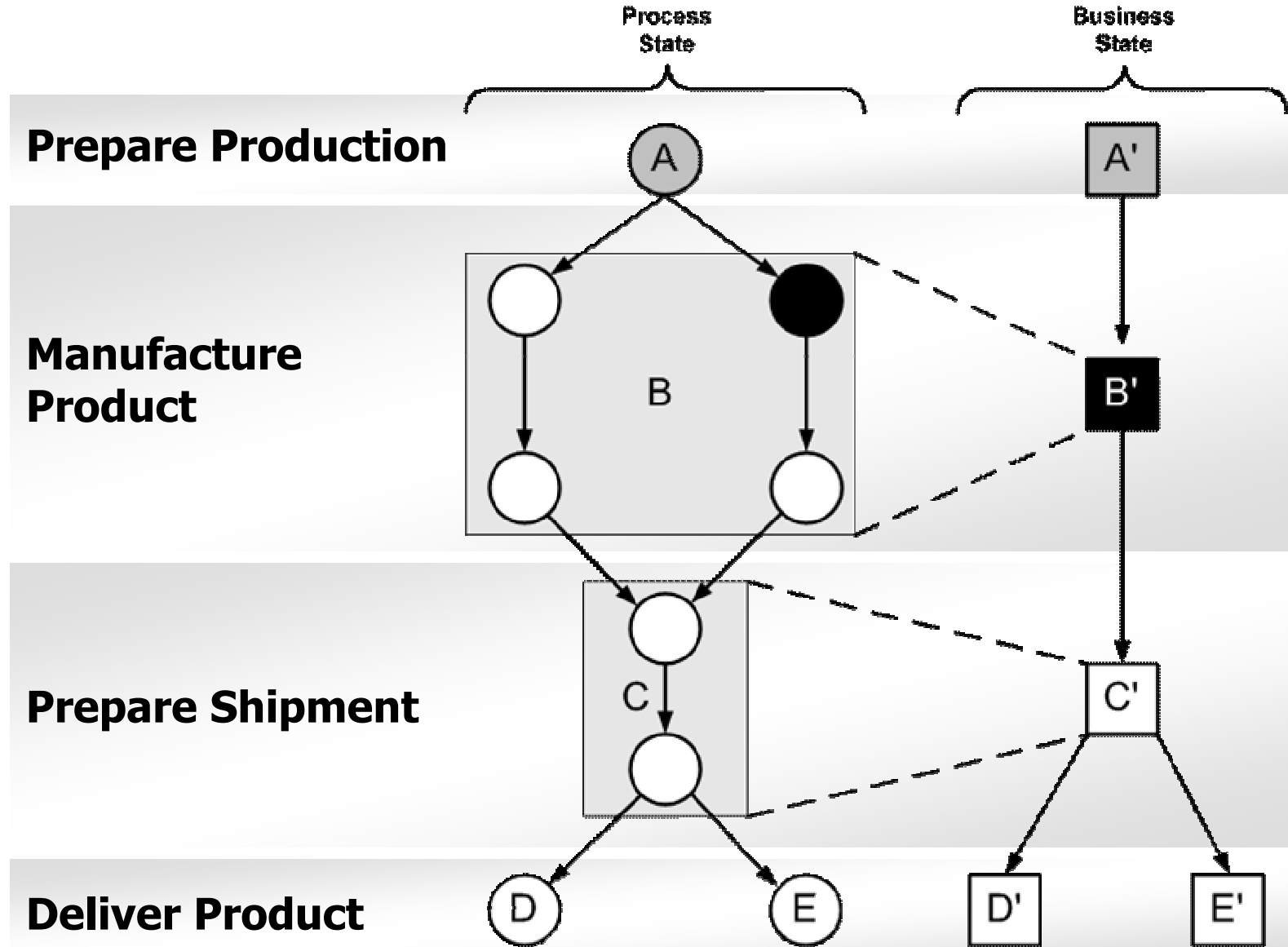


Data Mart for Temporal Analysis



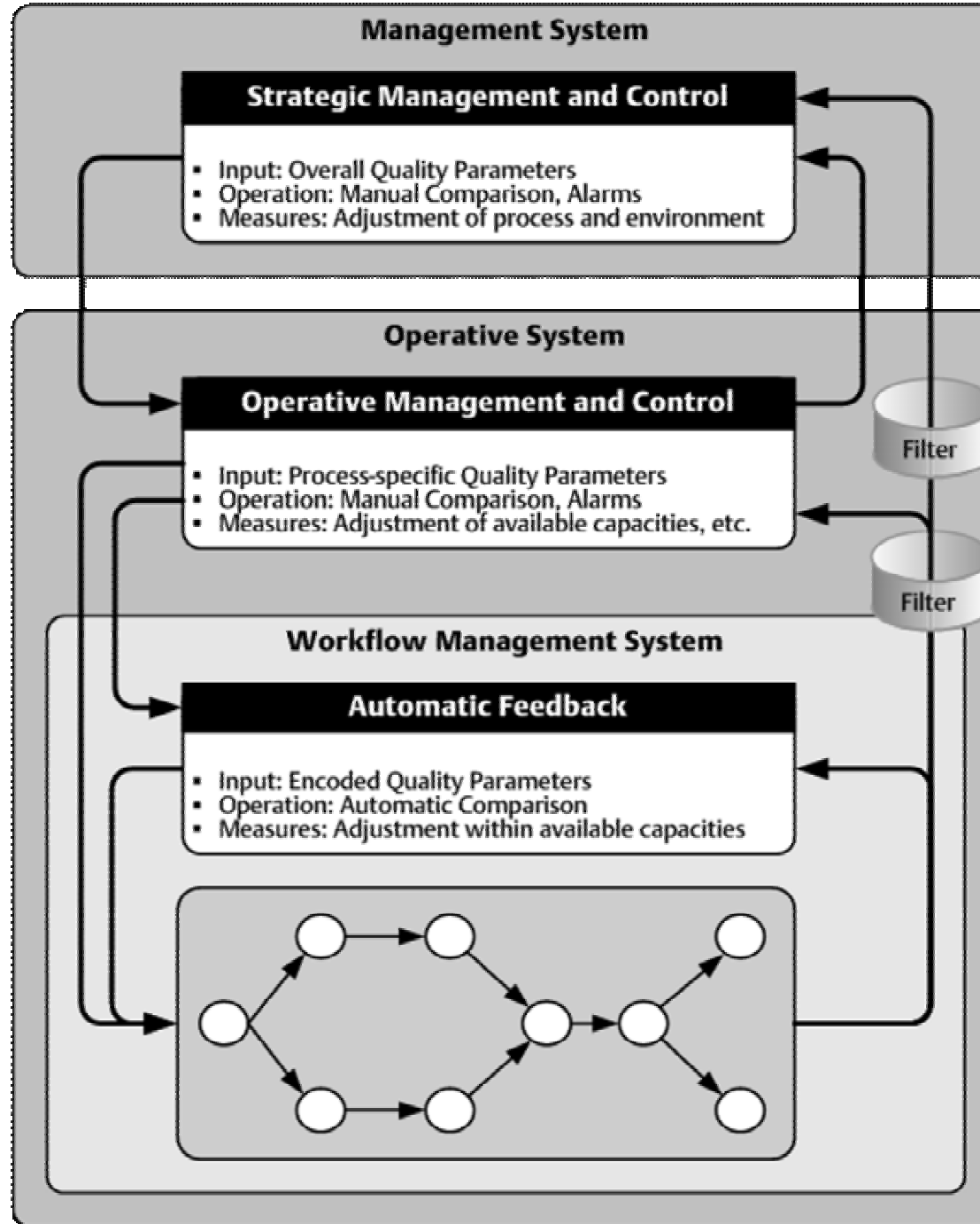
- Inside-out
 - Workflow **participants** use monitoring and controlling to extend their own scope on the processes they work on
 - Monitoring and controlling may be used to compensate the lack of awareness inherent in workflow implementations
- Outside-in
 - **Supervisors/management** use monitoring and controlling to better understand operational dynamics of the enterprise
 - **Trading Partners** use monitoring and controlling to optimize B2B collaboration (i. e. supply-chain forecasting)
 - **Customers** use monitoring to track the status of remote processes (order tracking etc.)
- Result: Different perspectives require role-based access to monitoring (and controlling) data

Example Monitoring: Different State for Different Observers



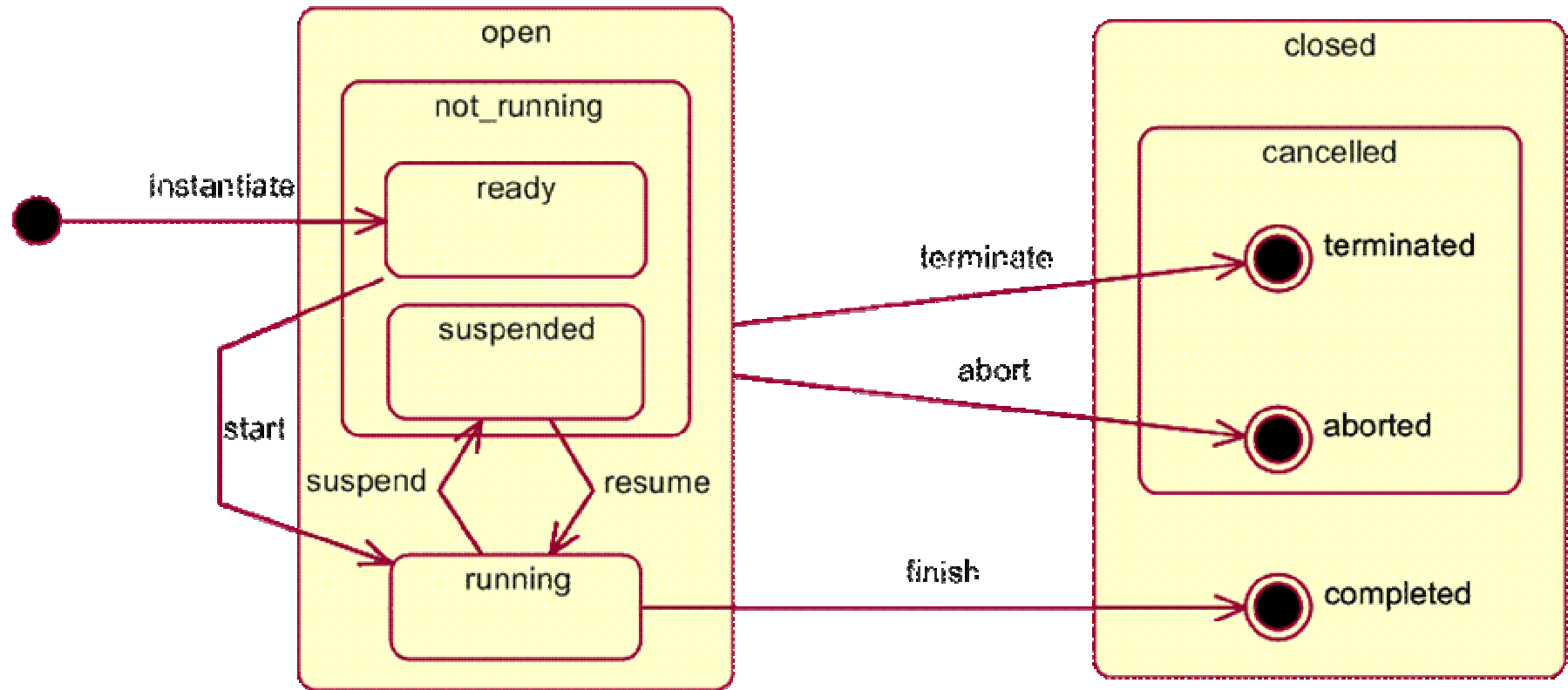
zur Muehlen (2003)

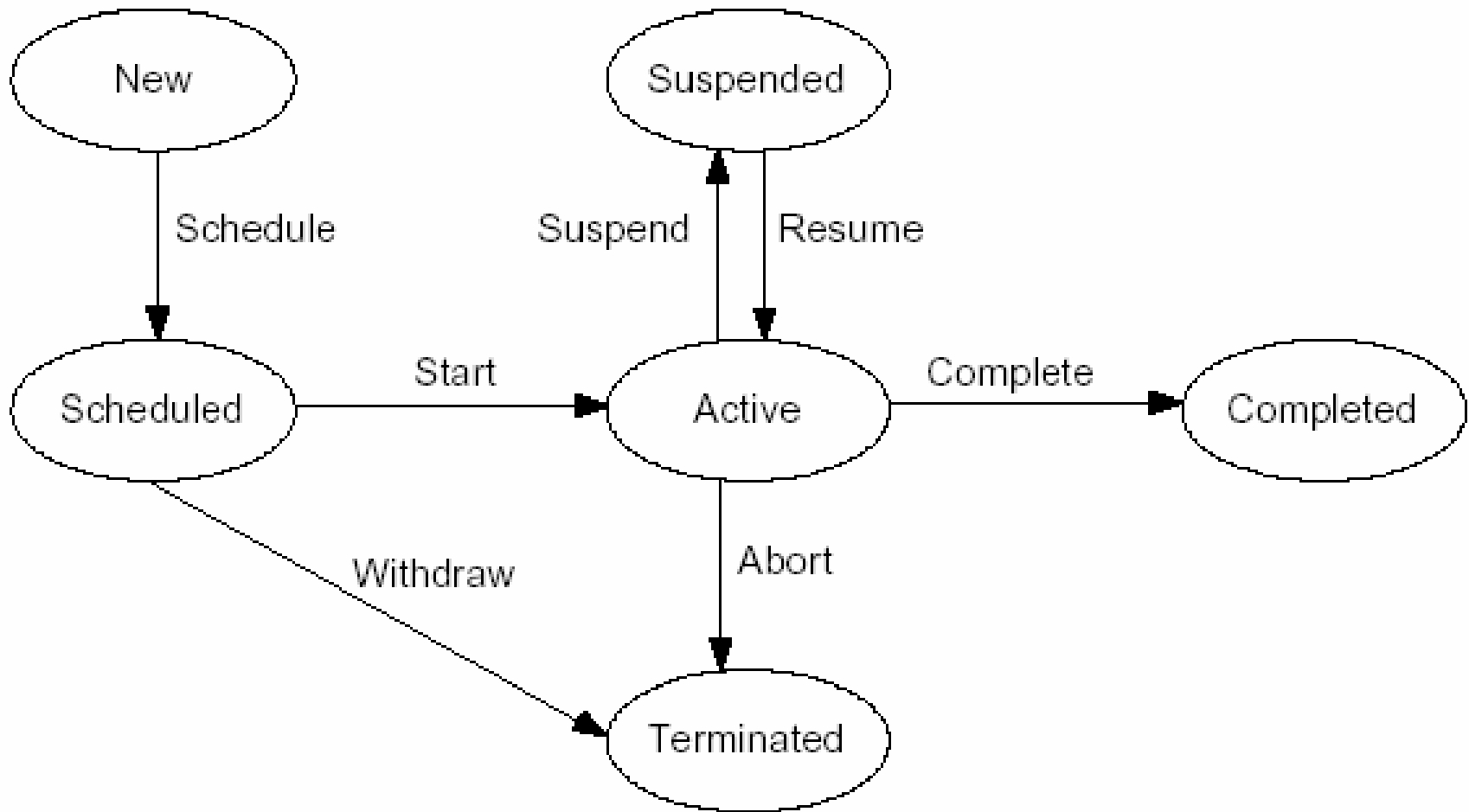
Process Controlling – A System Perspective



```
<!ELEMENT WorkFlow_log (source?, process+)>
<!ELEMENT source EMPTY>
<!ATTLIST source program (staffware | inconcert | pnet | IBM_MQ | other)
    #REQUIRED>
<!ELEMENT process (case*)>
<!ATTLIST processid ID #REQUIRED description CDATA „none">
<!ELEMENT case (log_line*)>
<!ATTLIST caseid ID #REQUIRED description CDATA "none">
<!ELEMENT log_line (task_name, task_instance?, event?, date?, time?)>
<!ELEMENT task_name (#PCDATA)>
<!ELEMENT task_instance (#PCDATA)>
<!ELEMENT event EMPTY>
<!ATTLIST eventkind (normal | schedule | start | withdraw | suspend |
resume | abort | complete) #REQUIRED>
<!ELEMENT date (#PCDATA)>
<!ELEMENT time (#PCDATA)>
```

W.M.P. van der Aalst, B.F.van Dongen, J. Herbst, L. Maruster, G. Schimm, and A.J.M.M. Weijters
[Workflow Mining: A Survey of Issues and Approaches](#) (internal report). TU Eindhoven 2003





W.M.P. van der Aalst, B.F. van Dongen, J. Herbst, L. Maruster, G. Schimm, and A.J.M.M. Weijters
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- **Computer-based Process Performance Measurement (COPPA)**
 - Fribourg University, Union Bank of Switzerland, AT Kearney (1997-2000)
 - Lead researcher: Peter Kueng
 - Focus: Architecture of a Process Performance Measurement System (PPMS)
 - Prototype built on top of SAP
- **Process Warehouse**
 - University of Vienna
 - Lead researcher: Beate List
 - Focus: Design of data warehouse structures for process analysis
- **Controlling of cross-enterprise business processes (CONGO)**
 - University of Muenster (1995-1997)
 - Lead researchers: Michael Rosemann, Michael zur Muehlen
 - Focus: Analysis of workflow audit trail data for controlling purposes
 - Prototypes PISA I-III built on top of MS Access, SQL Server
 - Predecessor of the current efforts

- Workflow Dictionary and Analyzer
 - Technical University of Berlin
 - Lead Researchers: Gérard Derszteler, Helmut Krczmar
 - Focus: Development of a repository to transform business process models to workflow, implementation of sample evaluations
 - Prototype built on top of Bonapart (BPM tool) and WorkParty (WfMS)
- Controlling of document-centric processes
 - University of Erlangen-Nuremberg, INA Wälzlager AG
 - Lead Researchers: Heinz Raufer, Stephan Morschheuser
 - Focus: Analysis of a specific production workflow in an industrial setting
 - Prototype built on top of COI BusinessFlow (INA in-house WfMS)
- Workflow-based Activity-based Costing
 - University of Hohenheim
 - Lead Researcher: Dietmar Weiss
 - Focus: Prototypical implementation of a workflow-based ABC tool for a specific process of a public utility enterprise
 - Prototype built on top of Staffware

- Workflow and Balanced Scorecard
 - University of Sidney
 - Lead researcher: Carolyn McGregor
 - Focus: Designing a decision support system using workflow data and automatic modification of the workflow model based on the results
- Re-engineering of workflows from audit trails
 - IBM Corporation
 - Lead researcher: Frank Leymann, Rakesh Agrawal
 - Focus: Data mining of workflow audit trails and reconstructions of the process models contained therein
 - Method submitted for patent
- **Process-oriented Team Controlling System (ProTeCos)**
 - University of Paderborn
 - Lead researcher: Philipp Haberstock, Ludwig Nastansky
 - Focus: Enhance process-oriented controlling through a suitable groupware infrastructure
 - Prototype ProTeCos built on top of Lotus Notes

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- Derzteler, G.: *Prozeßmanagement auf Basis von Workflow-Systemen: Ein integrierter Ansatz zur Modellierung, Steuerung und Überwachung von Geschäftsprozessen*. Lohmar, Köln 2000.
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- McGregor, C, 2002, "IW-MONS: A Methodology for the Design of Intelligent Workflow Monitoring Systems", PhD Dissertation, University of Technology, Sydney
- zur Muehlen, M.; Rosemann, M.: Workflow-based Process Monitoring and Controlling - Technical and Organizational Issues. In: *Proceedings of the 33rd Hawaii International Conference on System Sciences (HICSS 2000)*. Ed.: Ralph Sprague, Jr., Wailea, HI, 2000.
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- Agrawal, R.; Gunopulos, D.; Leymann, F.: Mining Process Models from Workflow Logs. In: Advances in Database Technology. Proceedings of the 6th International Conference on Extending Database Technology. Eds.: Hans-Jörg Schek, et al., Valencia, 1998, pp. 469-483.
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In B. Kröse, M. de Rijke, G. Schreiber, and M. van Someren, editors, Proceedings of the 13th Belgium-Netherlands Conference on Artificial Intelligence (BNAIC 2001), pages 283-290, 2001.
- W.M.P. van der Aalst and B.F. van Dongen.
Discovering Workflow Performance Models from Timed Logs.
In Y. Han, S. Tai, and D. Wikarski, editors, International Conference on Engineering and Deployment of Cooperative Information Systems (EDCIS 2002), volume 2480 of Lecture Notes in Computer Science, pages 45-63. Springer-Verlag, Berlin, 2002.
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