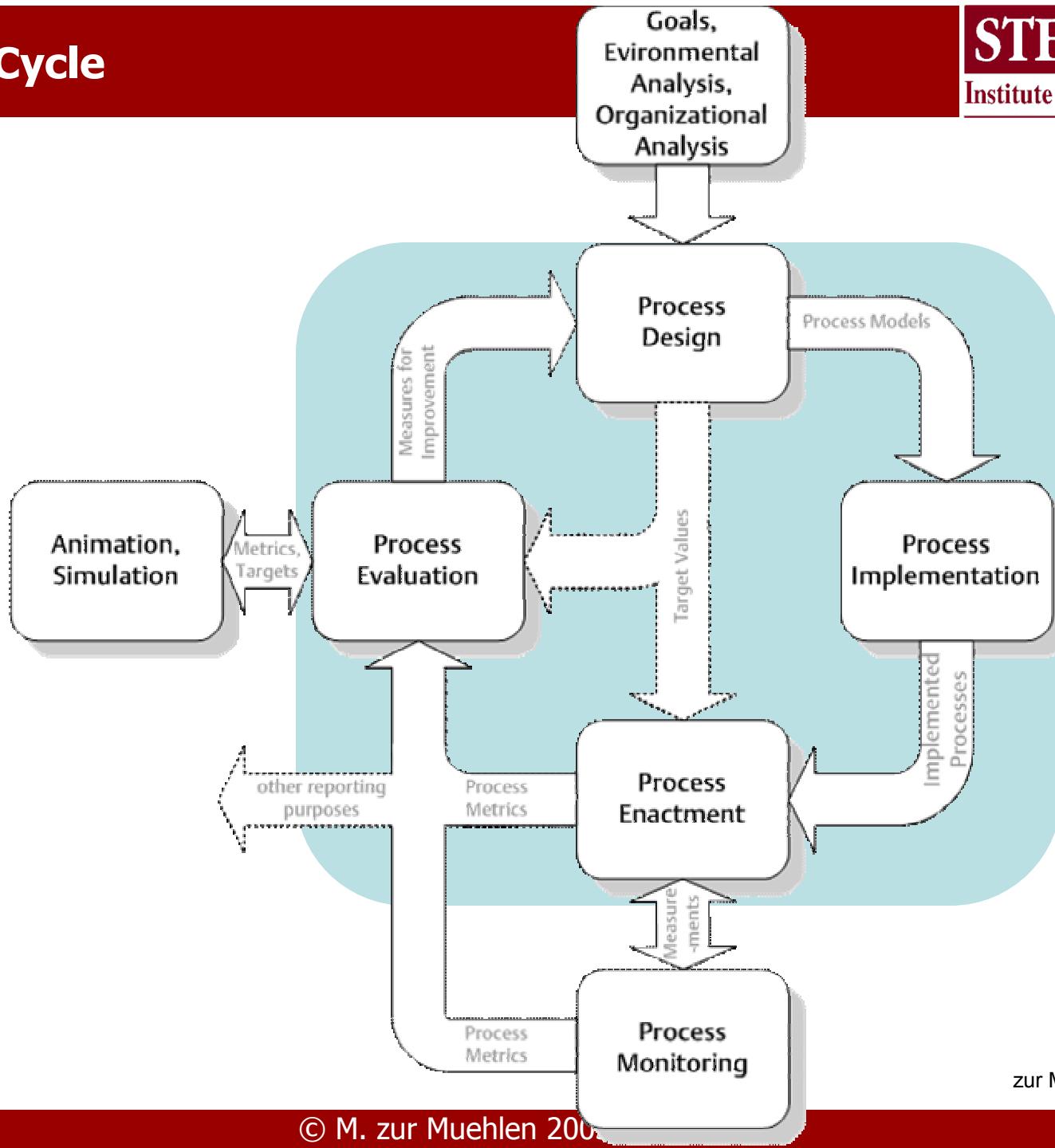


# **Interface 5 – Issues and Directions**

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Stevens Institute of Technology  
Hoboken, NJ



zur Muehlen (2003)

# Audit Trail Analysis

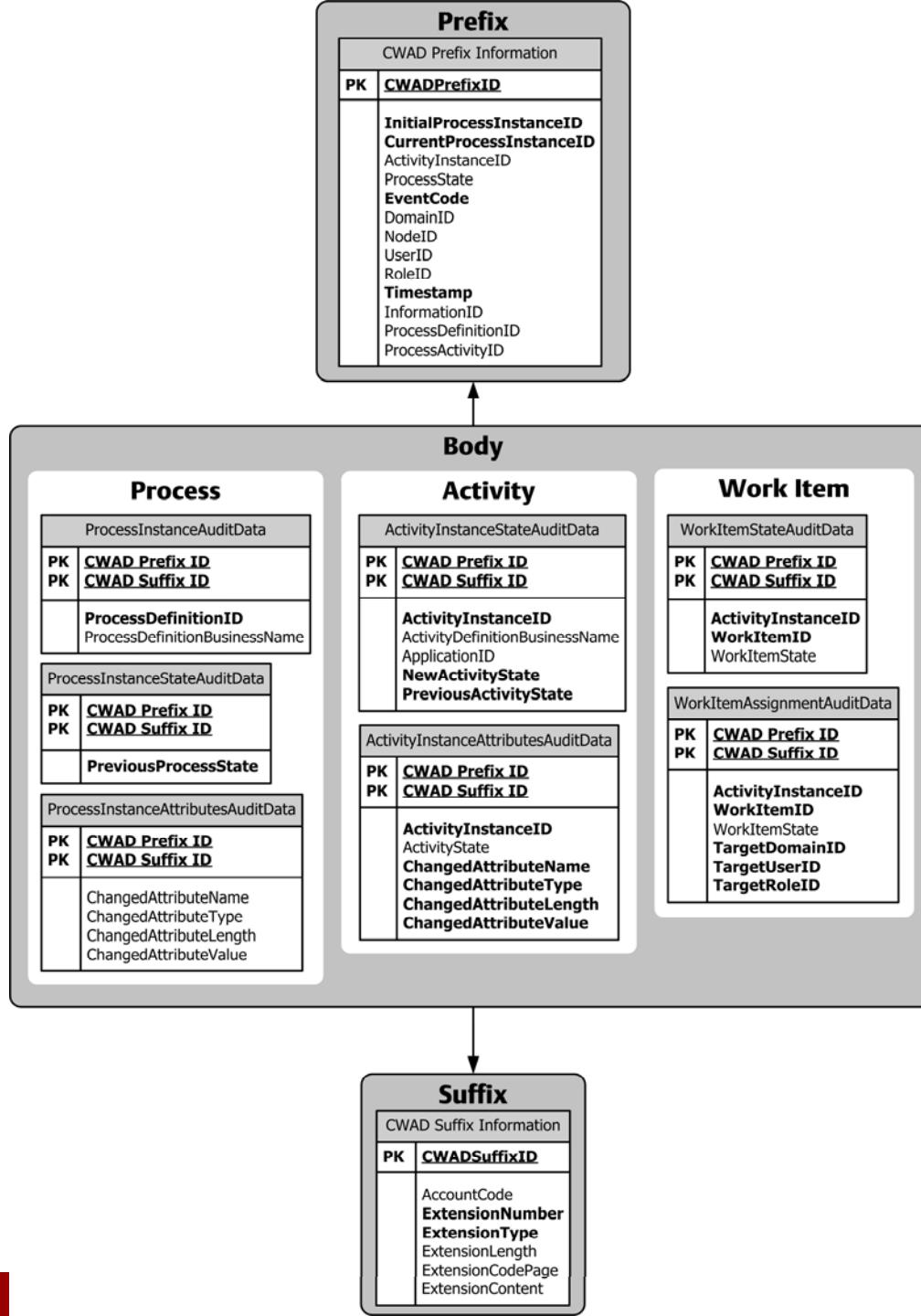
Attribute	Possible Values				
<b>Focus</b>	Technical Information	Business Information			
<b>Presentation</b>	Active	Passive			
<b>Timeframe</b>	Running Processes	Completed Processes			
<b>Aggregation</b>	Single Instance	Multiple Instances			
<b>Data Scope</b>	Process	Process + Business Objects	Enterprise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

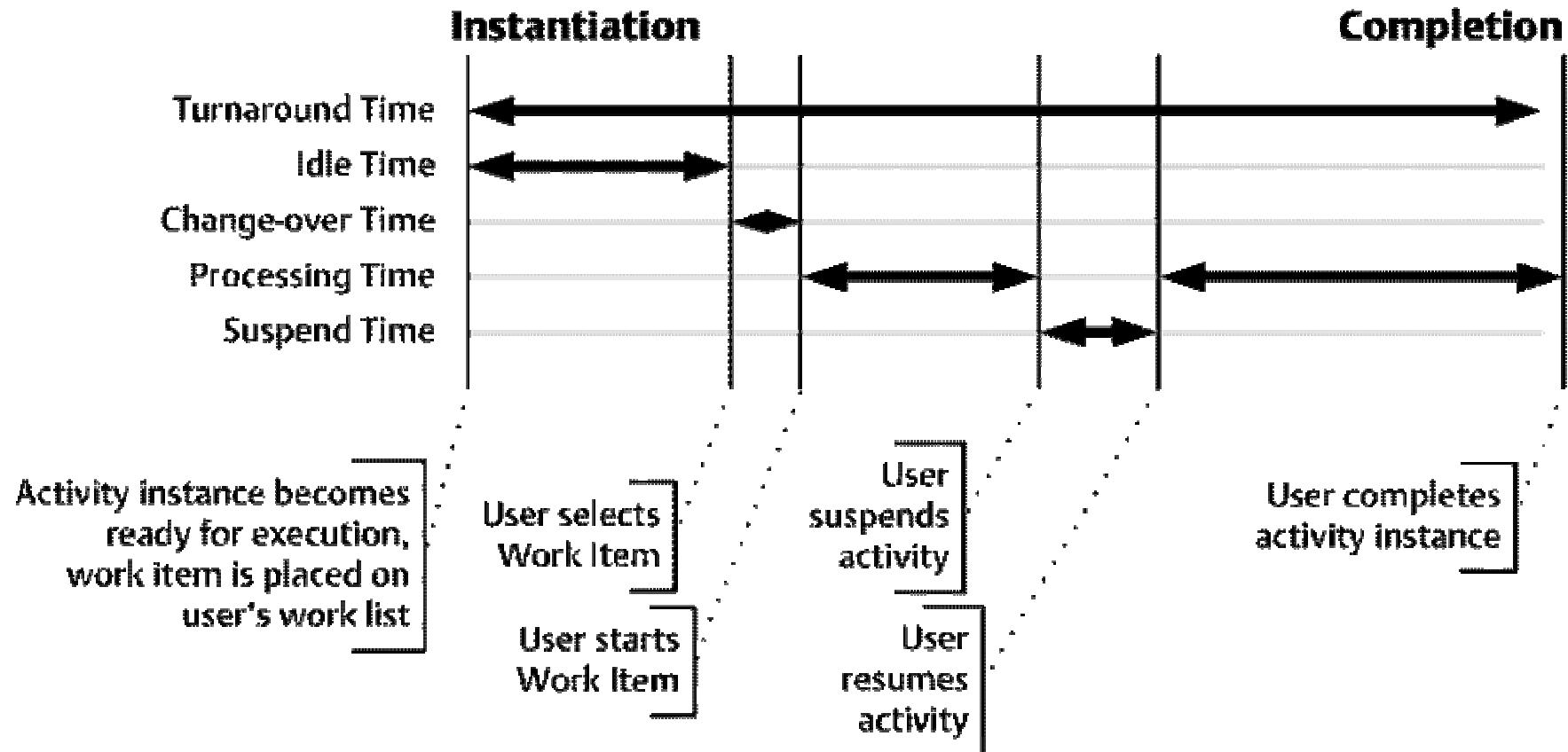
Presentation

Information

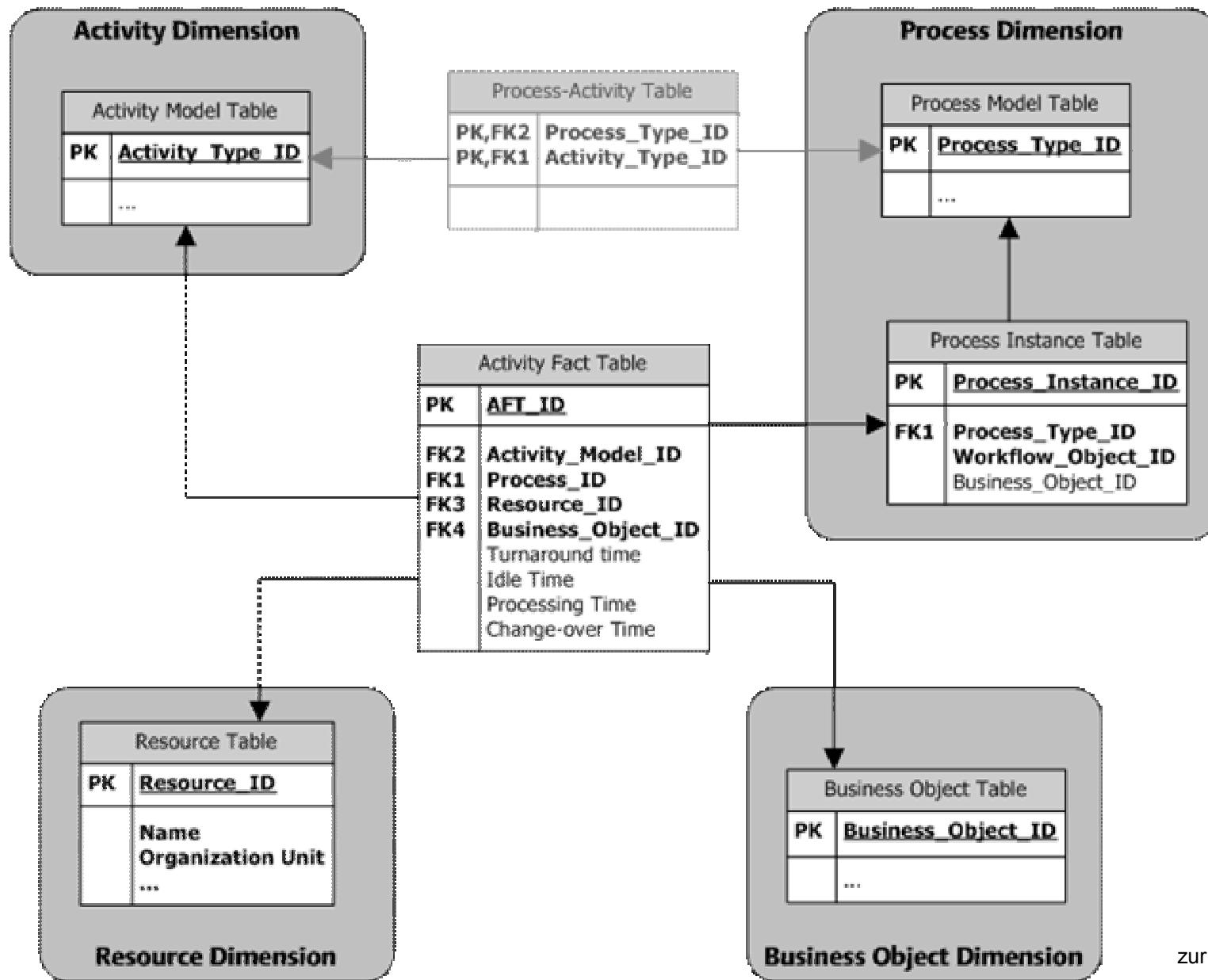
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# Interface 5 Data Model



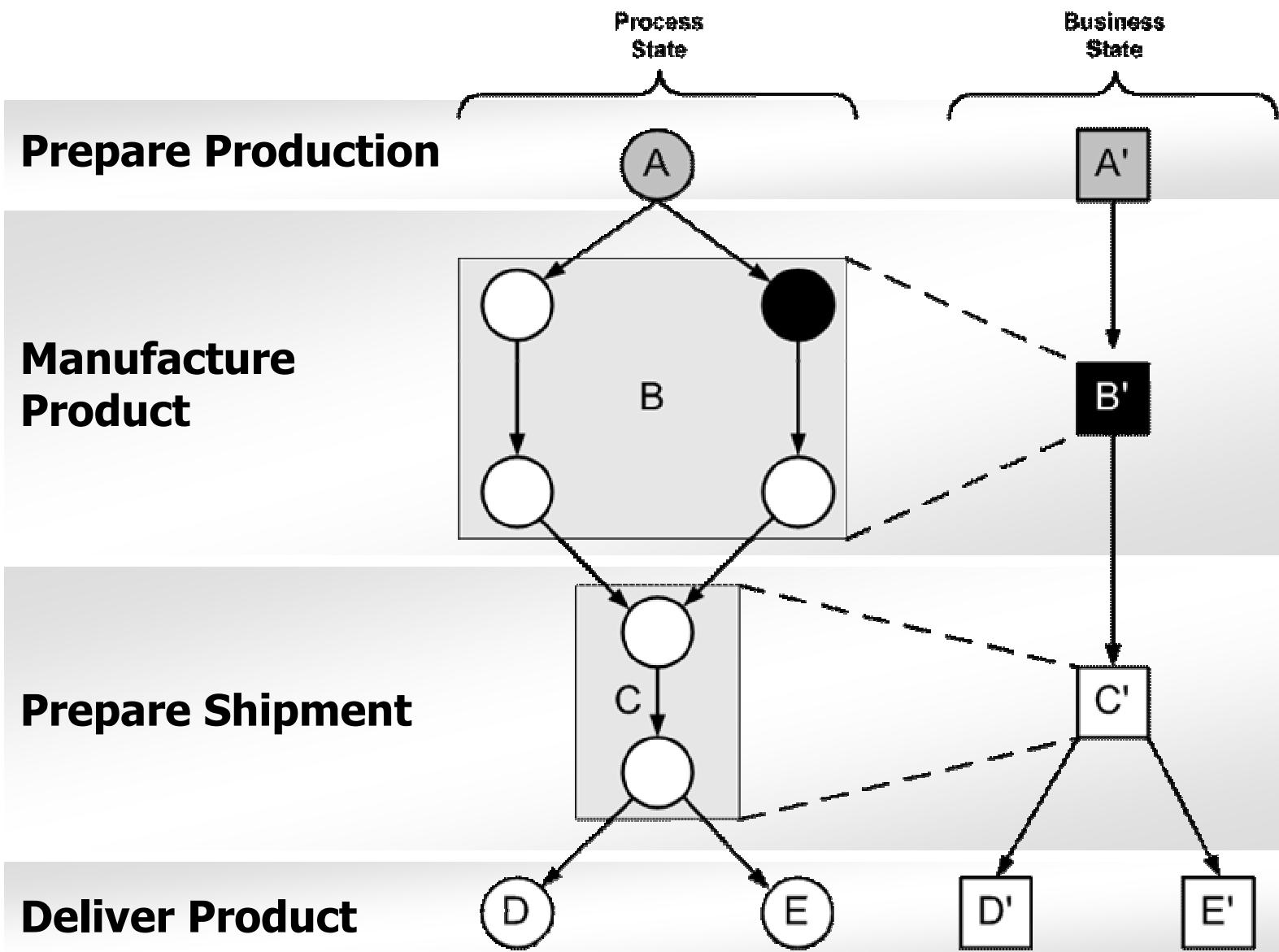


# Data Mart for Temporal Analysis



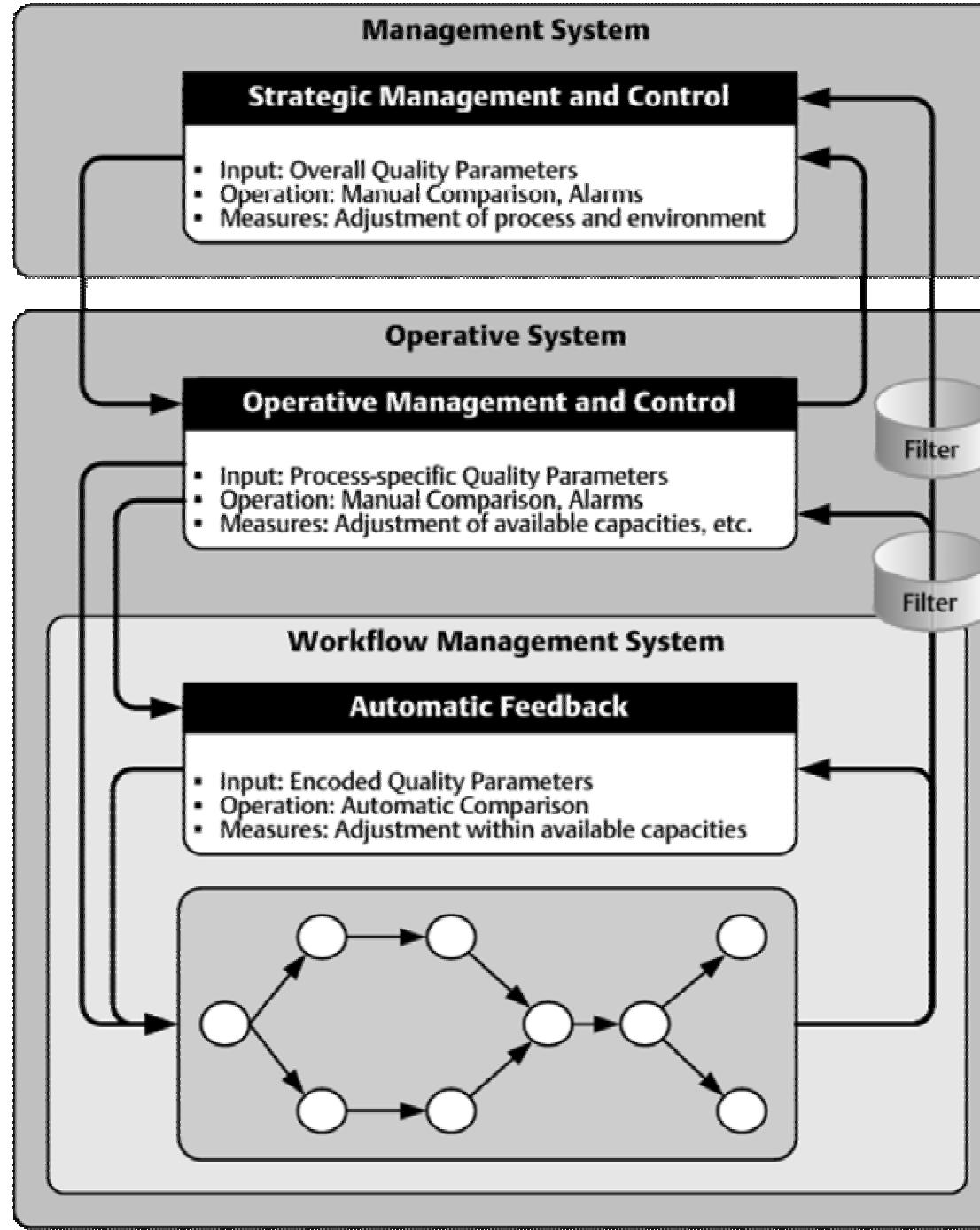
- Inside-out
  - Workflow **participants** use monitoring and controlling to extend their own scope on the processes they work on
  - Monitoring and controlling may be used to compensate the lack of awareness inherent in workflow implementations
- Outside-in
  - **Supervisors/management** use monitoring 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



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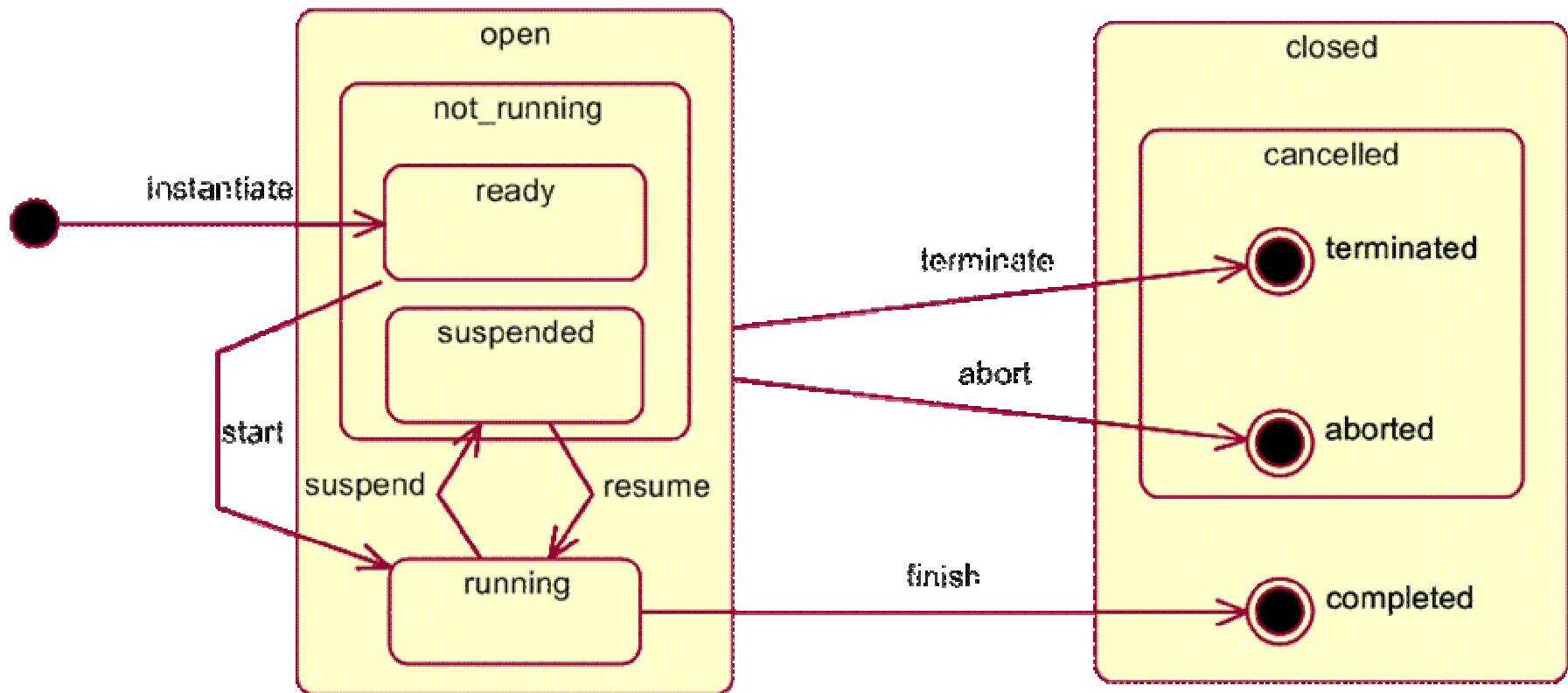
# Process Controlling –A System Perspective



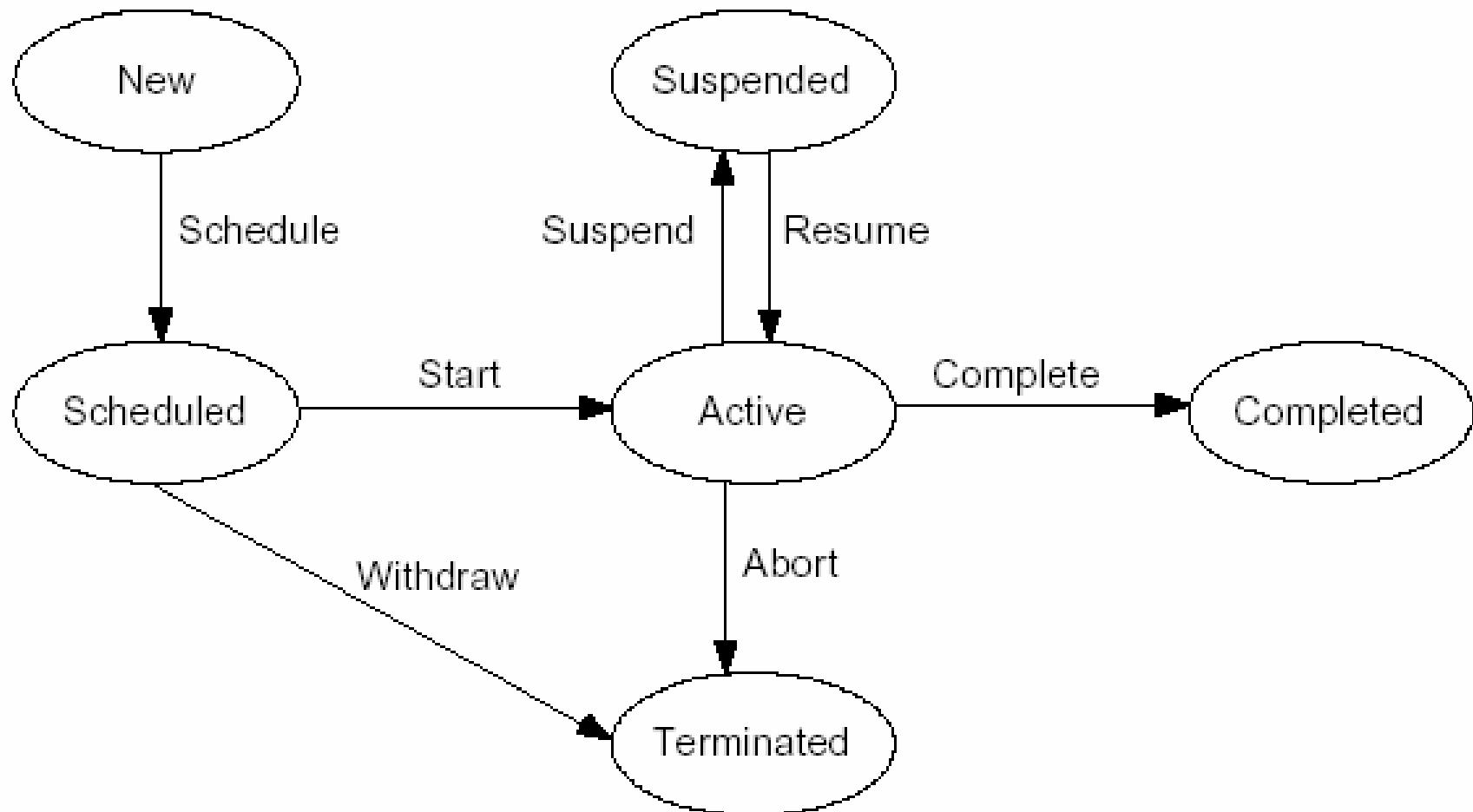
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```
<!ELEMENT WorkFlow_log (source?, process+)>
<!ELEMENT source EMPTY>
<!ATTLIST source program (staffware | inconcert | pnet | IBM_MQ | other)
  #REQUIRED>
<!ELEMENT process (case*)>
<!ATTLIST processid ID #REQUIRED description CDATA „none”>
<!ELEMENT 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



# Workflow State Model



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

- **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

- Casati, Fabio; Shan, Ming-Chien: Semantic Analysis of Business Process Executions. *Extending Data Base Technology* 2002: pp. 287-296
- Derzteler, G.: Prozeßmanagement auf Basis von Workflow-Systemen: Ein integrierter Ansatz zur Modellierung, Steuerung und Überwachung von Geschäftsprozessen. Lohmar, Köln 2000.
- Kueng, P.: Process Performance Measurement System: a tool to support process-based organizations. *Total Quality Management*, 11 (2000) 1, pp. 67-85.
- List, B.; Schiefer, J.; Tjoa, A. M.; Quirchmayr, G.: The Process Warehouse - A Data Warehouse Approach for Business Process Management. In: *Proceedings of the International Conference on Management of Information and Communication Technology (MiCT 1999)*. Copenhagen, Denmark, 1999.
- McGregor, C, 2002, "IW-MONS: A Methodology for the Design of Intelligent Workflow Monitoring Systems", PhD Dissertation, University of Technology, Sydney
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Workflow Mining: A Survey of Issues and Approaches (internal report). Technical University of Eindhoven, NL.