Ph.D. Research Presentation
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University of Stuttgart - Germany

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SANDWICH PROGRAM SUPPORTED BY:
Structure of the Presentation

- Initial Remarks
- Master Research
- Ph.D. Research
From where I come from

National Park of Aparados (Cambará do Sul)

Caracol Cascade (Canela)

Taim Bathed

Torres
Where I am carrying my Ph.D.

The Universidade Federal do Rio Grande do Sul

- **Year of Foundation**
  - 1895

- **Location**
  - Porto Alegre - RGS

- **Computer Science Course**
  - Since of 1960
  - Levels of Study
    - Graduation
    - Master (since of 1972)
    - Ph.D. (since of 1972)

Source: http://www.inf.ufrgs.br/claroline
Structure of the Presentation

- Initial Remarks
- Master Research
- Ph.D. Research
APPLYING KNOWLEDGE ABOUT ORGANIZATIONAL STRUCTURE TO WORKFLOW DESIGN PROCESS

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Prof. Dr. Rer. Nat. Cirano Iochpe (Advisor – Brazil)
Date of Conclusion: 08.2002

MASTER SUPPORTED BY:
Master Research

- Workflow Concepts
- Problem Attacked
- Research Goal
- Research Results
- **Workflow (Wf)**
  - The automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules

- **Workflow Management System (WfMS)**
  - Manages the execution of workflow processes based on their definition
- **Business Process (BP)**
  - Partial order of activities structured in some way that collectively fulfill a business objective of an organization [FIS2001]
  - Examples
    - Environmental Licensing
    - Software Development
    - Vehicles Assembly
**Process** (conceptual workflow level)

- Formalized view of the BP. Ex.: Petri Net [AAL 2002]

**Process Instance**

- Formalized view of the BP PN. Ex.: Petri Net [AAL 2002]
- **Process Definition** *(workflow logical level)*
  - The representation of a business process in a form which supports automated manipulation, such as modeling, or enactment by a WfMS

- **Subprocess**
  - A process connected to another process and coordinated by such process
Process Elements

- **Activity**
  - A description of a piece of work that forms one logical step within a process

- **Types of Activities**
  - Automatic Activity
    - supports computer automation by an can be controlled by WfMS
  - Manual activity
    - does not support computer automation by an can be controlled by WfMS
Examples of Activities

- Technical analysis
- Manual Activity
- Automatic Activity

Activity

Disagree with document

Agree with the document

SOLDOC: Awaits signature of the boss

Division: Registers signature of the boss

End (Sends document for licensing)
Problem Attacked

- Minimization of the complexity in the workflow project, mainly during design of Business Process as Workflow Process
Research Goal

- To identify relationships among structural aspects of the organization and specific patterns of workflow (sub)processes
Research Results

- Structural aspects either determine or have influence upon the behavior of specific pieces of the Organization (BGO) considered in the Study Case

- A set of workflow patterns where inferred. Each pattern is based on the relationship among one or more structural aspects of the BGO and its workflow sub-processes
Research Results: Example of Pattern

Workflow Process: Oracle Builder

Approval Pattern for an Organizational Unit with Centralized “decision-making structure”
Publications


Structure of the Presentation

- Initial Remarks
- Master Research
- Ph.D. Research
APLICATION OF BUSINESS RULES IN THE DEVELOPMENT OF PATTERNS FOR WORKFLOW DESIGN

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Date of Start: 08.2002

Ph.D. SUPPORTED BY:
Ph.D. Research

- Stages of the Ph.D.
- Topics that are being explored
- Research Goal
- Research Results
- Next Steps
Stages of my Ph.D.

- Subjects
  - 08.2002
  - 01.2004
  - 02.2004
  - 07.2005
  - 07.2006
- Qualification Exam
  - 01.2004
- Sandwich Program
  - 02.2004
- Proposal Of Ph.D. Dissertation
  - 07.2005
- Ph.D. Dissertation Defense
  - 07.2006

Concluded
Not Concluded
Research Goal

- To investigate techniques for the identification, storing, query and use of workflow patterns, in order to minimize the workflow project complexity.
Topics that are being explored

- Identification of Workflow Patterns
  - Study of relationships between the way organizations are structured and their BP way of execution
  - Study of the ways how these relations can be represented in a “Pattern Catalog”

- Development of a Wizard for WPs Design
  - Integration of the Pattern catalog in the semi-automatic design of workflow
    - Considered Parameters
      - Structural Aspects of the Organization
      - Structure of the Business Process to be modeled as a Workflow Process
An extension of the *Transactional Model of Workflow Processes* that makes possible to model BPs relation with the structural aspects of the organization.
BUSINESS PROCESS PACKAGE

Each BP transforms an item from an initial state into a final state. Transformation of an item may be decomposed in smaller transformations, where each of them corresponds to a change in the item state.
CATALOGUE PACKAGE
Describes the main classes a catalogue manager needs to select the best design pattern from a catalogue of Business sub-processes patterns, as basis to model a certain BSP.
VREATION OF A BSP FROM THE REUSE OF APPROVAL PATTERNS

Uses Cases Diagrams for the Creation of BSP Based On Approval Patterns Reuse

As input
• Kind of sub-process
• Value of the decision-making structure
• The kind of work item

Approval Pattern for the Organizational Unit with Centralized "decision-making structure"

As input
• the pattern selected
• the organizational unit
• the kind of work item

As output
Next Steps

- To identify more workflow sub-process patterns
- To investigate semantic integration techniques (e.g. ontologies) to (semi-)automate the process of querying the pattern catalog in order to find the workflow's sub-schema which best matches the structural aspect of a specific organization for a specific part of its business process.
Publications

Referências


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Referencias


Thank you!

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