



A Software Process for an Integrated Electronic Portal System

Volker Gruhn

Department of Computer Science
University of Dortmund, Germany





Hypothesis

Software processes for e-Business / e-Commerce applications differ from traditional software processes (for information systems)



Experiment: A Portal for Insurance Agents

- combines and integrates applications needed by agents
- developed by 12 graduate students (one year duration, 4.5 person years effort)

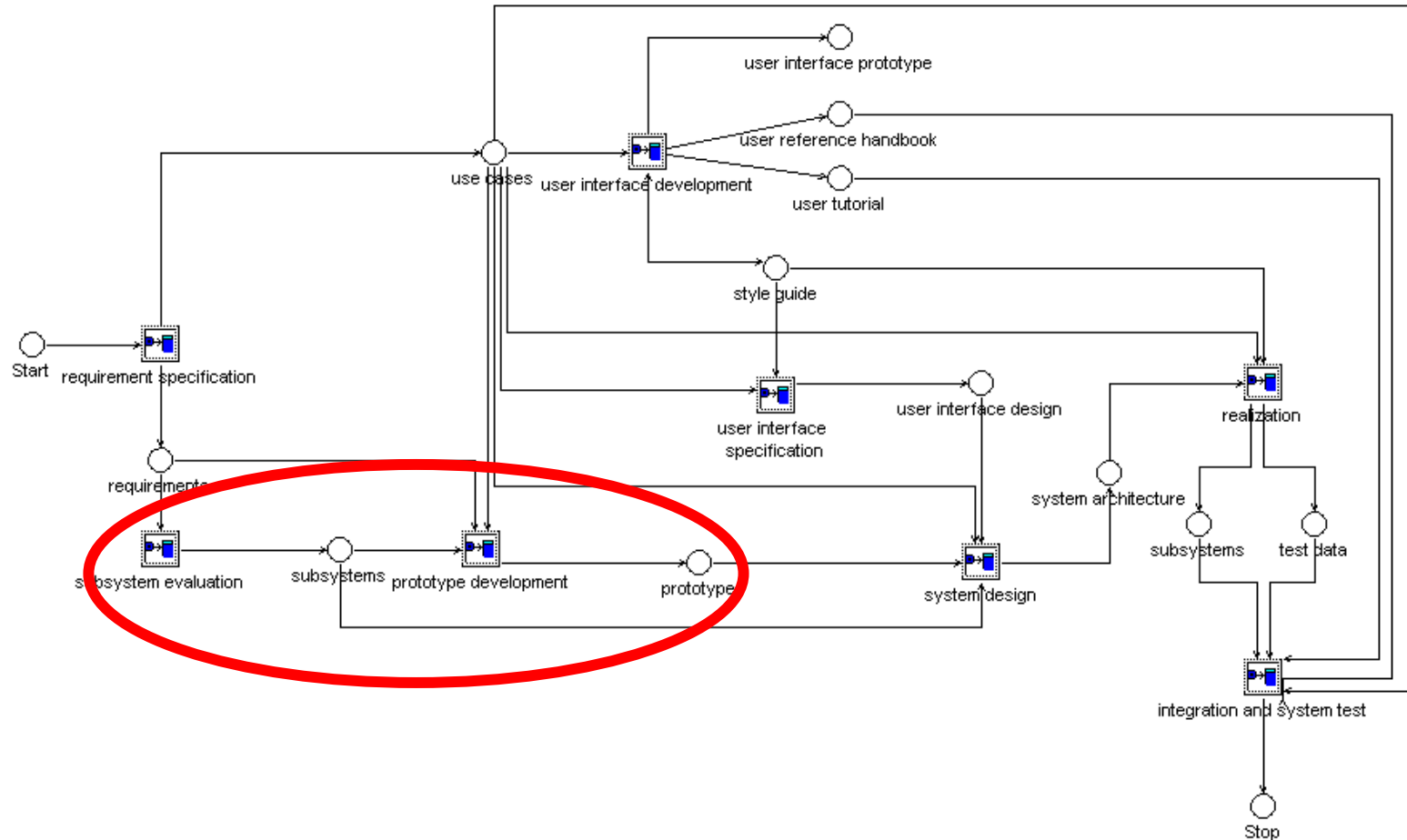


Software Process

- Requirement Specification
- Graphical Design
- Subsystem Identification
- Cut-Through Prototypes
- Object-Oriented Design / Integration Design
- GUI Design
- Implementation
- System Integration and Test

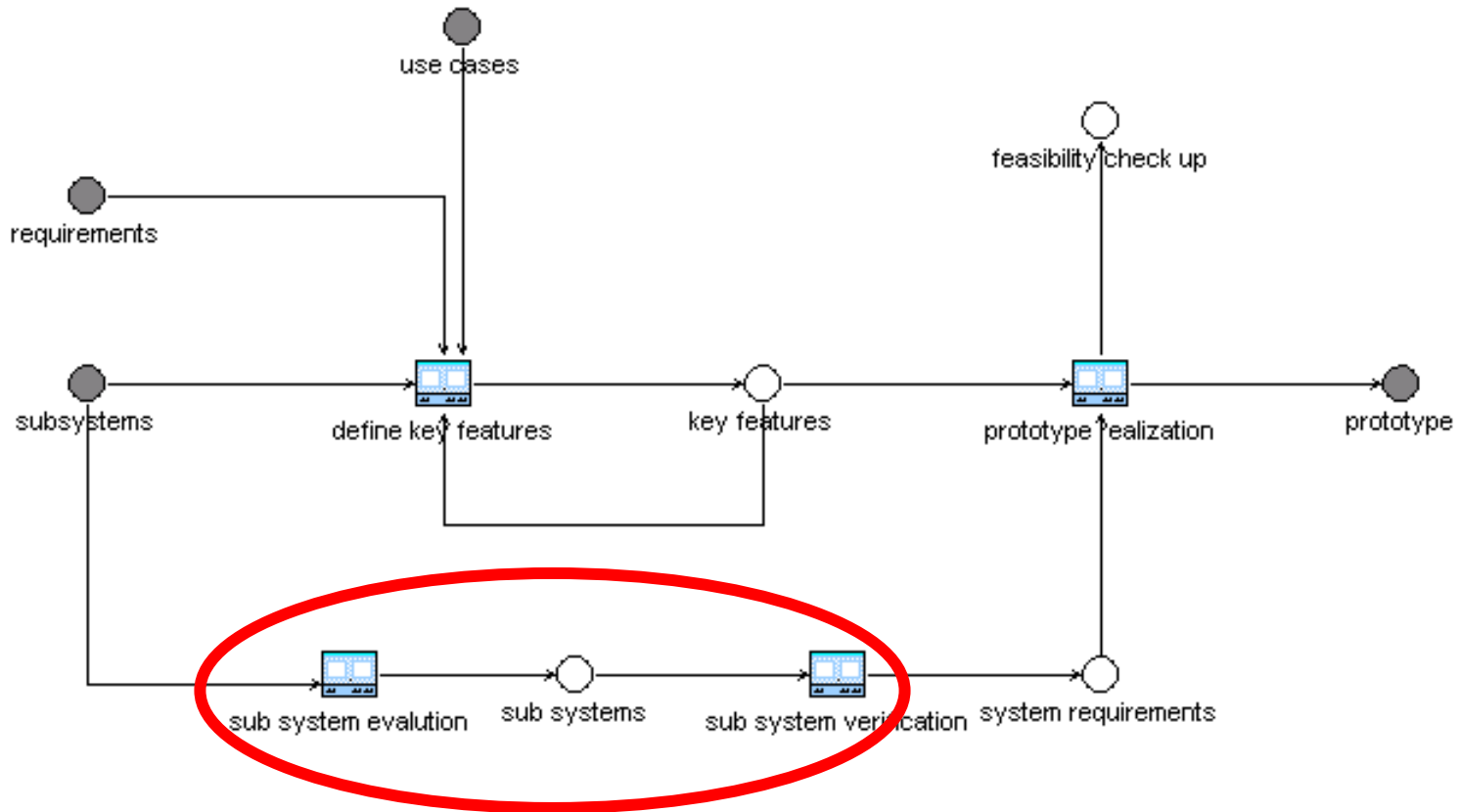


Software Process Model



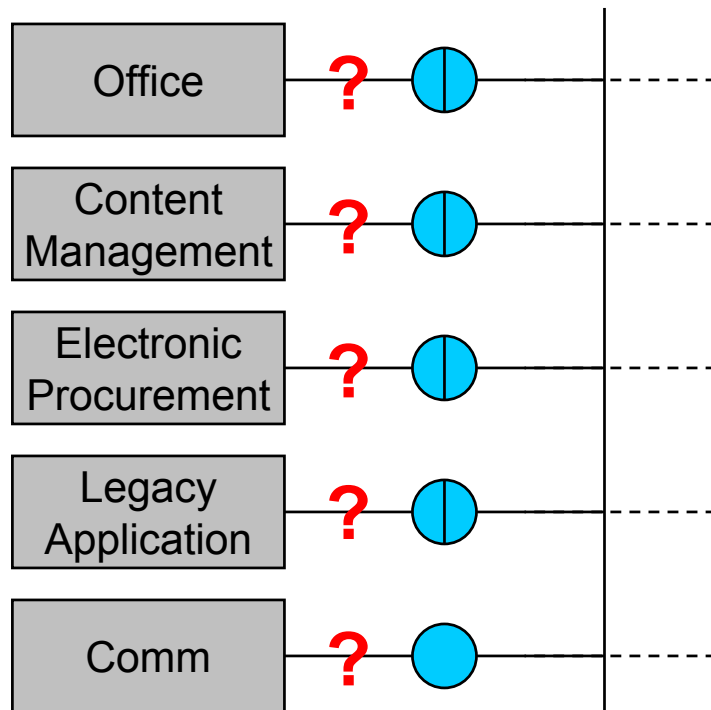


Cut-Through Prototypes










Cut-Through Prototypes



- **Question:**
Subsystem integration feasible?
- **Goal:**
Key features accessible via adaptors
- **Proof:**
„Quick & dirty“ adaptor implementations

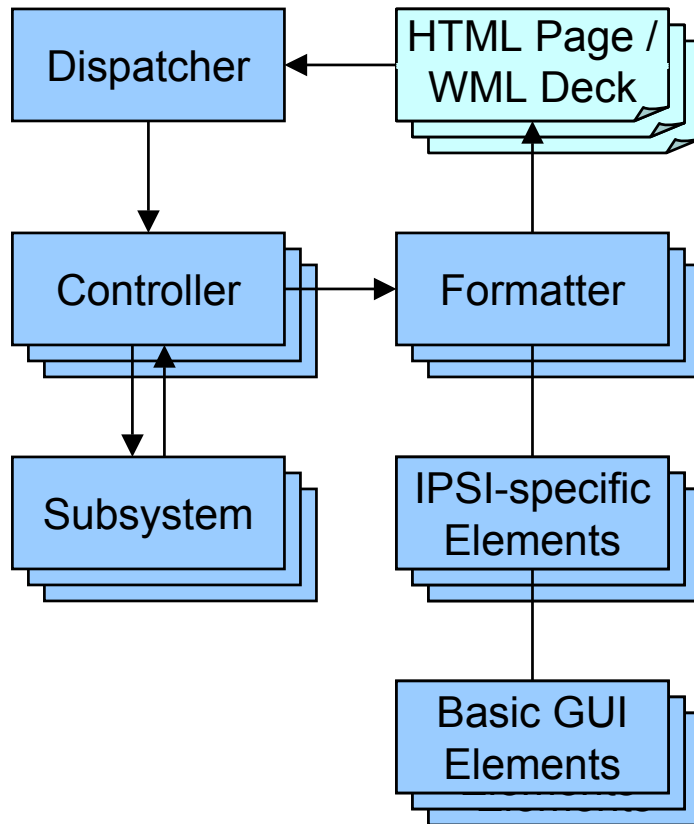


Subsystem Identification

Office	Content Management	Electronic Procurement	Legacy Applications	Comm	Admin
e-Mail Folders	Product Portfolio	Office Material (Toner, ...)	Partner Database	Sending Reminders, Messages, etc.	User Management
Address Book	Company Handbook	Promotional Material (Flyers, ...)	Contracts Database	by Fax	Monitoring
Calendar	Marketing Information	Company Services (Courses, ...)	Tariff Computer	SMS	Search
To-Do List	Law Documents			e-Mail	Portal-wide Full Text Searches
<i>Outlook</i>	<i>pirobase</i>	<i>SmartStore</i>	<i>Partner DB</i>	<i>sendfax, yaps, JavaMail</i>	
					



GUI Design

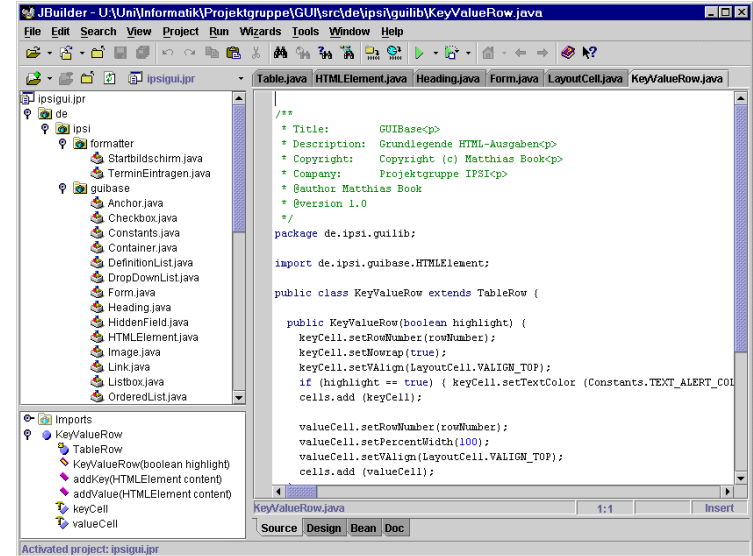


- Extensible layout
 - Formatters for different media
 - Customized libraries of GUI elements
- Control flow charts
 - Identification of controller/formatter classes



Implementation

- Distributed implementation
 - Subsystems on different machines
 - Middleware: CORBA
 - Code distribution: CVS
- Languages
 - Java
 - Visual C++



```
/**
 * Title:        GUIBase<p>
 * Description:  Grundlegende HTML-Ausgabec<p>
 * Copyright:    Copyright (c) Matthias Book<p>
 * Company:     Projektgruppe IPSI<p>
 * @author      Matthias Book
 * @version     1.0
 */
package de.ipsi.guilib;

import de.ipsi.guilib.HTMLElement;

public class KeyValRow extends TableRow {

    public KeyValRow(boolean highlight) {
        keyCell.setRowNumber(rowNumber);
        keyCell.setRowWrap(true);
        keyCell.setVAlign(LayoutCell.VALIGN_TOP);
        if (highlight == true) { keyCell.setTextColor(Constants.TEXT_ALERT_CO
            cells.add(keyCell);

        valueCell.setRowNumber(rowNumber);
        valueCell.setPercentWidth(100);
        valueCell.setVAlign(LayoutCell.VALIGN_TOP);
        cells.add(valueCell);
    }
}
```

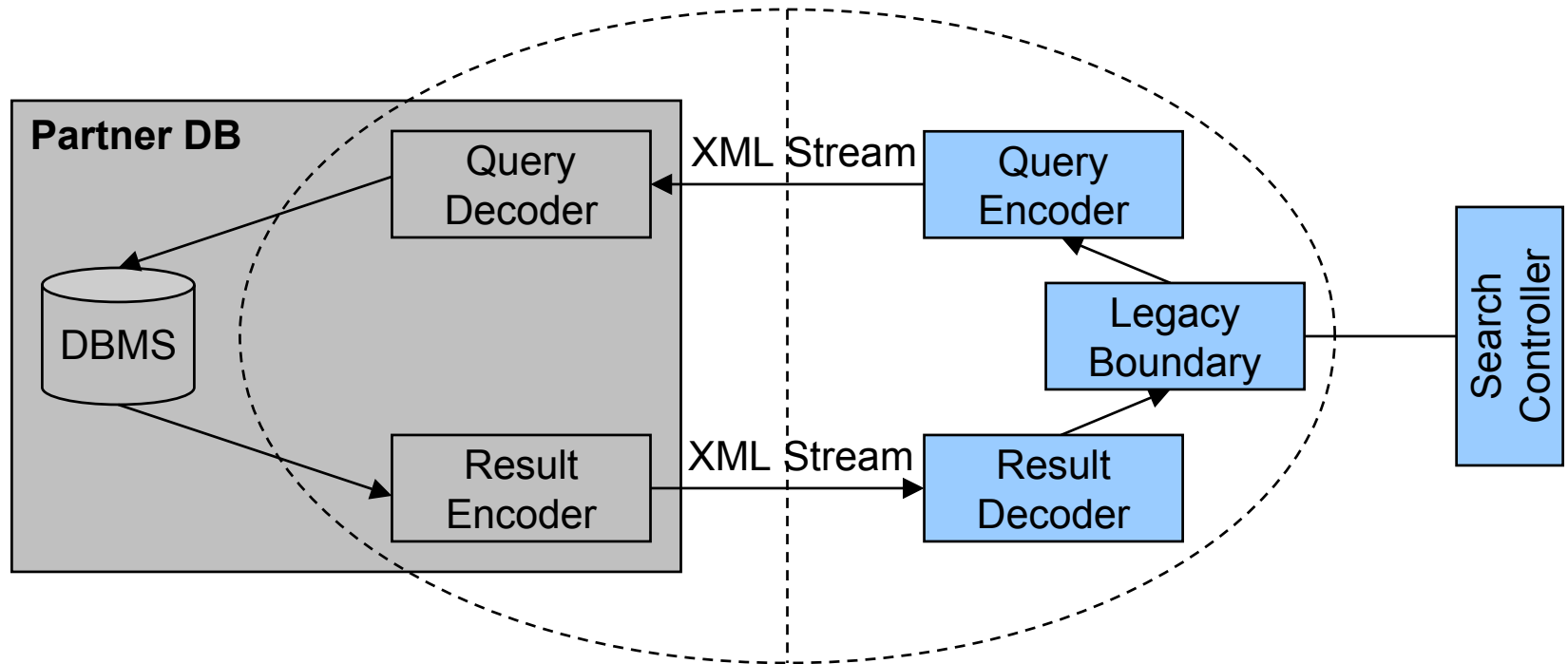


Object-Oriented Design

- UML use cases, class diagrams
- Goal: simple subsystem integration
- Business objects
 - transported between subsystems
- Boundary classes
 - encapsulate subsystem functionality

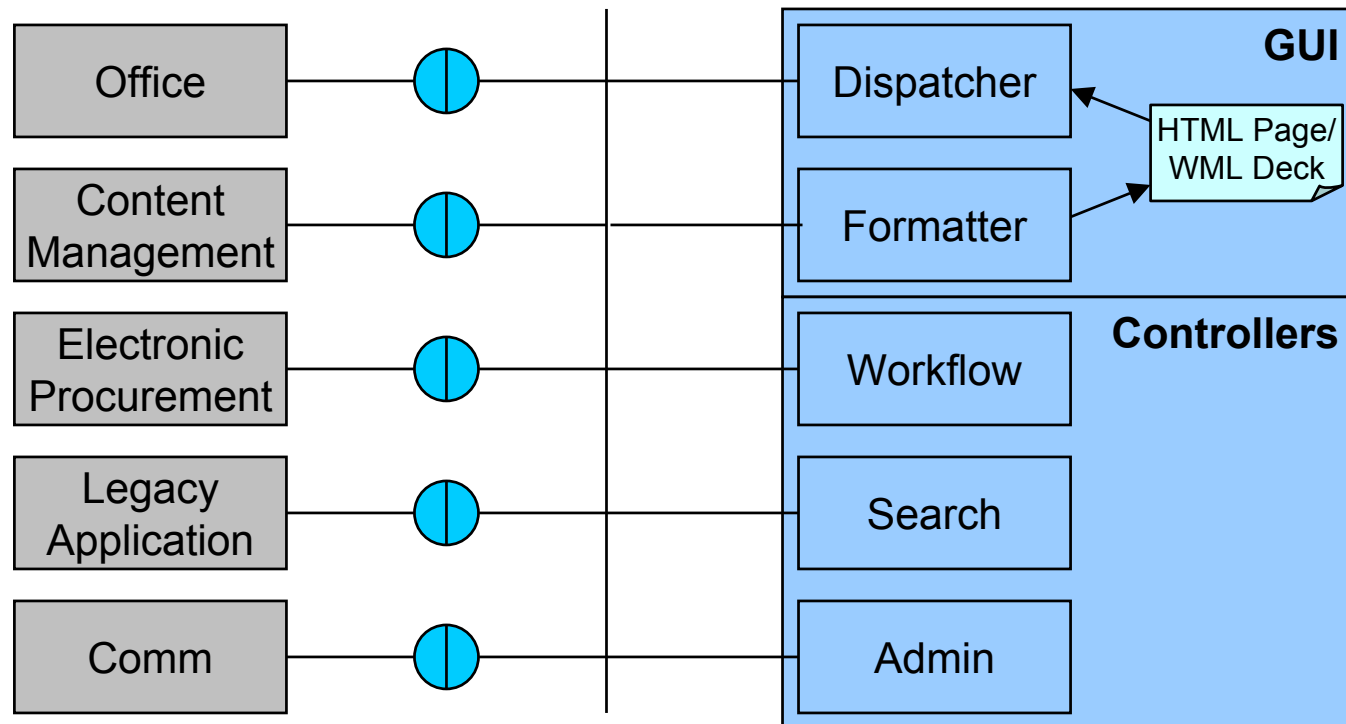


Legacy Integration





System Architecture





IPSI - Internet Portal System for Insurances - Netscape


File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Go to: <http://www.ipsi.de>

Internet Portal System for Insurances

[Nachrichten](#) | [Informationssystem](#) | [Terminkalender](#) | [Aufgaben](#) | [Ticket Center](#) | [Shop](#) | [Anwendungen](#) | [Suche](#) | [Abmelden](#)



Persönliche Nachrichten

Termin verschieben?	Michael David	24.02.2000
Meine KFZ-Versicherung	Nicole Falken	24.02.2000
Fahrgemeinschaft zum Seminar?	Karl-Heinz Mayer	25.02.2000

Informationen

[Neuer Tarif "Leben 2000"](#)
Im Fachbereich "Leben" wird nächsten Monat der neue Tarif "Leben 2000" eingeführt. Tariftabellen und Informationsmaterial finden Sie hier.

[Tipps für Ihre Jubiläums-Werbeaktion](#)
Überraschen Sie Ihre Kunden mit persönlichen Grußkarten zu unserem 75jährigen Firmenjubiläum. Hier finden Sie Vorschläge zur Gestaltung und Formulierung.

Termine

25.02.2000, 15:00	Besuch Eva Schmidt
25.02.2000, 17:00	Meeting Michael David
03.03.2000, 19:00	Jubiläumsfeier

Aufgaben

bis 25.02.2000	Werbeaktion planen
bis 01.03.2000	Jubiläumskarten schreiben

Anwendungen

- [Magic Moments](#)
- [Partner und Verträge](#)
- [Provisionierung](#)

Suche

Suche in

Nachrichten Informationssystem
 Termine Partner und Verträge
 Shop Ticket Center

Ticket Center - aktuell

29.02.2000, 09:00	Info-Veranstaltung "Leben 2000"	DM 140,-
09.03.2000, 10:00	Probabse-Schulung	DM 120,-

Shop - Sonderangebote

Prospekte "Leben 2000" (200 Stck.)	DM 24,-
Anträge "Leben 2000" (100 Stck.)	DM 10,-
Jubiläumskarten (50 Stck.)	DM 35,-

© 1999-2000 Projektgruppe IPSI -- <http://www.ipsi.de>
Lehrstuhl für Software-Technologie, Fachbereich Informatik, Universität Dortmund

Document: Done



Conclusion

- » Portal implementation = integration task
- Communication between developers and graphical designers is tedious.
- „Glue“ code connecting subsystems requires detailed design, careful testing
- Adaptor prototypes are crucial
 - basis for feasibility/time/effort prognosis
- Open architecture pays off
 - allows simple modification of subsystems



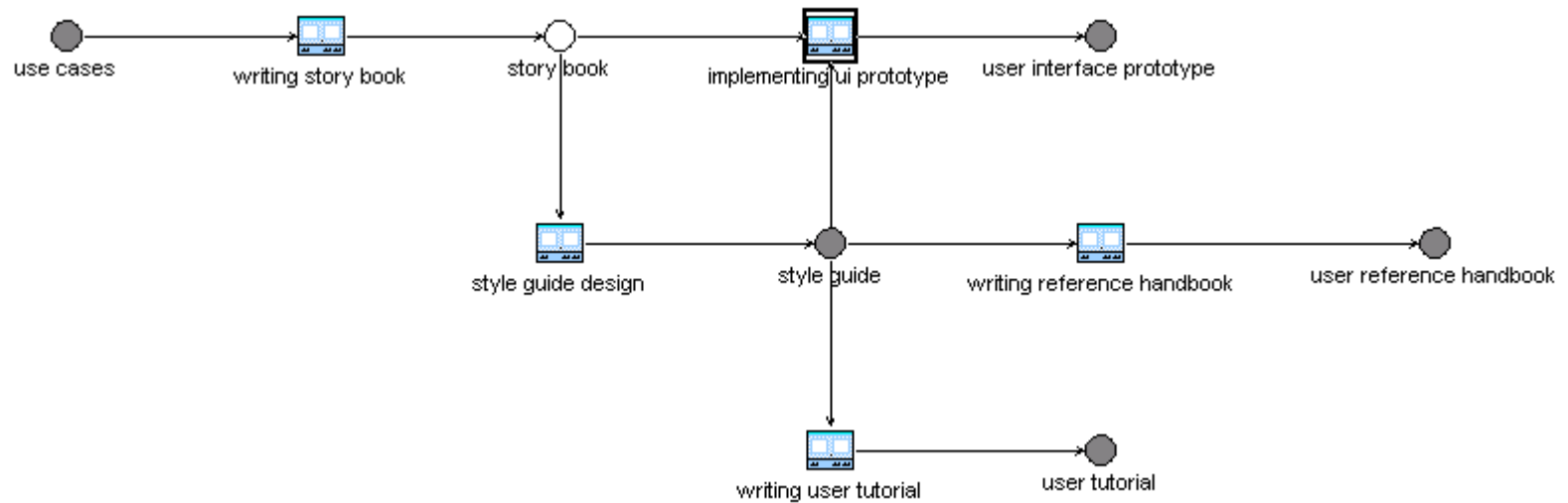
Requirement Specification

- cooperation with insurance companies
- comprehensive tasks → singular actions
- prioritized and documented:

Req ID	Requirement	Priority	Type	Rationale
EP-F/1.2.3	All shop items must be accessible via a product hierarchy.	1	MUST	Users are familiar with the concept of a hierarchy and can find items there easily.
EP-F/1.2.4	A full text search may be provided to find products.	3	MAY	The search facility serves as a backup in case the user can't find an item in the hierarchy.

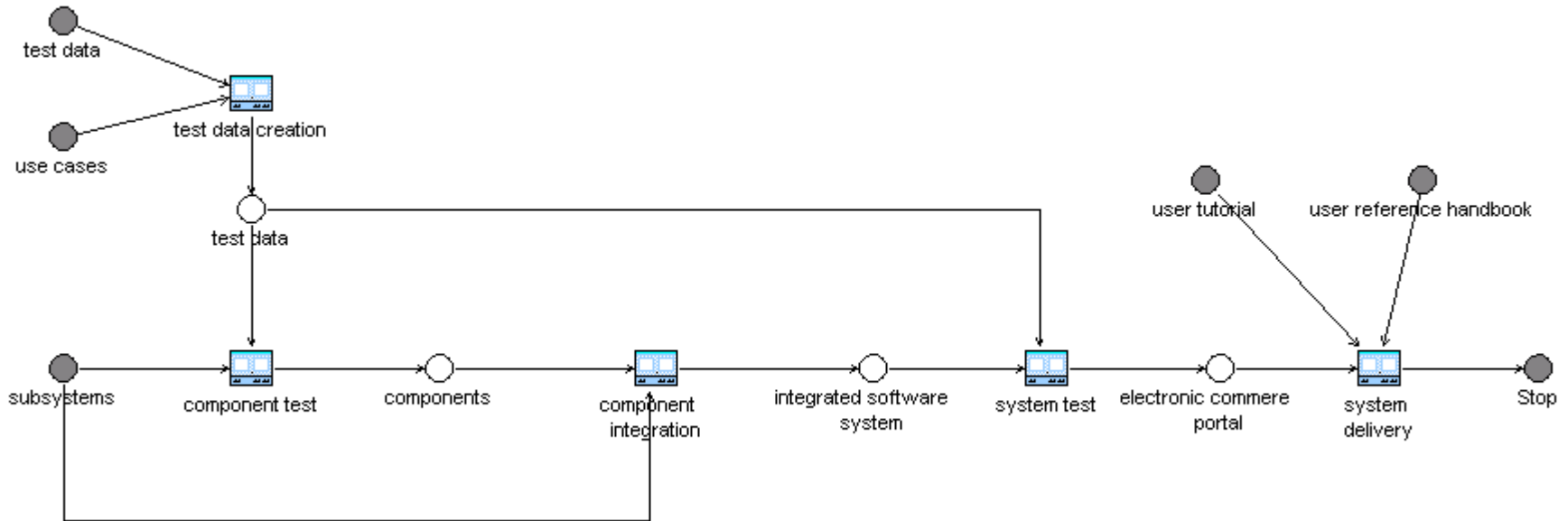


GUI Design





System Integration and Test





Testing

- Class Test
 - Class functionality ok?
- Subsystem Test
 - Code review; subsystem boundary ok?
- Integration Test
 - Subsystems' interfaces ok?
- System Test
 - Workflow and GUI ok?





Thank you!



Any questions?