

Ch6 Roadmap for Workflow System Development



- 1. Development Methods**
- 2. IPSD Method**

6.1 Development Methods

- a specific development method or a "roadmap" for developing *workflow systems* based upon *workflow management software*.
- IPSD--*interactive, process-oriented system development*

6.1 Development Methods

● Why a specific method for WFM?

- The existing methods for the development of information systems place a strong emphasis upon defining data structures and the way in which the application is presented to its users (the user interface).
- A method for developing a workflow system therefore should focus upon the business process and embrace both the organization and the technology.
- The way in which the development process is carried out should correspond with this by involving the "users" as much as possible in the design of processes and systems.
- The development process should preferably be an evolutionary one.
- The integration of RAD techniques within the BPR cycle provides an excellent context for the development of workflow systems

6.1 Development Methods

•Business process re-engineering

- BPR can, in short, be described as an effort to achieve the most effective and efficient possible business-process structure, without taking the existing "old processes" as a starting point.
- The BPR lifecycle

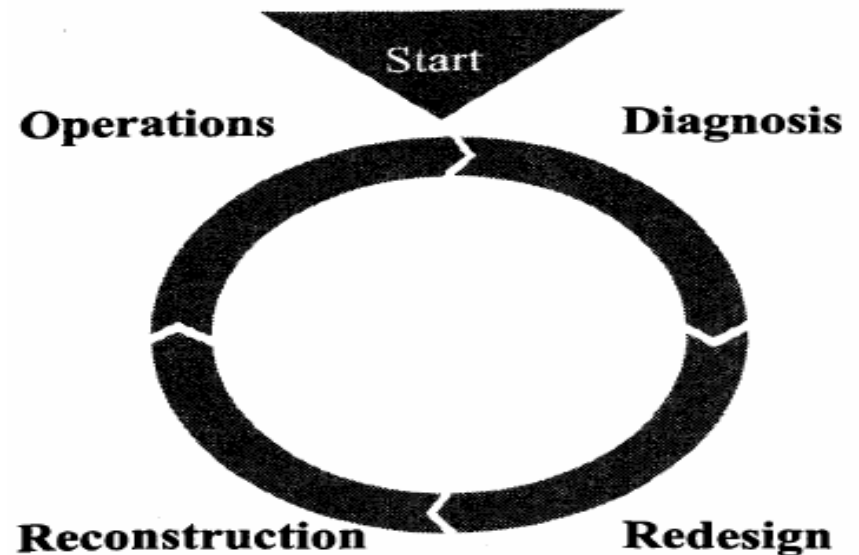


Figure 6.1 BPR lifecycle

6.1 Development Methods

●Rapid application development

- RAD is based upon a *cyclical, or iterative, development process.*
- incremental development & *evolutionary development*
- joint development*
- The RAD approach consists of four directly successive phases: *requirements planning, user design, construction and delivery.*

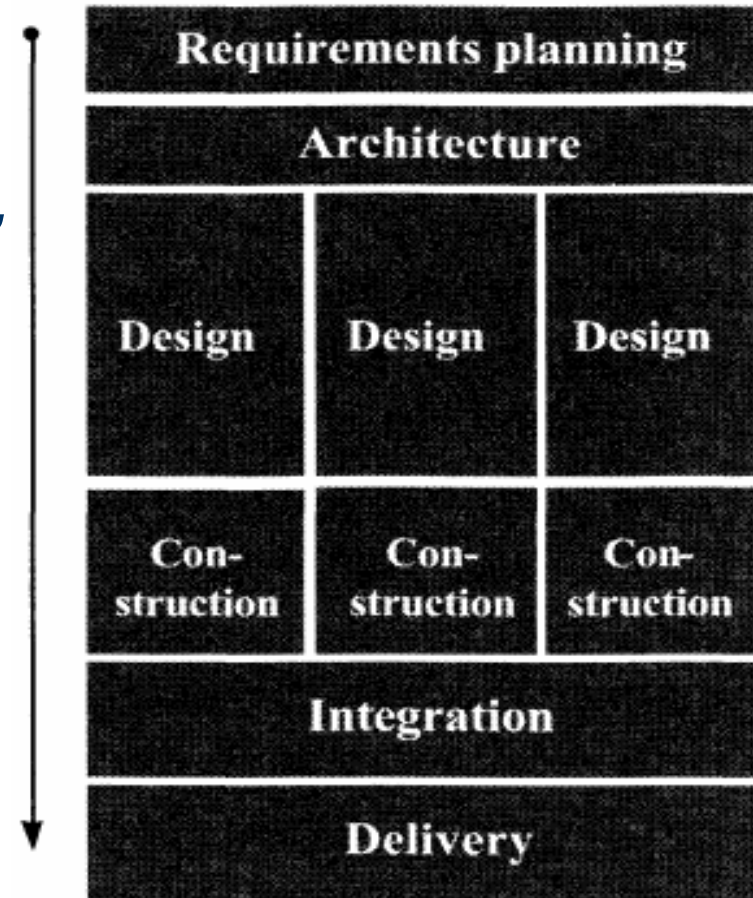


Figure 6.2
The phases of RAD

6.2 The "IPSD" Method

- IPSD stands for *interactive, process-oriented system development*.
- lifecycle
 - 1. preparation;
 - 2. diagnosis;
 - 3. process redesign;
 - 4. requirements;
 - 5. architecture;
 - 6. component design;
 - 7. construction;
 - 8. integration;
 - 9. delivery;
 - 10. enactment; and
 - 11. monitor and improve.

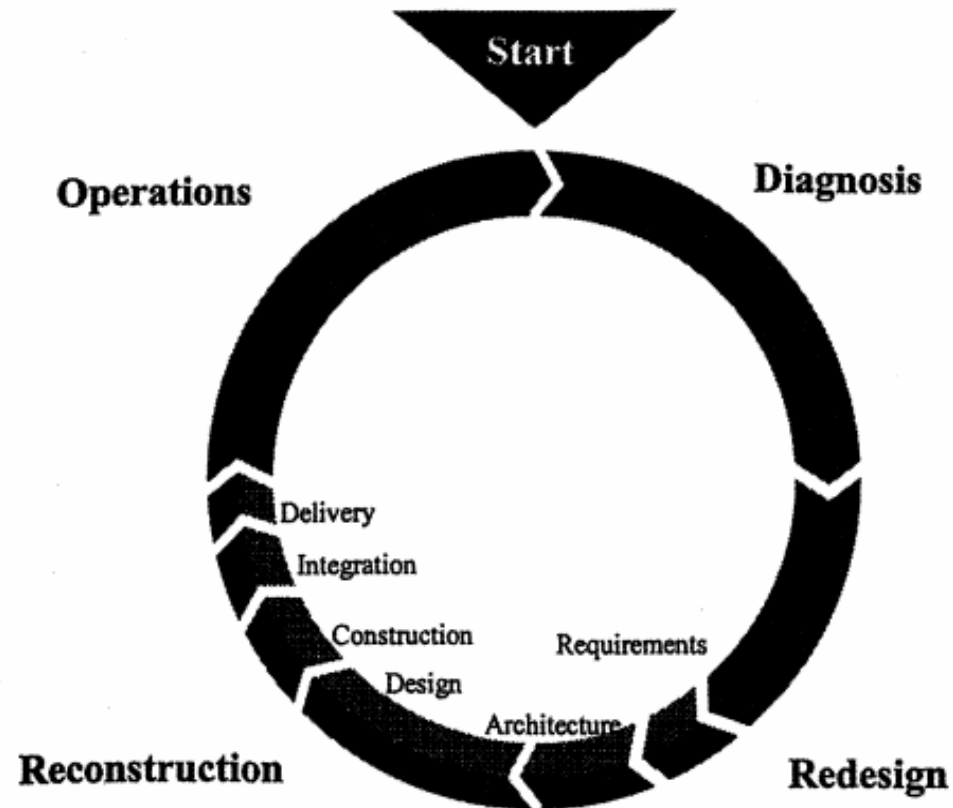


Figure 6.3
Lifecycle

6.2 The "IPSD" Method

- Basic principles
 - The focus is on the business process.
 - By definition, radical change will occur that has consequences for the entire organization
 - As far as possible, decisions are taken within the development team.
 - The developers and (representatives of) the user organization work as a team
 - the emphasis is placed upon (project) targets and not so much upon performing (or assigning) activities.
 - The system's specifications are not defined and "frozen" in advance, but evolve during development.
 - Errors are permissible during development.
 - Experience shows that no system is ever perfect the first time.
 - At the end of each phase the overall planning is updated according to the latest information.

6.2 The "IPSD" Method

- Preparation

- *Activities*

- ❖ Appointing the (core) project team;
 - ❖ drafting the project plan;
 - ❖ obtaining approval for the project; and
 - ❖ communication of the mission statement, approach and timetable.

- *Deliverables*

- ❖ Overall project plan

6.2 The "IPSD" Method

•Diagnosis

➤Activities

Analysis

- ❖ Analyze the reasons for change, the strategy, and the critical success factors;
- ❖ objectives to be met after transformation, formulated in a qualitative way;
- ❖ definition of key performance indicators to be able to quantify the objectives and to measure the intended improvements;
- ❖ null measurement: determination of the performance indicators in the existing situation.

Scoping

- ❖ Identification of parts of the organization, processes, and systems that should remain unchanged and which fall in the scope of the project; and
- ❖ determination of boundary conditions on time frame and money to be spend.

Visioning

- ❖ Artist view of the new organization, processes, and systems;
- ❖ specification of the targets to be realized in the project, that is, the quantification of the objectives in terms of the key performance indicators; and
- ❖ generation of ideas and guidelines for redesign.

6.2 The "IPSD" Method

- **Diagnosis**

- *Deliverables*

- ❖ Document describing the reasons for change, objectives, and the KPIs;
 - ❖ a set of use cases;
 - ❖ the null measurement;
 - ❖ a list of processes, parts of the organization, and information systems to be re-engineered;
 - ❖ boundary conditions on time and money; and
 - ❖ artist's view of the new situation, ideas for improvement;
 - ❖ specification of the targets in terms of KPIs.

6.2 The "IPSD" Method

- **Process redesign**

- *Activities*

- ❖ Modeling and calibration of the existing situation;
 - ❖ development of alternatives for the new business process;
 - ❖ analysis of the selected alternative: determination of correctness properties and logistical KPIs (by simulation);
 - ❖ analysis of functional KPIs by means of gaming workshops using a workflow management system (optional); and
 - ❖ description of the consequences for the organization.

- *Deliverables*

- ❖ Calibrated model of existing processes;
 - ❖ set of use cases;
 - ❖ models for the preferred new processes;
 - ❖ test results of simulations and gaming;
 - ❖ requirements for data-processing applications; and
 - ❖ organizational model.

6.2 The "IPSD" Method

- **Requirements**

- *Activities*

- ❖ Preparation and staging of requirements workshops;
 - ❖ development of risk-management measures;
 - ❖ development of the project schedule and budget; and
 - ❖ drawing up of a detailed project plan.

- *Deliverables*

- ❖ Rough data model (entities and relationships);
 - ❖ rough functional model of the applications to be developed;
 - ❖ matrix of functions for each process (step); and
 - ❖ detailed project plan for the subsequent course of action.

6.2 The "IPSD" Method

- **Architecture**

- *Activities*

- ❖ Description of the functional architecture;
 - ❖ description of the technical architecture;
 - ❖ illustration of the functional and technical architecture;
 - ❖ establishment and description of standards and guidelines;
 - ❖ development and testing of prototypes.

- *Deliverables*

- ❖ Description of architecture;
 - ❖ prototype; and
 - ❖ standards and requirements for components.

6.2 The "IPSD" Method

- **Component design**

- **Activities**

- ❖ Harmonization of the data model and the user interface;
 - ❖ design/generation/harmonization of the functionality of the dataprocessing component and workflow definitions using prototyping and simulations of use cases;
 - ❖ establishment of specifications for specific links with office systems and/or other components.

- **Deliverables**

- ❖ Standard for the user interface;
 - ❖ specification of the workflow within the workflow management system;
 - ❖ specification of the data-processing components in a CASE tool;
 - ❖ final system prototype(s) and list of components to be completed;
 - ❖ description of links which still need to be made with office systems and/or other components.

6.2 The "IPSD" Method

● Construction

➤ *Activities*

- ❖ Integration and optimization of the workflow management system;
- ❖ setting up of the test environment;
- ❖ completion of the system documentation;
- ❖ system test; and
- ❖ preparation of the integration and acceptance test.

➤ *Deliverables*

- ❖ Components ready for the integration test;
- ❖ system documentation;
- ❖ integration and acceptance-test plan (including use cases); and
- ❖ conversion software.

6.2 The "IPSD" Method

- **Integration**

- *Activities*

- ❖ Test conversion;
 - ❖ performance of integration test;
 - ❖ rectification of faults; and
 - ❖ production of test report.

- *Deliverables*

- ❖ Environment and software prepared for acceptance test;
 - ❖ test scripts (for future regression tests); and
 - ❖ test report.

6.2 The "IPSD" Method

- **Delivery**

- *Activities*

- ❖ Performance of the acceptance test using scenarios;
 - ❖ rectification of faults; and
 - ❖ production of an acceptance-test report.

- *Deliverables*

- ❖ Environment and software ready for use and management;
 - ❖ formal acceptance by the user organization;
 - ❖ formal acceptance by the management organization; and
 - ❖ acceptance-test report.

6.2 The "IPSD" Method

- **Enactment**

- *Activities*

- ❖ Communication about the progress of the project;
 - ❖ communication about forthcoming changes;
 - ❖ description of the organizational structure;
 - ❖ preparation of case descriptions;
 - ❖ preparation of manuals;
 - ❖ preparation of training materials;
 - ❖ provision of training;
 - ❖ planning and enactment of the technical infrastructure;
 - ❖ preparation and supervision of conversion; and
 - ❖ supervision of the change process.

- *Deliverables*

- ❖ Enactment plan;
 - ❖ communications plan;
 - ❖ conversion plan;
 - ❖ organizational model;
 - ❖ case descriptions;
 - ❖ manuals;
 - ❖ information and training materials; and
 - ❖ infrastructure.

6.2 The "IPSD" Method

- **Monitor and improve**

- monitor the processes using the predefined performance criteria (KPIs).
- *continuous process improvement (CPI).*

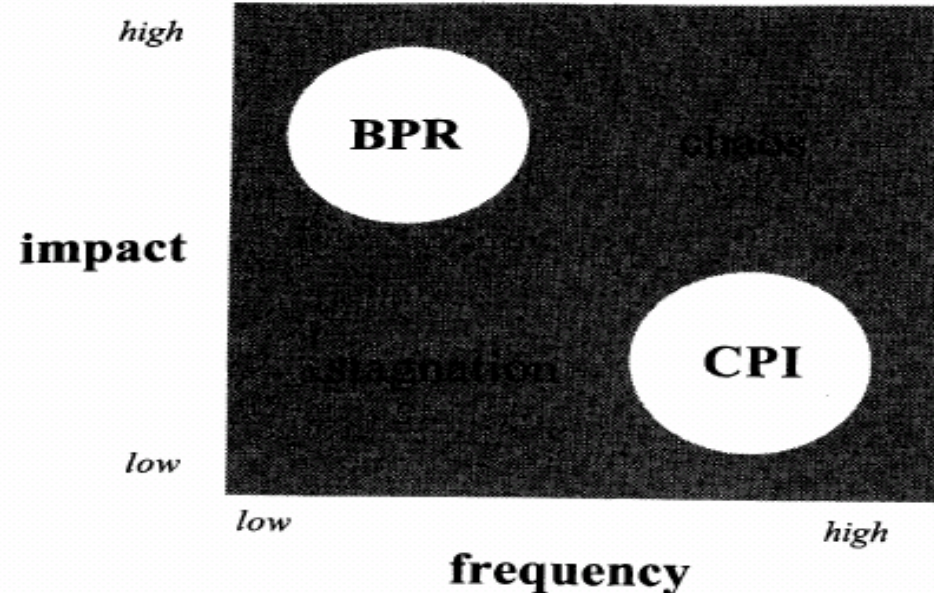


Figure 6.5 BPR
versus CPI

6.2 The "IPSD" Method

• Integrating WFMS with legacy systems

- If the adaptations to the user interface are limited, then rather old-fashioned software is no great obstacle.
- eliminate old workflow aspects from legacy applications.
- A more serious problem is the "mismatch" between the process steps and the system architecture of the existing applications.

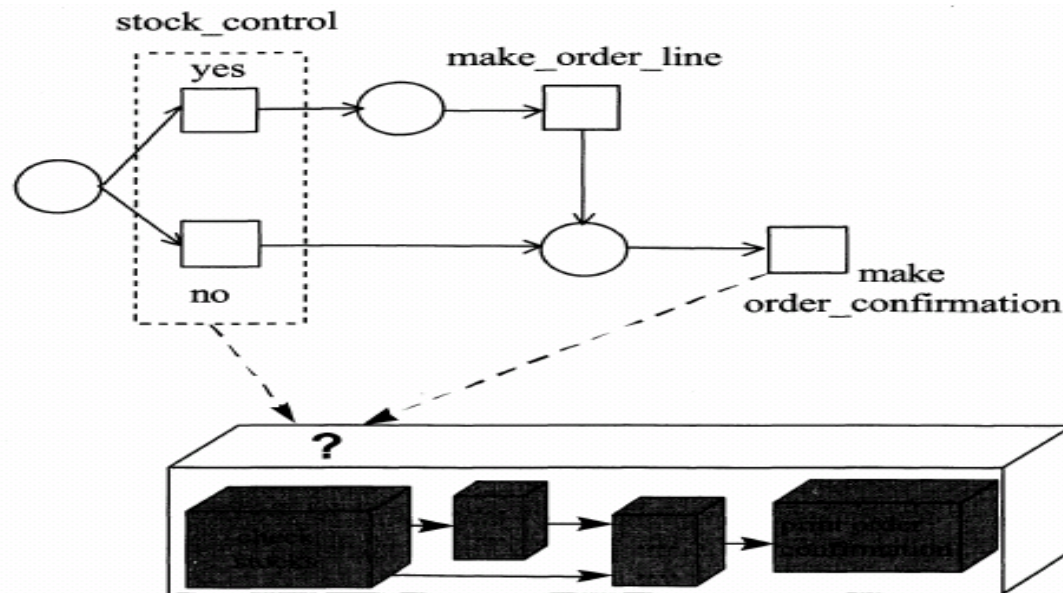


Figure 6.6
Modularity of legacy applications

案例1 某企业HR管理系统改造

- 某企业HR管理系统，用户超过3000家，业务量上升，立志成为中国HR软件的领军企业。
- 遇到的问题：
 - 需求变化大、版本多、维护困难；
 - 盗版多，严重影响业务。
- 解决方案：
 - 引入 workflow 技术，以新架构重构系统；
 - 卖产品->卖服务
 - 引入HR管理高端人才，开展咨询服务
 - 知识交易

案例2 建筑能源管理系统

- 某企业产品销售价格高、周期长，用户不持续使用

