Task Analysis, knowledge Workers and Business Rules

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Business Process Reengineering

1392

Outline

◆ Analyzing a Specific Activity
◆ Analyzing Human Performance
◆ Managing the Performance of Activities
◆ Automating the Enter Expense Reports Activity
◆ Knowledge Workers, Cognitive Maps and Business Rules
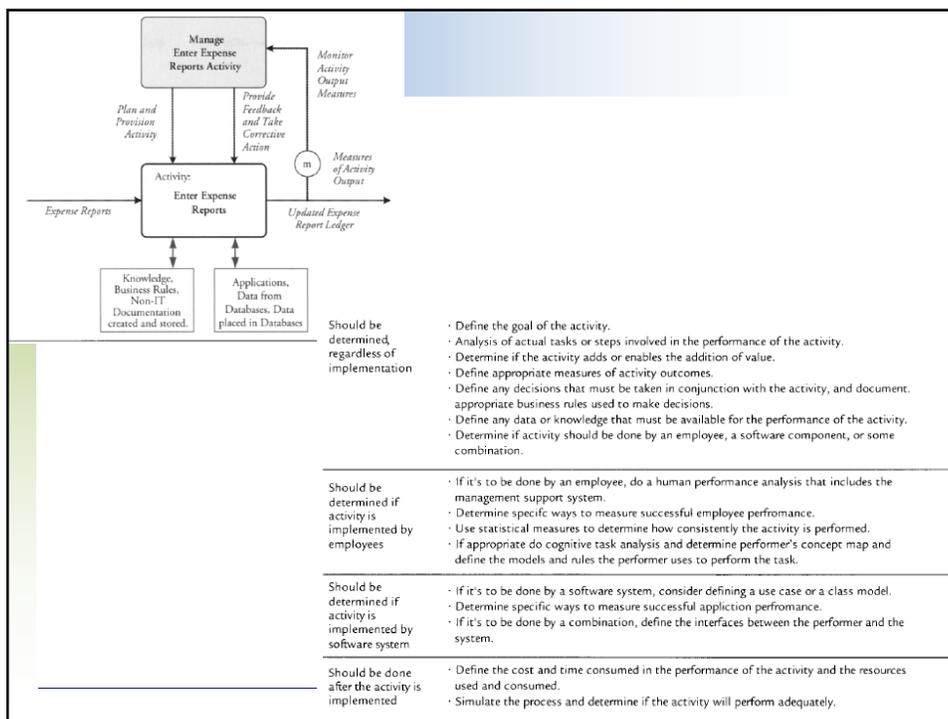◆ Activities, Job Descriptions and Applications

Activity

◆ Activities are the smallest processes we choose to model in any given analysis effort.

◆ Activity level analysis is the most detailed analysis we undertake

◆ To complete a process description, describe activities in enough detail so that others can
- write the job descriptions,
- create the training, or
- design the software needed to assure that the activity will be properly performed

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Analyzing a Specific Activity

◆ one-to-one relationship between the job description and the work done in the activity

◆ the activity would be composed of a number of steps or tasks

◆ we could create a diagram showing each step and use arrows to show how the clerk moved from one step to the next, and where decisions and branches occurred.

◆ There would probably be some rules that helped the clerk make decisions

◆ we might also document the time required to process an average expense report, the number of reports the clerk typically processed in a day, and the kinds of problems or exceptions that were typically encountered and the frequency of each.

◆ We would also probably make some statement about the goal fulfilled by the activity - what value it adds to the production of company products or services.

Should be determined, regardless of implementation	· Define the goal of the activity. · Analysis of actual tasks or steps involved in the performance of the activity. · Determine if the activity adds or enables the addition of value. · Define appropriate measures of activity outcomes. · Define any decisions that must be taken in conjunction with the activity, and document appropriate business rules used to make decisions. · Define any data or knowledge that must be available for the performance of the activity. · Determine if activity should be done by an employee, a software component, or some combination.
Should be determined if activity is implemented by employees	· If it's to be done by an employee, do a human performance analysis that includes the management support system. · Determine specifc ways to measure successful employee perfromance. · Use statistical measures to determine how consistently the activity is performed. · If appropriate do cognitive task analysis and determine performer's concept map and define the models and rules the performer uses to perform the task.
Should be determined if activity is implemented by software system	· If it's to be done by a software system, consider defining a use case or a class model. · Determine specific ways to measure successful appliction perfromance. · If it's to be done by a combination, define the interfaces between the performer and the system.
Should be done after the activity is implemented	· Define the cost and time consumed in the performance of the activity and the resources used and consumed. · Simulate the process and determine if the activity will perform adequately.

Organizing Information About an Activity

◆ two activity worksheets:

- a basic *Activity Analysis Worksheet* and
- a supplemental *Activity Cost Worksheet*

Activity Analysis Worksheet

Activity: *Enter Expense Reports*   Process: *XYZ Sales Process*

Activity Performed by (✔) employee, ( ) software, ( ) a combination

Major Output of Activity: *Updated expense report ledger*

Measures of Output: *Ledger reflects all reported expenses documented in expense reports filed by sales personnel. Ledger closed at the end of each month.*

Steps in the Activity	Responsibility	Decisions/Rules	Opportunities for Improvement
1. Date-stamp each expense report when it's received. 2. Review expense reports for completeness and accuracy (return if incomplete). 3. Cross-check information on expense report with supporting documentation. 4. Enter information on expense report into ledger. 5. Update ledger. 6. File expense report and supporting documentation.	Expense Report Entry Clerk responsible for work. Work managed by Sales Accounting Supervisor	Rule 1. No expense report is processed before supporting documentation arrives. Rule 2. Incomplete reports are rerouted to submitter for completion. Rule 3. Submitter is notified whenever an item is disallowed. Rule 4. Any sign of a purposeful attempt at fraud should be brought to attention of accounting supervisor. Rule 5. Expense reports must be processed and paid in month submitted. Rule 6. If expense reports are submitted that are over 3 months old, the Sales Accounting Supervisor should be notified to approve processing.	

Figure 10.2 An Activity Worksheet.

Activity Cost Worksheet

Process or Subprocess: *XYZ Sales Process*   AS-IS (✔) or TO BE ( ) Analysis

Activity	Outputs of Activity	Time/Output	Costs/Output	Problems or Decisions
Enter Expense Reports	Updated Expense Report Ledger	15 minutes/report and update, or 4 per hour.	@$24/hr (loaded with overhead) the cost per report is $6.	1 in 20 involves an exception, which takes up to 30 minutes to process.

Figure 10.3 An Activity Cost Worksheet.

Analyzing Human Performance

- When an activity is not being performed correctly, we need to analyze the situation to see what could be wrong.
- The best approach to this is *human performance analysis, a technology developed by psychologists and performance analysts*.
- Human performance analysis defines the variables that affect human performance and offers heuristics for analyzing any given human activity.
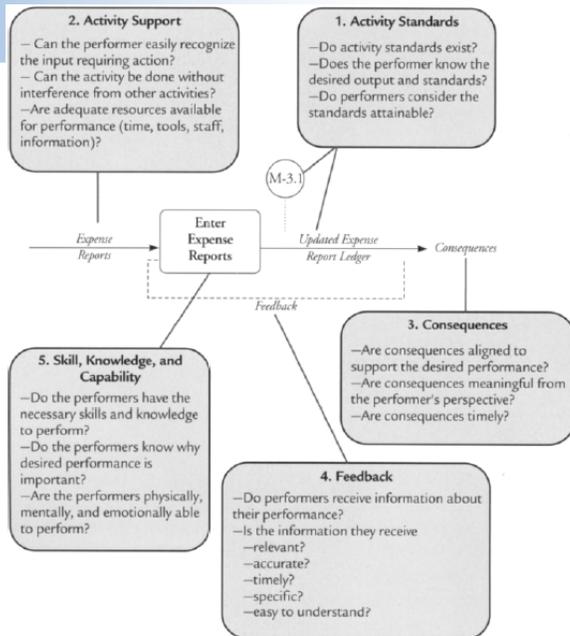
Figure 10.4 Factors affecting the performance of an activity (modified after Rummler and Brache, Improving Performance).

Analyzing Human Performance – Description

1. Activity Standards
   - Do activity standards exist?
   - Does the performer know the desired output and standards?
   - Do performers consider the standards attainable?
2. Activity Support
   - Can the performer easily recognize the input requiring action?
   - Can the activity be done without interference from other activities?

Analyzing Human Performance – Description

3. Consequences
   - Are consequences aligned to support the desired performance?
   - Are consequences meaningful from the performer's perspective?
   - Are consequences timely?

4. Feedback
   - Do performers receive information about their performance?
   - Is the information they receive relevant, accurate, timely, specific, and easy to understand?

Analyzing Human Performance – Description

5. Skill, Knowledge, and Capability
   - Do the performers have the necessary skills and knowledge to perform?
   - Do the performers know why desired performance is important?
   - Are the performers physically, mentally, and emotionally able to perform?

Managing the Performance of Activities

◆ Broadly, an operational manager is responsible for five things:

1. Identifying goals to be accomplished
2. Organizing activities to accomplish those goals
3. Communicating the goals to the employees
4. Monitoring the output of the activities to assure they meet their assigned goals
5. Diagnosing problems and fixing them when activity output is inadequate

Automating the Enter Expense Reports Activity
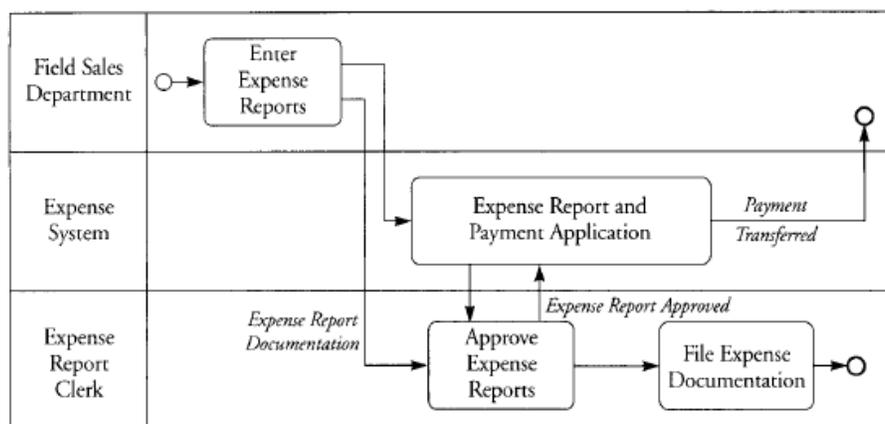
Figure 10.5 An automated expense report system.

Sales activities

Figure 10.6 Sales activities.
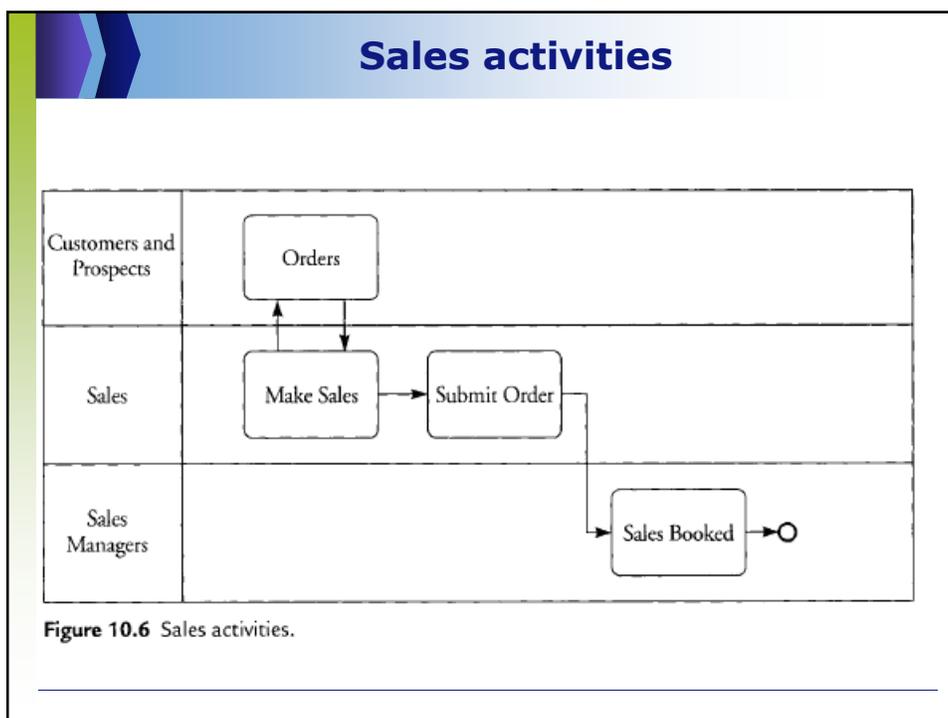
Sales Activities That Define The Salesperson's Job

Selling Activities
1. Customer-Related Activities
    1.1 Prepare Account Related Paperwork
    1.2 Prepare Cross Selling Proposals
    1.3 Make Maintenance Calls
    1.4 Maintain Customer Contact by Phone or Email
2. Prospect-Related Activities
    2.1 Identify New Prospects
    2.2 Contact and Qualify New Prospects
    2.3 Make Sales Calls
    2.4 Develop Proposals
    2.5 Maintain Prospect Contact by Phone or Email

Overhead Activities
3. Planning and Coordinating Activities
    3.1 Time and Territory Planning
    3.2 Prioritizing Accounts
    3.3 Key Account Strategizing
4. Organizational Activities
    4.1 Meeting with Manager
    4.2 Attending Sales Meetings
    4.3 Accounting for Time and Expenses
    4.4 Preparing Special Reports
5. Product Knowledge
    5.1 Keeping Current on New Products
    5.2 Keeping Current on Competitive Products
    5.3 Maintaining Contacts with In-House Specialists
6. Self-Development and Motivation
    6.1 Keeping Current on General Business Trends
    6.2 Keeping Current on General Selling and Marketing Trends and Practices
    6.3 Arranging a Personal Schedule of Contingencies

Figure 10.7 Job description of a salesperson.

Human Performance Analysis Worksheet

Process or Subprocess: _XYZ Sales Process_   Activity or Job: _XYZ Sales Activity_   AS-IS (✓) or TO BE ( ) Analysis

Tasks Included in Activity	Measures of Task Performance	Potential Performance Problems				
		Activity Specifications	Activity Support	Consequences	Feedback	Skill, Knowledge, and Capability
1. Customer-Related Activities - Preparing account-related paperwork - Preparing cross-selling proposals - Making maintenance calls - Maintaining customer contact	Increase sales to existing customers by 12% per quarter	Does the salesperson know the goals? Does the salesperson consider the goals attainable?	Does sales-person's territory have enough prospects?	Does the current bonus system reflect the effort required?	Does the salesperson get email whenever the company gets a complaint, or a compliment from one of his/her customers?	Does the sales-person understand the new product line? Does the sales-person understand how to demonstrate the new product with his/her laptop?
2. Prospect-Related Activities - Identifying new prospects - Contacting and qualifying prospects - Making sales calls - Developing proposals - Maintaining prospect contact	Make 20 new sales per month.		Does the salesperson get leads whenever they come to company? Does the salesperson have the new laptops with the new demo loaded?			

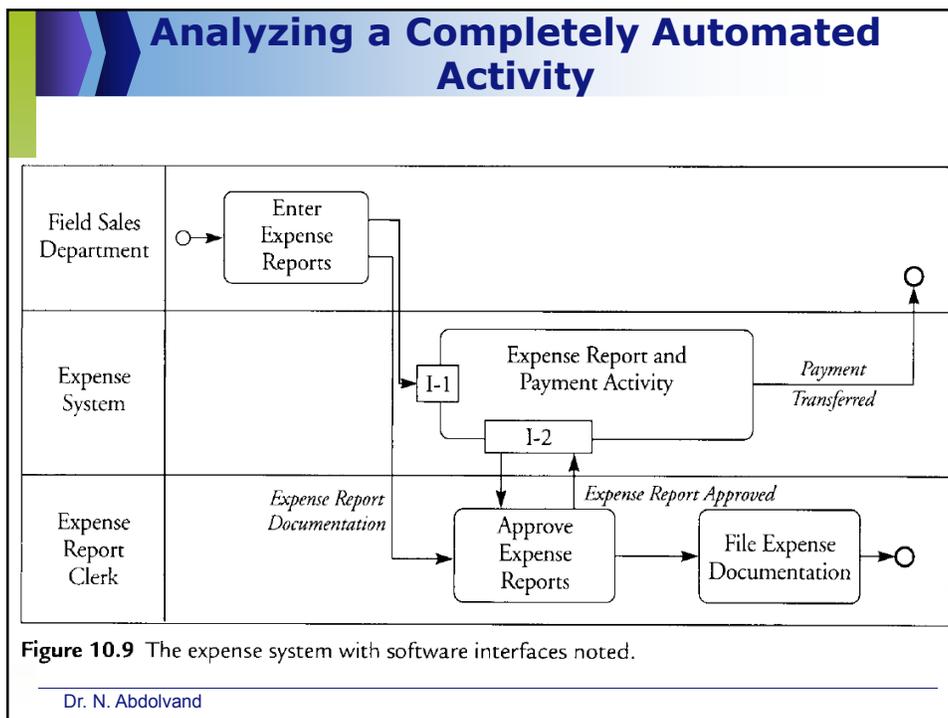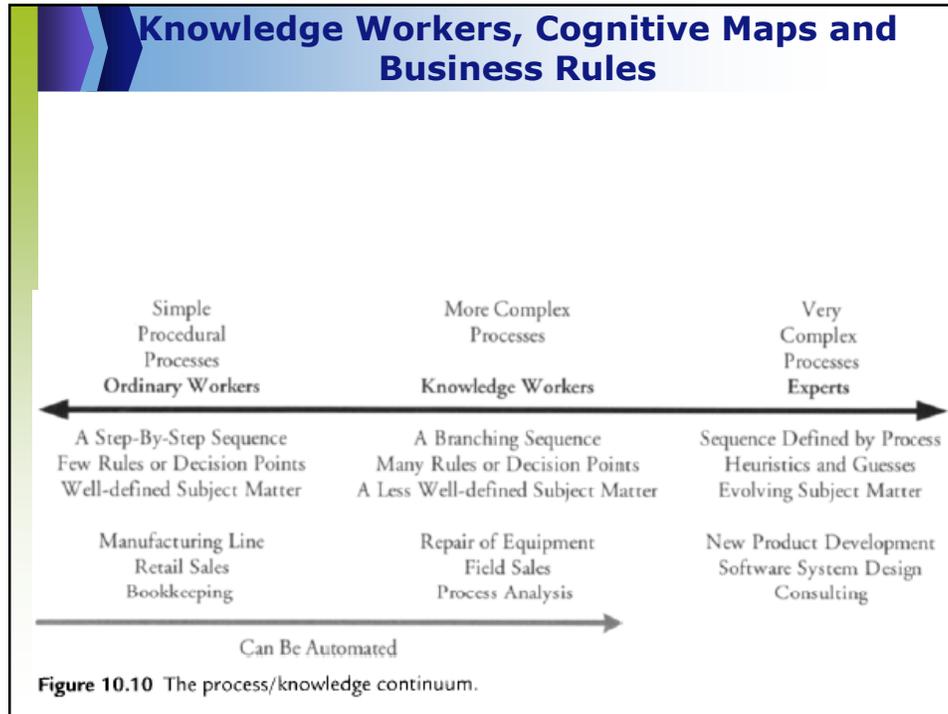**Figure 10.8** A partially completed Human Performance Analysis worksheet for the Sales activity.

Analyzing a Completely Automated Activity

Figure 10.9 The expense system with software interfaces noted.

Knowledge Workers, Cognitive Maps and Business Rules

Simple Procedural Processes **Ordinary Workers**	More Complex Processes **Knowledge Workers**	Very Complex Processes **Experts**
A Step-By-Step Sequence Few Rules or Decision Points Well-defined Subject Matter	A Branching Sequence Many Rules or Decision Points A Less Well-defined Subject Matter	Sequence Defined by Process Heuristics and Guesses Evolving Subject Matter
Manufacturing Line Retail Sales Bookkeeping	Repair of Equipment Field Sales Process Analysis	New Product Development Software System Design Consulting

Can Be Automated

Figure 10.10 The process/knowledge continuum.
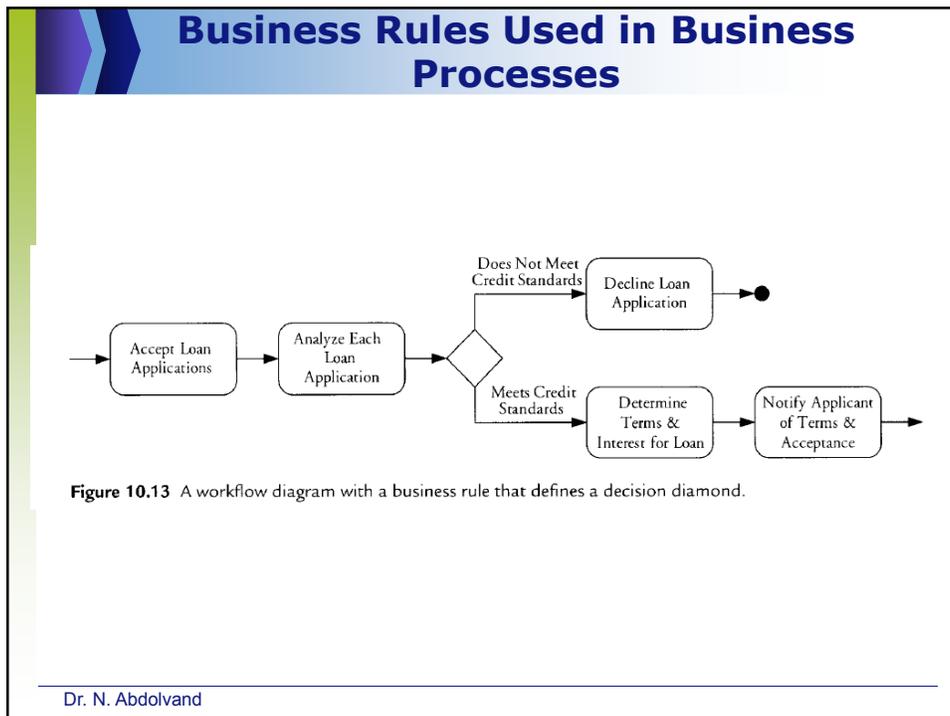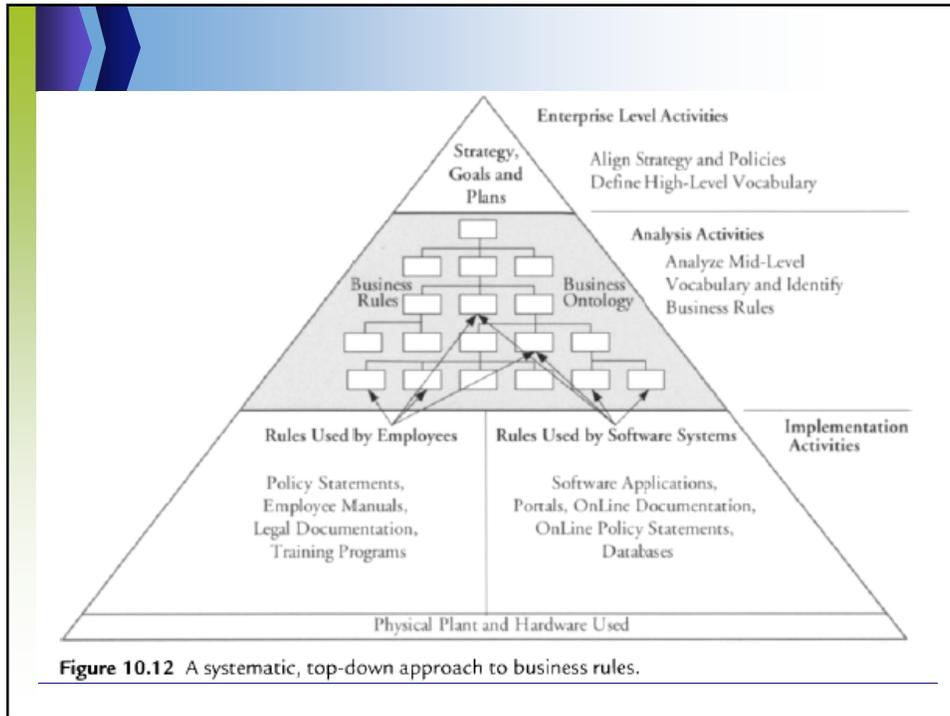
Business Rules and Knowledge Rules

◆ *A business rule is a statement that defines some policy or practice of the business.*

◆ Business rules, whether implemented by employees or by automated systems, determine that appropriate actions are taken at appropriate times.

◆ Today's efforts to formalize the capture and management of business rules originated in four different movements that have waxed and waned over the course of the last two and a half decades.

- Business Rules for Software Development
- Rule-Based Systems for the Capture of Expertise
- Risk Management and Compliance Issues
- Business Rules Used in Business Processes

Figure 10.12 A systematic, top-down approach to business rules.

Business Rules Used in Business Processes

Figure 10.13 A workflow diagram with a business rule that defines a decision diamond.
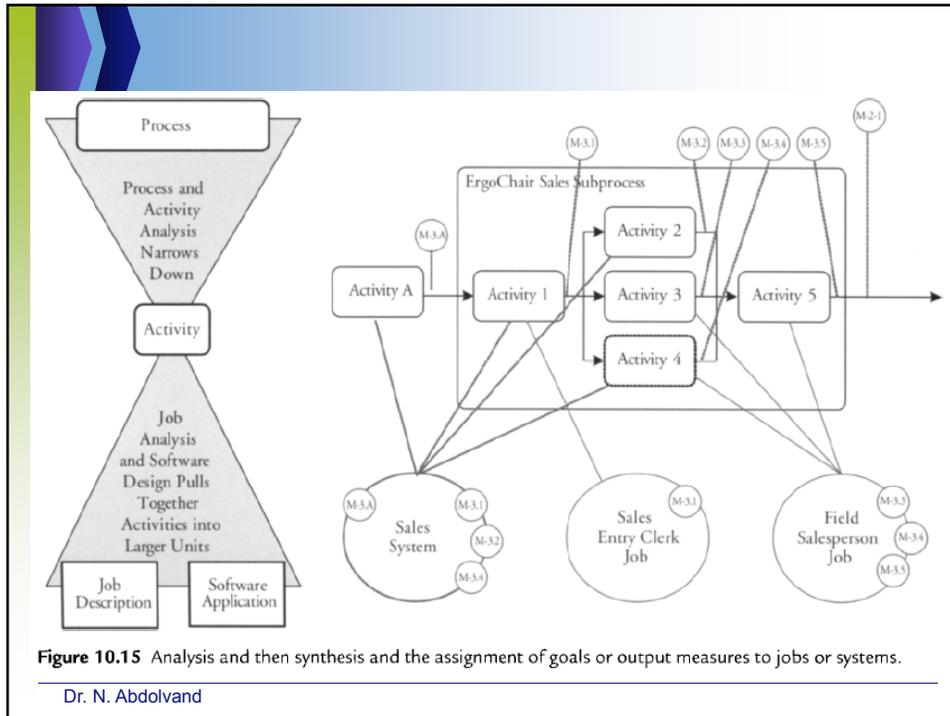
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Knowledge Rules

◆ the rules are not so much defined by explicit policies as by experts who are hired to make the decisions.

◆ As process analysts examined ever more complex processes, they found that the capture of business rules was an important part of most business process redesign efforts
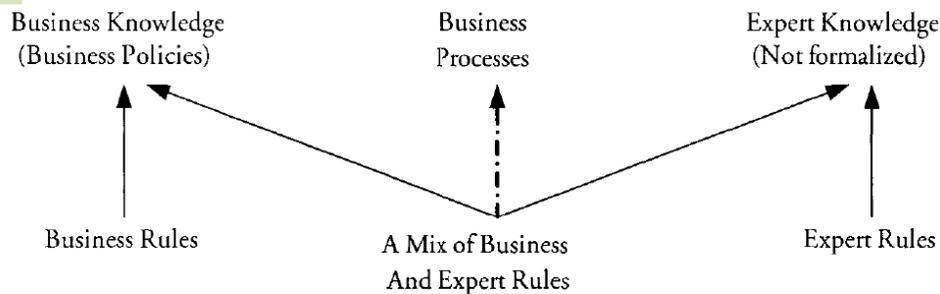
Figure 10.14 Business rules and expert rules.

Activities, Job Descriptions and Applications

◆ In some simple cases, a single person may be assigned to a single activity

◆ In most cases, a large process will support many subprocesses divided into many different activities.

- Some individuals will be responsible for multiple activities.
- Each of those activities would have goals and measures, and each salesperson would be responsible for meeting all of the goals of all of the activities that were included in his or her job description.

◆ The entire process should be supported by a single workflow application, and the documents being processed are maintained in a single database.

Figure 10.15 Analysis and then synthesis and the assignment of goals or output measures to jobs or systems.

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Questions?