CHAPTER 9
Playing by the rules

Objectives

- After finish this chapter, student should understand the influence of business rule on many type of software requirements

- Student could identify at least one of each business rule type from the taxonomy in Figure 9-1 for student's project

- Set up a traceability matrix to indicate which functional requirements enforce each business rule that student identified.

- Identify the rationale behind each functional requirements to discover other, implicit business rules

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Business rules overview

TABLE 9-1 How business rules can influence various types of software requirements

Requirement type	Illustration of business rules' influence	Example
Business requirement	Government regulations can lead to necessary business objectives for a project.	The Chemical Tracking System must enable compliance with all federal and state chemical usage and disposal reporting regulations within five months.
User requirement	Privacy policies dictate which users can and cannot perform certain tasks with the system.	Only laboratory managers are allowed to generate chemical exposure reports for anyone other than themselves.
Functional requirement	Company policy is that all vendors must be registered and approved before an invoice will be paid.	If an invoice is received from an unregistered vendor, the Supplier System shall email the vendor editable PDF versions of the supplier intake form and the W-9 form.
Quality attribute	Regulations from government agencies, such as OSHA and EPA, can dictate safety requirements, which must be enforced through system functionality.	The system must maintain safety training records, which it must check to ensure that users are properly trained before they can request a hazardous chemical.

A business rules taxonomy

- Definition:
  - From the business perspective
  - From the information system perspective
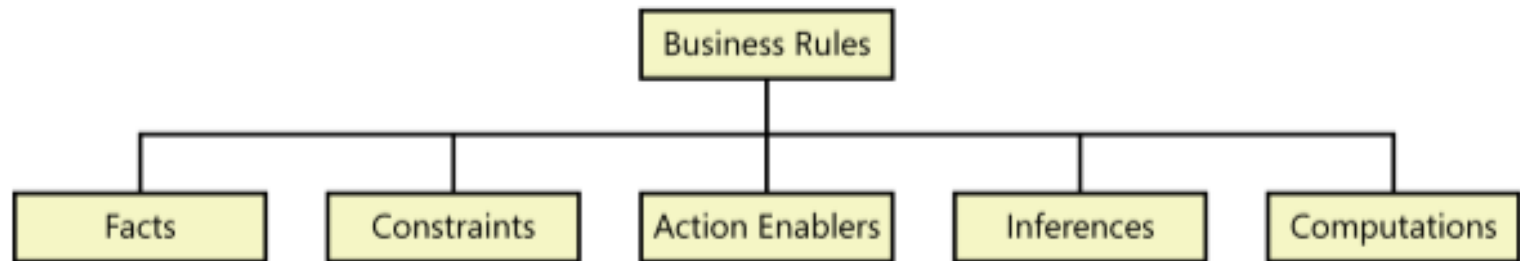- Atomic business rules
- A simple business rule taxonomy

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                    │  Business Rules  │
                    └──────────────────┘
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   ┌─────────┐ ┌───────────┐ ┌──────────────┐ ┌────────────┐ ┌──────────────┐
   │  Facts  │ │Constraints│ │Action Enablers│ │ Inferences │ │ Computations │
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FIGURE 9-1 A simple business rule taxonomy.

Documenting business rules

TABLE 9-4 Some sample business rules catalog entries

ID	Rule definition	Type of rule	Static or dynamic	Source
ORDER-5	If the customer ordered a book by an author who has written multiple books, then offer the author's other books to the customer before completing the order.	Action enabler	Static	Marketing policy XX
ACCESS-8	All website images must include alternative text to be used by electronic reading devices to meet accessibility requirements for visually impaired users.	Constraint	Static	ADA Standards for Accessible Design
DISCOUNT-13	A discount is calculated based on the size of the current order, as defined in Table BR-060.	Computation	Dynamic	Corporate pricing policy XX

Discovering business rules

- "Common knowledge" from the organization, often collected from individuals who have worked with the business for a long time and know the details of how it operates.

- Legacy systems that embed business rules in their requirements and code. This requires reverse-engineering the rationale behind the requirements or code to understand the pertinent rules. This sometimes yields incomplete knowledge about the business rules.

- Business process modeling, which leads the analyst to look for rules that can affect each process step: constraints, triggering events, computational rules, and relevant facts.

- Analysis of existing documentation, including requirements specifications from earlier projects, regulations, industry standards, corporate policy documents, contracts, and business plans.

- Analysis of data, such as the various states that a data object can have and the conditions under which a user or a system event can change the object's state.

- Compliance departments in companies building systems subject to regulation.
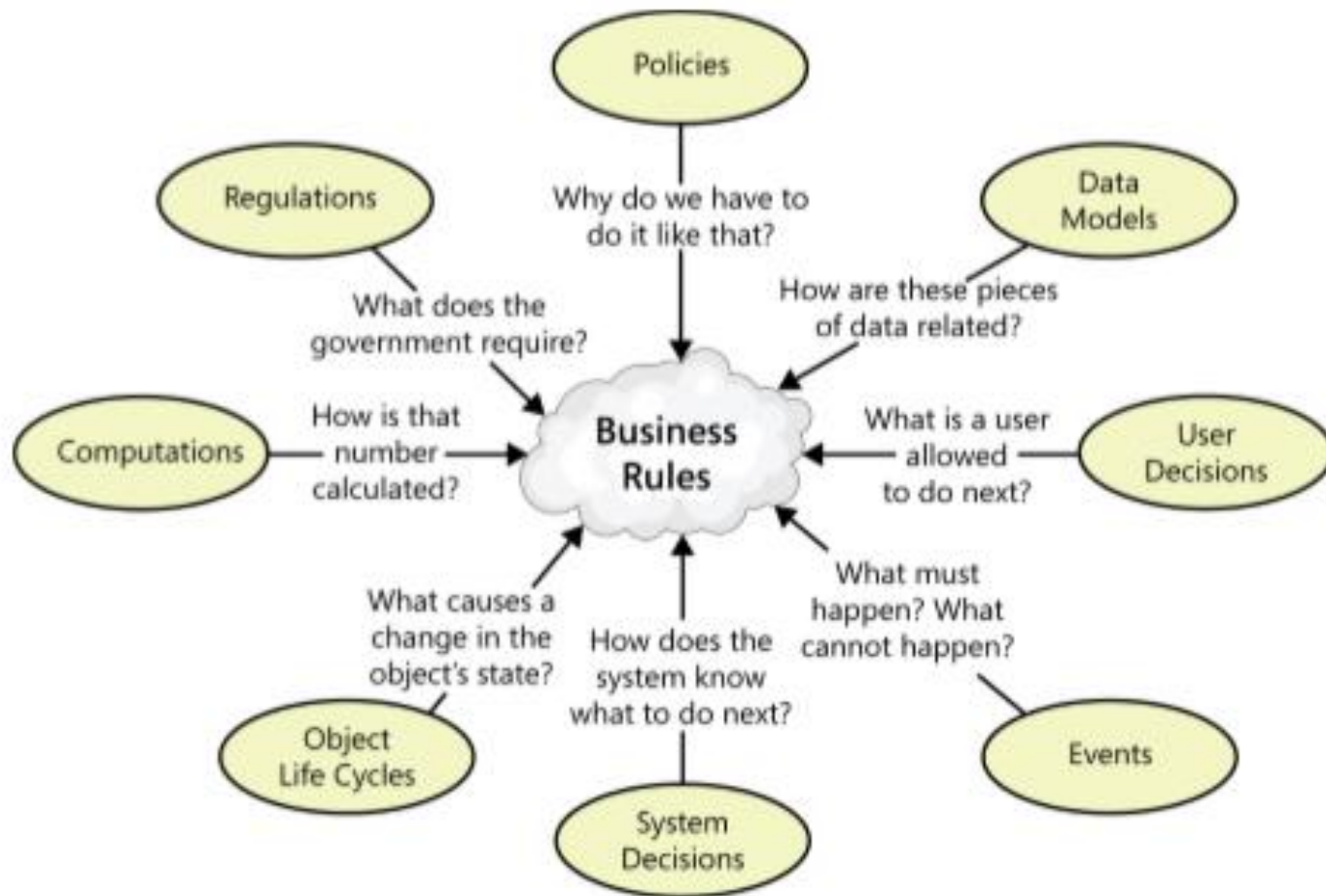
Discovering business rules

FIGURE 9-3 Discovering business rules by asking questions from different perspectives.

Business rules and requirements

- After identifying and documenting business rules, determine which ones must be implemented in the software.

- Business rules and their corresponding functional requirements sometimes look a lot alike. However, the rules are external statements of policy that must be enforced in software, thereby driving system functionality.

- Every BA must decide which rules pertain to his application, which ones must be enforced in the software, and how to enforce them.

Tying everything together

- To prevent redundancy, don't duplicate rules from your business rules catalog in the requirements documentation.

- Instead, refer back to specific rules as being the source of certain functionality or algorithms.

- You can define the links between a functional requirement and its parent business rules in several ways-

  – If you are using a requirements management tool, create a requirement attribute called "Origin" and indicate the rules as being the origin of derived functional requirements.

  – Define traceability links between functional requirements and the connected business rules in a requirements traceability matrix or a requirements mapping matrix

  – If the business rules and requirements are stored in word processing or spreadsheet files, define hyperlinks from business rule ID references in the requirements back to the descriptions of the business rules stored elsewhere. Be aware that hyperlinks are prone to breaking if the location of the rules collection changes.