Chapter 2
Representation and Patterns:
An Introduction to the REA Enterprise Ontology

Review Questions

R1. What is a model? Why do we create models of systems?

The chapter is based on the concept of modeling a system before you build and implement it. The chapter discusses modeling approaches, thus it is important to think about what a model is and how it benefits you in building systems. A model is a pattern or scaled object that represents some existing object. Modeling a system before building allows you to better understand the phenomenon you are trying to support with an information system. In our case, those phenomena are business processes, the related information processes, and the decisions associated with them. You can use your model as a blueprint or roadmap for developing the actual system. Modeling is wonderful if you choose the proper phenomenon to model and if your model is well constructed and represents a thorough understanding of the phenomenon. Modeling is not so beneficial if you model the wrong phenomenon or if you model is poorly constructed.

R2. What is a business process?

Business processes are the activities associated with providing goods and services to customers. Sample business processes include acquiring and paying for various resources (e.g. financing, human skills, materials and supplies, and plant and equipment); converting resources acquired into goods and services for customers; and delivering goods and services to customers and collecting payment. Just like a play that is comprised of four separate acts, business processes are comprised of a discrete, related series of business events that management wants to plan, execute (control), and evaluate. Thus the term business process implies a group of business events.

R3. Is it better to make one model of an entire organization or several smaller models of individual processes?

Organizations are complex entities. Thus, when you are developing a model of an organization, initially trying to develop one model would prove difficult and overwhelming. It is less burdensome if you divide the organization into manageable chunks, taking care to incorporate an understanding of how the chunks relate, then merge or synthesize the pieces later.

R4. What is the difference between token and type level representation?

The difference is in the level of aggregation in the representation. A token is an individual instance of something, thus token level representation includes a separate representation for each individual instance. A type is a category of instances that have something in common with each other, thus type level representation includes one representation for a group of instances, based on their shared common trait.

R5. What is the difference between an object pattern and a script pattern?

Whereas object patterns focus on objects and the relationships between them, scripts patterns are sequences of events that typically occur in combination with each other.

R6. What are the four levels of the REA ontology and what type of pattern (object or script) exists at each level?

Value system level – primarily an object pattern
Value chain level – primarily a script pattern
Business process level – primarily an object pattern
Task level – no pattern yet identified, would be primarily a script pattern

Discussion Questions

D1. Dramatic productions follow scripts that contain scenes, actors, props, and roles. Describe how each of these components maps into the levels of the REA enterprise ontology. Do you believe it is useful to think about enterprises from the script perspective? Why or Why not?

Scenes = transaction cycles
Actors = agents
Props = resources
Roles = participation relationships
Answer to opinion portion of question will vary; some will find the script perspective useful for thinking about enterprises, others will find it unnecessary; some will be neutral.

D2. The chapter gave an example of a romantic script that some would say is the theme for most "chick flicks" (i.e., movies that tend to appeal to a largely female audience). Write a similar script for the types of action/adventure movies that tend to appeal to a mostly male audience. What (if anything) do romantic and action movie scripts have in common?

Scripts may vary; one possibility is outlined here:
Something bad happens to the male star or to someone he loves
The male star takes steps to recover from the injury or loss
The male star encounters a female with whom he develops immediate chemistry
The male star has opportunity for revenge; enacting this revenge involves car chases, fighting, fire, explosives, guns, or other thrill generating phenomena
The male star narrowly escapes death in enacting his revenge, and most likely has to save his new female companion, but in the end he prevails and lives happily ever after with his new female companion

Both romantic and action movie scripts tend to have happy endings. Also, most action movies have a embedded romantic subscripts (the male hero with the female companion) within them.

D3. The chapter gave an example of a business process level core model including resources, events, and agents for the acquisition/payment process for Robert Scott Woodwinds. What do you think some of the resources, events, and agents would be for the business process level core model for the revenue cycle for Robert Scott Woodwinds? Include at least two resources, two events, and three types of agents.

Resources: Inventory, Cash, Services, Operating Assets
Events: Sale, Cash Receipt, Sale Order, Marketing Event, Sale Return
Agents: Salesperson, Customer, Cashier, Credit Manager

D4. Do you think activities that could be re-engineered away should serve as foundational building blocks in an enterprise information system? Why or why not?

Since this is an opinion question, responses will vary. Students should recognize the problems that arise from including non-essential activities as foundational building blocks in an enterprise information system. If essential elements of the system are based on activities that can be re-engineered away and those activities are in fact re-engineered away, the entire system will collapse. If, however, the foundational elements of the system represent those activities that are stable and necessary to the enterprise, and activities that can be re-engineered are represented by easily removable system components, changes in the enterprise will be easily absorbed by the enterprise system.

D5. The REA ontology was originally created as an accounting model intended to replace the traditional double-entry model Assets = Liabilities + Owners' Equity. Using your knowledge of the traditional double-entry accounting model, what are the essential parts of accounting that cannot be re-engineered away? In other words, what makes up the essence of accounting? What parts of the traditional double-entry model are artificial constructs that could be replaced with other methods or approaches?

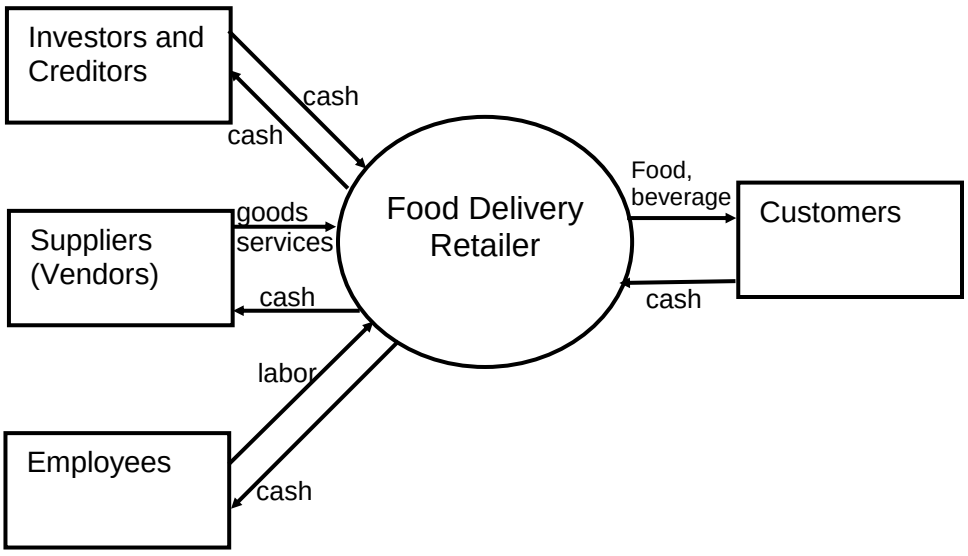
The essential parts of accounting that cannot be re-engineered away are the transactions that represent the exchanges of resources between the enterprise and its external business partners. Accounting must track the resources owned and owed by an enterprise, and summarize the events by which those resources were increased and decreased. The accounting equation, debits, and credits are all artificial constructs created to help track resource increases and decreases in a manual bookkeeping environment in which negative numbers were not allowed.

Applied Learning

A1. Picture in your mind a pizza (or other food) delivery retailer of your choice. Using the knowledge you have based on your previous experiences with ordering pizza (or other food), combined with your general business understanding, try to guess what the value system level model for this enterprise will include. You may either draw a value system level model similar to Exhibit 2-2, or you may prepare a matrix as follows:

External Business Partner	*Resources Flowing From External Business Partner*	*Resources Flowing to External Business Partner*

Suggested Food Delivery Retailer Value System



Students may include other constructs in addition to those depicted above. Some may include franchises/franchisees. Consider what resources are exchanged between a franchise and a franchisee. This makes for a good discussion of resource identification and measurement.

A2. Midsize University in Make-Believe Land has a library. You have never been to Midsize University or even to Make-Believe Land before. You have been asked to create an object model for Midsize University's library. That is a model that illustrates the sets of things that exist in the library and the relationships between those sets of things. You will earn a bonus if you can complete the model in a very short time frame. Your flight to Make-Believe Land has been delayed for 4 hours, which is going to make it very difficult to finish on time. Whatever you can complete now will help you to meet your bonus deadline, so you start sketching a model while you are waiting for your plane. Either prepare a model in diagram format, with boxes to represent the things and lines connecting those things that are related, or prepare a list of things you expect to need in your model and a list of the relationships you expect to find between them.

Suggested things and relationships for library – others are possible

Expected Things	Expected Relationships
Books, journals, maps, or other media	Patrons – borrowings
Patrons	Patrons – returns
Employees	Patrons – fines
Borrowings of media	Patrons – fine payments
Returns of media	Employee – borrowings
Fines for late returns or failure to return	Employee – returns
Payment of fines	Employee – fines
	Employee – fine payments
	Media – borrowings
	Media – returns
	Borrowings – fines
	Fines – fine payments
	Borrowings – returns