BUSINESS PROCESS MANAGEMENT

Process Integration through Hierarchical Decomposition

- Business is a complex organization; therefore, their information requires some scientific guidance. The construction of an enterprise is expected to benefit from engineering practices.
- Similar to the role of information technologies in shaping the way operations are conducted, structuring the business will also require modern technologies.
- Developing rapidly, software engineering has become the closest discipline to enterprise engineering for the study of processes, the logical representation of any structure integration, and modeling.
- In this chapter, some mechanisms used in component-oriented software integration are adapted to enterprise engineering, namely, hierarchical decomposition and component integration.

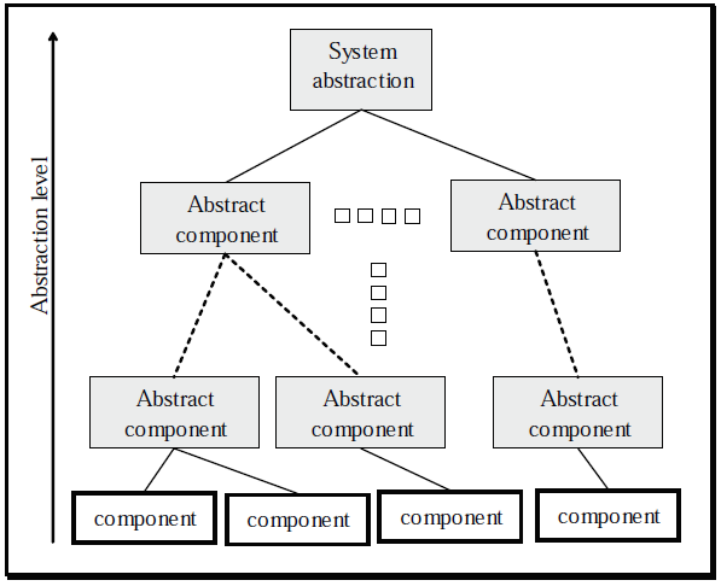

Figure 1. Decomposition in a hierarchy

- Figure 1 depicts the decomposition model. As an initial step, the whole operation (system) can be modeled as an abstract process
- The immediate parts of the whole can be represented as logical entities in the decomposition.
- When sufficient decomposition is done, the decomposition model will come close to real processes.
- Process models that represent real business processes will take place at the bottom of the hierarchy.

Process Decomposition Model

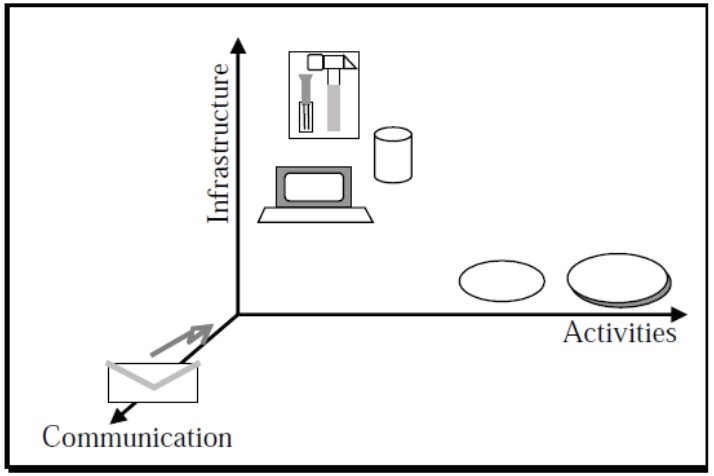

Figure 2. Process modeling concepts in three dimensions

- A process is a set of tasks ordered to accomplish a goal.
- A process can be made of smaller processes called activity. An activity is traditionally regarded as a unit-processing element inside a process
- An activity is similar to a process. However, if an activity is not going to decompose to further tasks, it is not called a process.
- Figure 2 depicted the three dimensions of modeling elements.
  - Activity dimension- where activities are basically situated. Unit actions that make a process are usually modeled as activities. Sometimes these activities are composite; they are explained through lower-level activities.

- Infrastructure dimension – stands for material and product, besides resources that are traditionally more representative of infrastructure concept.
- Communication – could be interpreted as any kind of information flow between activities and personnel. As the most important concept, this dimension is also responsible for the ordering of the tasks.

- If synchronization is required to signal the beginning or the ending of the activities, it will be carried out through communication among the activities.

Abstraction

- Abstraction is a key concept in studying complex structures. The initial response to complexity is to employ divide-and-conquer tactics.
- Such division should be guided in a hierarchy, meaning, a group of the dividends should be represented by a generalization concept.
- Abstraction is a generalized unit, as a logical entity, hides many enclosed details. Observing from a higher point-of-view, the internal details can be ignored, thus reducing the complexity in the cognition process to aid in the understanding of the whole rather than being required to view the internals of all parts at the same time.

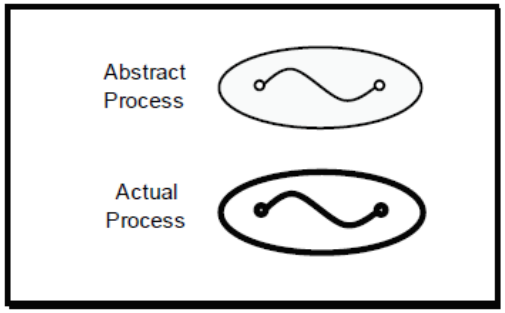

Figure 3. Abstract and actual process representations

- A system can be studied at two (2) levels:
  1. The whole without details
  2. Parts with details, one at a time

An Example of Process Construction

- In this section, a decomposition of a business process is demonstrated through an example.
- English Text Doctor is an organization who offers help in the proofreading and correction of written documents. There is a customer interaction part of the business that receives new texts, edited, then returns them to the customers.
- Customers are billed based on the number of pages.
- The other part of the business is like the back office: A list of proofreaders is maintained and the proofreaders receive jobs based on a circular order; documents are ordered and assigned to proofreaders, and finalized documents are collected and directed to the customer.
- There are criteria for evaluating the proofreaders; timely delivery, for example, is a critical issue in the cost of the service.
- This organization has two main processes: one for customer interaction and the other for the actual service production.
- The enterprise engineer can start with the top-level decomposition of the operation as customer and office processes. These top-level subprocesses are determined to be abstract type (Figure 4).

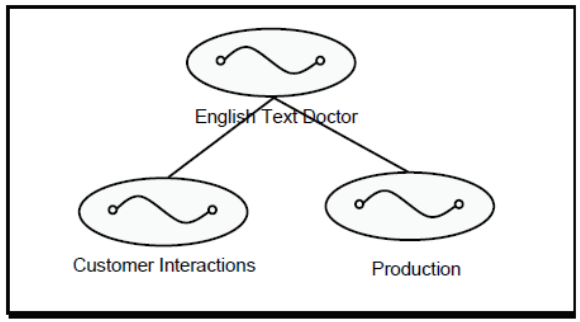

Figure 4. First-level decomposition of the process hierarchy

- Next, the customer interactions process is perceived to comprise two important constituents: the receive and sell operations.
- They are under the customer interactions abstraction only logically because they both interact with the customer.
- Continuing with the decomposition, the designer introduces the receive and sell process under the customer interaction.
- On the other side, there is a central process that monitors the delivery from the proofreaders. This central process is referred to as the hub process.
- Figure 5 shows the final decomposition of the process.

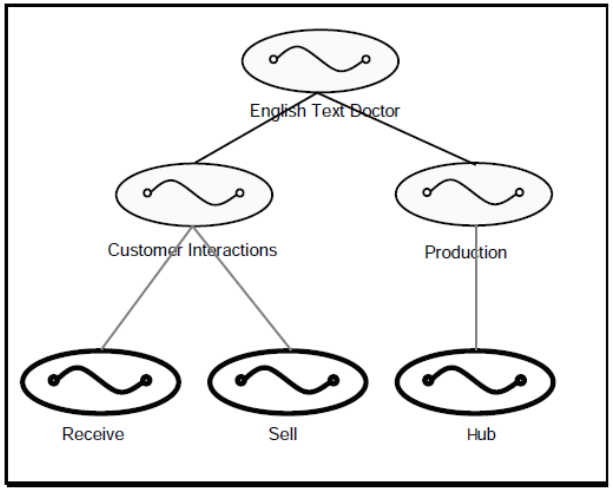

Figure 5. Hierarchy diagram for English Text Doctor

Component Processes

- Now that the skeleton of the system is defined, it is time to concentrate on the functional modules.
- Figure 6 depicts the process for the receive side of the organization.

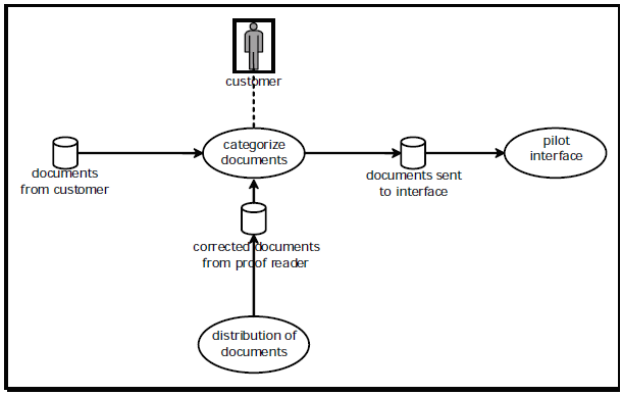

Figure 6. A process model for the buy-side process of the English Text Doctor organization

- Following the regular flow of the operation, incoming documents are directed by the hub process.
- Figure 7 presents a model for the hub operation. Here, documents are sorted, assigned IDs, and dispatched to proofreading groups and then to the customers.

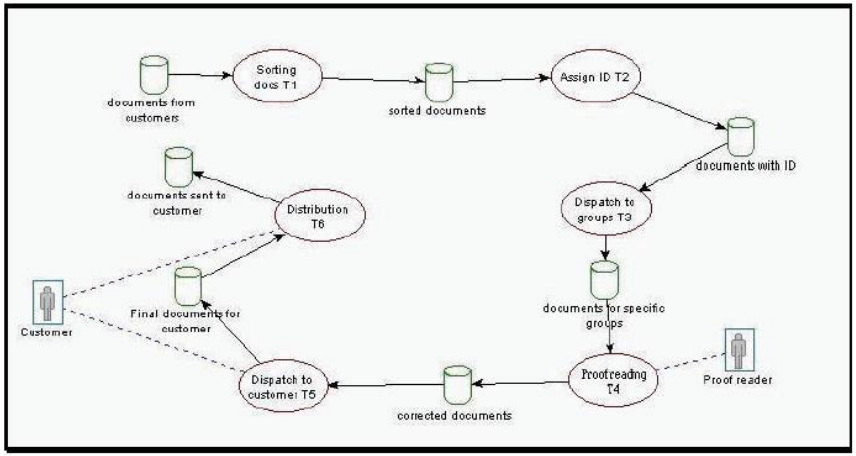

Figure 7. A process model for the central hub for English Text Doctor

- Finally, the sell side is where the edited document is directed to the customer. Figure 8 depicts a process model for the sell side.

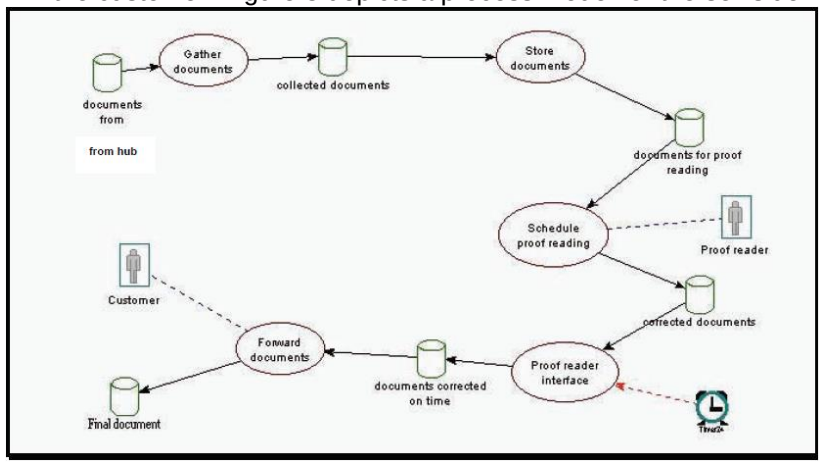

Figure 8. The sell-side process model for English Text Doctor

- Now it is time to integrate the identified component process. Once all the processes are integrated through connections, it is also possible to present a combined process model for the system in detail.

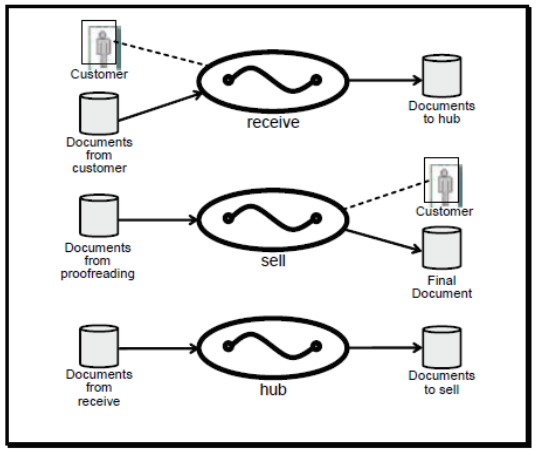

Figure 9. Actual process and their connections

- Figure 9 presents the black-box view of the three actual processes. Here, details are hidden, but the context of a process is presented: Input, output, and related resources are shown with the process.
- The integration can be represented on the hierarchy diagram with less detail on the connection as shown in Figure 10.

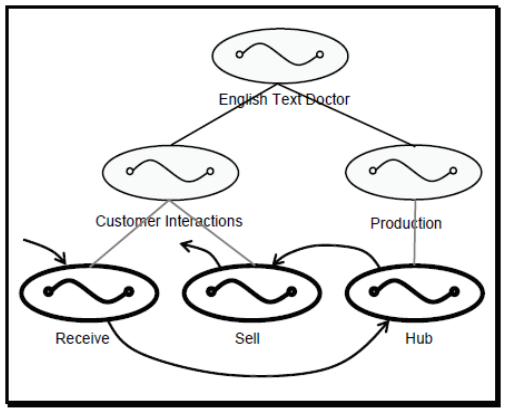

Figure 10. Integration through connections in the hierarchy diagram

- An integration view that ignores where the processes came from (hierarchy diagram) and the internal details (process model for the component processes) is presented in Figure 11.

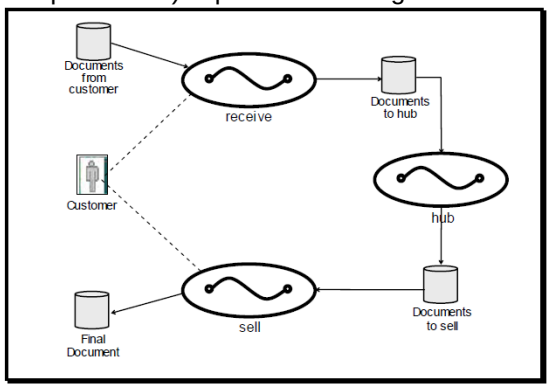

Figure 11. Integration of component processes

- One point can quickly catch the eye: The customer icon represented twice in Figure 9 is only drawn once in Figure 11.
- This is an example of the general statement that an integrated process is not simply a gathering of component processes; some modifications may be necessary.
- Finally, the combined process model for the integrated processes is shown in detail in Figure 12.

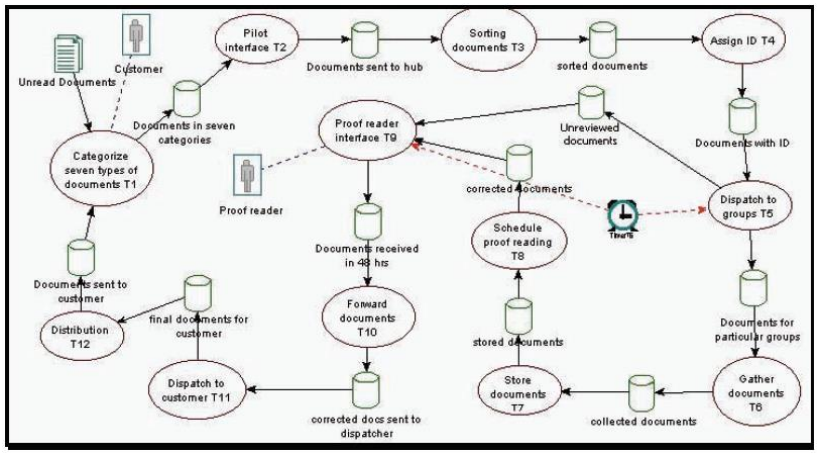

Figure 12. Integrated super process in detail

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