

# Chapter VIII

## Crossing the Chasm: Business Process to Information Systems

### ABSTRACT

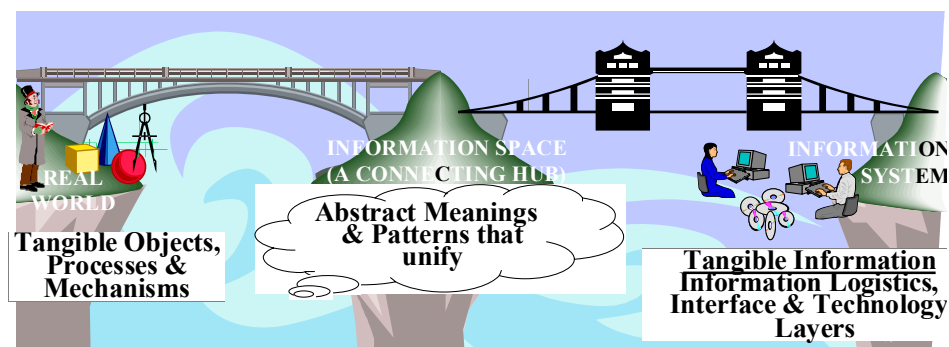
*This chapter describes the bridge between business meanings and automated information systems. It describes the information architecture that interfaces computational processes to the business semantic.*

We have seen how an object is a pattern of information (see Chapter IV and Box 7.9). It is an abstract pattern in an abstract place that can be called *information space*. This pattern of information is the *essence* of the object—its “spirit” in one sense; it lends meaning to the object. This information manifests itself in physical space only when it is attached to a format. A physical object could in the

same way also be considered to be a “format” of an object in physical space, a manifestation of the information it conveys. This information makes it what it is. In crossing the chasm from business process to information systems, our focus must shift from format to meaning.

The meanings glue the physical world of business process, tangible objects, and mechanisms

*Figure 8.1. The bridges from business process to information system*



to the world of tangible information systems that automate and track the information content of the real world. As we have seen, these meanings engage each other to produce new, compound meanings that support both simple and complex behaviors in multitudes of possible configurations. Changing or reconfiguring a meaning will automatically change the meaning and behavior of the business process or object that manifests it in the world of business and, simultaneously, without pause, will also change the information content and configuration of information systems that tangibly manifests *information* about that behavior. The meanings unify, but we must know what bridges we must cross and how to transform meanings into the behavior of information systems. The transforms in this section are those bridges.

These bridges too are components of knowledge—great sweeping bridges that connect the physical world of business to the vast universe of meanings beyond—meanings that are pure information—and then sweep back from abstract meanings to the tangible world that gives pure information a shape and form that we can sense, store, and manipulate.

The primary focus of this book has been the bridge that links the tangible world of business to the abstract world of meanings beyond. Box 4.1 and Equivalence of Patterns in Chapter IV contained transforms that gave intangible meanings tangible form—formats and measures we could manipulate. In this section, we will dwell on translating business processes to information systems. The design of the technology, interface, and information logistics layers of Figure 3.4 are discussed where they touch layers of business meaning. We will see how the design process may be automated by special transformation logic.

The key to the first bridge in Figure 8.1—the bridge from the tangible world to the world of abstract meaning—is simple. Tangible objects and processes convey information that we must abstract, normalize, and focus on. Every object

and every process in the real world must be mirrored by a pattern of information—a model that abstracts its essence. Its counterpart in information space, a simple reflection, will reflect every object, resource, product, and process. Unfortunately, rules that are simple at the beginning seldom retain their simplicity as we peel back layers of meaning to reveal the complexity that lies beneath.

A real life business object—a resource, a product, or both—must map to an information object, but it must also be generalized and classified in order to normalize information. This, as we have seen, can be complex, but the patterns in the Universal Perspective, in tandem with our metamodel and the various algorithms for reducing data to normal forms can help (see Appendix II on normalization). Liskov's principle and the Principle of Parsimony must be applied to the Universal Perspective, so that the business semantic is as generalized as possible, without being ambiguous. This will facilitate agility and reuse across different contexts in support of innovation.

A real life business object will interact with other objects. These interactions will be reflected in information bearing relationships in information space. The interactions too must be normalized. We have discussed them at length. It is the same with processes. They are relationships that carry information on the flow of time. We have discussed them too. However, as we will see, the behavior of these reflections is subtly different from the reality they mirror.

## **TRANSFORMING BUSINESS PROCESSES INTO EFFECTS OF EVENTS**

The reflection of processes in information systems is relatively simple when the process produces (or changes) only one product: Events normalize temporal information, and objects respond to events; events have effects on objects through

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