Business - Information Systems Professional Differences: Bridging the Business Rule Gap

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Group differences have often been cited between information system professionals and functional-business professionals. Now perspectives of what constitutes business rules must be added to the list of group differences. In many organizations, functional business professionals and information systems professionals disagree as to what constitutes a business rule. Functional personnel express business rules in terms of how business processes are defined and constrained. Alternatively, information system professionals view business rules in terms of the constraints that the rules place on manipulating the organization's data resources. Each of these perspectives is essential for the effective management of a firm's resources, but each perspective—indeed of the other—fails to acknowledge the interreliance of business processes and the information systems that support them. This research develops a theoretical basis for this gap based on structural learning theory's definition of directive rule types: problem definition rules and solution rules. Structural learning theory is used to illustrate how these perspectives can be bridged. Based on the resulting model, the paper discusses the knowledge, skills and abilities that information systems professionals must have to enable bridging the gap.

Group differences have often been cited between information system professionals (ISP) and functional-business professionals (FBP) (Kaiser & Bostrom, 1982; Kaiser & Srinivasan, 1982). These differences have been acknowledged for over three decades (Weinberg, 1971), and often have been attributed to personal traits associated with voluntary membership in each group (Couger, Zawacki, & Oppermann, 1979; Kaiser and Bostrom, 1982). Ferratt and Short (1988) found that differences between FBP and ISP are attributable to differences related to work-units—that is, tasks and responsibilities. Now perspectives of what constitutes business rules must be added to the list of group differences (Sharpe, Hale, & Haworth, 1996).

Traditionally, business rules have been defined in policy and procedure statements that, in turn, have been automated. Most often this automation has taken the form of hard coding business rules into application software that has become today's legacy systems (Pfrenzinger, 1992). Today, as organizations are faced with heightened competition, environmental turbulence, and new market relationships (Rockart & Short, 1989), the challenge is to replace the traditional encoding of business rules within legacy systems with more flexible implementations that facilitate the achievement of changing business goals. For example,

A recent business process reengineering effort at a multinational manufacturing firm resulted in a fundamental organizational change from a functional to a matrix structure. An effective structural change necessitated the shared "ownership" of resources, better management of human resources, and better communications between project leaders and the Center of Ex-
cellence managers. The structural change required a fundamental shift in the organization's business rules. It took the Information Systems department more than two years to implement these new rules and support the information needs of the staff required to sustain the new organizational structure and objectives (Texas Instruments, 1994).

Reengineering efforts, such as the one described above, have led organizations to the realization that a critical factor in achieving flexibility is the ability to manipulate their business rules (Caron, Jarvenpaa, & Stoddard, 1994; Hammer, 1990; Taylor, 1995). To this end, the concept of a business rule must evolve, as well as how ISP use business rules to better respond to FBPs' needs.

ISP view business rules in terms of the constraints they place on manipulating the organization's data resources. Alternatively, FBP view business rules in terms of how they define and constrain business processes. Acknowledging the importance and necessity of each perspective, this paper:

- refines the definition of the dichotomy,
- develops a congruency model to bridge the gap, and
- articulates the critical abilities required by ISP to enable bridging the gap.

**Evaluation Of Conventional Business Rule Management**

In most organizations, FBP and ISP disagree as to what constitutes a business rule (Sharpe, Hale, & Haworth, 1996). Moreover, it is standard practice in legacy systems to automate business rules in isolated business functional systems rather than in an integrated cross-functional (i.e., business process) system (Konsynski, 1993) that provides enterprise leverage. As a result, it is the norm to have redundant business rules automated in multiple systems, with each system implementing business rules in an unique manner (Price, 1994). These unique implementations of business rules have resulted in a lack of overall coordination of legacy systems. This, in turn, has had a range of effects, from utilizing human intervention for resolving system incongruencies (that is, humans facilitating the coordination of activities based on non-automated business rules), to massive disasters such as the United States' Internal Revenue Services abandoning a project to unite its various document management systems after expending $4 billion (Davis, 1997). Thus, the current state of business rule management practices can be characterized as ad hoc and ineffective.

Several attempts have been made to use emerging information technologies to resolve the business rule management problems. Artificial intelligence was seen as the panacea to solve these problems (Singh & Huhns, 1994); however, difficulties have arisen in defining rules and with technologists concentrating on implementation issues, rather than on acquiring business specifications (Hale, Sharpe, & Haworth, 1996). Client/server (McLean, Koppelman, & Thompson, 1993) and object-oriented (Cockburn, 1993; Taylor, 1995) technologies also have been touted as mechanisms to resolve the same problems. Client-server technology was to resolve the gap by having the FBP maintain business rules for themselves without having to submit to IS guidelines. Catch phrases such as putting the power of the computer closer to the functional-business professional (Haeckel & Nolan, 1993; King & Grover, 1991) emphasize how the gap was to be closed. As client/server systems have been implemented, it has become evident that for organizations to exploit the power of computing at the fingertips of their personnel, enterprise IS architectures must be established to unite what otherwise would be islands of automation (Hale, Haseman, & Groom, 1989; Lee & Leifer, 1992). Consequently, for the enterprise as a whole, client-server technology has not resolved the need to close the gap in perspectives. Object-oriented technologies have been heralded as a means to resolve the gap in perspectives by using the same methods to derive user requirements as to implement system features (Rumbaugh, et al., 1991; Snyder, 1993). However, object-oriented developers have had their success in building independent applications rather than mission critical enterprise systems. As object-oriented system implementations are scaled up in size to enterprise systems, what needs to be captured has yet to be resolved — thus, the gap in perspectives remains.

Technology cannot resolve this gap between business rule perspectives; a solution must be found that transcends inevitable changes in technology. This paper argues that this problem is rooted in the dichotomy between each group's intent for using business rules. Based on these intentions, a basis for common understanding is developed, and a model is identified that can be used to mitigate this problem.

**Understanding The Gap**

Business rules place conditional, structural, or definition constraints on a business activity (Sharpe et al., 1996). FBP develop business rules for the purpose of defining, designing, implementing and controlling work practices to produce business products and services (Keller, 1994; Silver, 1993; Singh, et al., 1994). In developing information systems, ISP have created computer systems to capture, store, manipulate, transport, and disseminate data. Thus, ISP use business rules to define constraints placed on data utilization and to provide data connectivity (Chen, 1992; Cockburn, 1993; Greengard, 1994; Price, 1994).

The discrepancy in business rule perspectives arises as the rules used by FBP and ISP are directed toward different aspects of business problems. For example, FBPs' rules may
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