Modeling Staff Behavior in the Production of Information Products

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ABSTRACT

Improved understanding of staff behavior in organizations whose primary product or competitive advantage lies in the production of information connects with two trends in the information industry: (1) the growing import of bundled, or meta-information, in corporate sales strategy, as exemplified in the information sales strategies of companies as EBay, Expedia, or Amazon (2) a shift in the competitive information organization's landscape from using expertise in developing, deploying, and managing ICTs to create barrier to entry, to ICTs as commodities [4]. These two trends suggest a movement away from the ICT as the central artifact and towards that of a contextual factor within larger information production process. Further, under such conditions, the behavior of staff involved in the production of information products becomes increasingly important in achieving a competitive advantage. My research posits that an information organization capacity to compete partially lies in its ability to foster staff behaviors that produce optimal usage of ICTs in acquiring, organizing, and disseminating information. This research contributes to the field of information studies by (a) developing the models and methodologies for examining these types behavior; (b) identifying the patterned variations that differentiate these types of organizations from others; and (c) creating theories of causation regarding the relationship among organizational structures, ICTs, and staff behaviors toward production of information products. The goal is to model the fit between staff behavior, ICTs, and organizational actions that best optimizes the production of information products.

My theoretical approach draws from both information studies (IS) and organizational theory. This approach allows me to keep one eye on the IT artifact and the other on other factors at work within the organization. Support for IS research that moves away from the information technology (IT) artifact as the central focus [3] is provided by both Galliers [5], who sees the future of IS as a shift from IT as the central artifact to that of people/information, and DeSanctis [4] who suggests that natural evolution of IS is away from IT as artifact, and toward IT as a human or organizational challenge. Orlikowski and Barley [9] write that both organizational theory and IS offer certain advantages to the study of IS problems. They note that drawing from the field of information studies provides a means of understanding technology as both a social and physical artifact. This conception of technology allows for a "more nuanced appreciation for why and how the material properties of technologies matter" and the development of "better images of how forms of organizing emerge as human action weaves itself around a technology's constraints and affordances" [9]. The benefit of organizational theory, on the other hand, lies in its ability to provide the broader framework for discovering regularities, general principles, and causal relationships. Drawing from both disciplines also allows me to build upon organizational theory's rich body of empirical research, while having opportunities to explore research anomalies using IS approaches such as those employed in social and organizational informatics.

My research context is information service units formed through a partnership between academic libraries and campus computing. The growing use of partnerships to create information products is documented in both the library and information science literature as well as in areas of the IS literature such as IT governance. Within the context of academic libraries, these types of units are often referred to as information commons, learning commons, or research commons. These hallmark of these units is the combination of librarians and technologists within an ICT-rich environment in order to facilitate customer knowledge creation [1]. Studying the library form of this information production partnership affords both depth of the relevant professional literature and a large number of units in operation (I have identified approximately 110 for my initial sample). The literature on the collaboratively based information services reveals a number of issues that pique my curiosity. To begin with, the creation of knowledge products within these units suggests a high level of behavioral integration between librarians and technologists. Structural contingency theory posits that managers can best achieve this level of integration through horizontal structures. Although the case literature frequently describes horizontal structures, there is little evidence of the presence of services that require such resource-intensive approaches. What factors, other than high degrees of integration, are causing managers to create horizontal structures? How are these units fulfilling the promise of knowledge creation if not through services that require high levels of integration? Are the commons fulfilling their promise to provide the knowledge creation products? If they are not, what holds them back?

To explore some of the organizational anomalies found within the professional information services literature, I use contingency theory to examine the relationships between people, organizations, and IT; factors that March describes as the interface of research in information systems [8]. I measure staff behavior using the degree of behavioral interdependence present in the production of the unit's information product. Structural

contingency theory posits interdependence as the explanatory variable for structural coordination. As such, I use coordination to represent organization forces. The contingency expectation of a positive relationship between interdependence and coordination forms the starting point for the development of a model of staff behavior in information producing organizations. Successful management of highly *interdependent* behaviors in ICT usage can lead to innovation in the creation of information products. The successful management of highly *independent* behaviors in ICT usage can lead to efficiencies in information operations. This model contributes to the IS literature by offering additional explanations for variances within information systems structures. For example, Barley's [2] seminal article on the effect of CT scanners in radiology departments concludes that while the introduction of technological uncertainty resulted in decentralization, the degree of decentralization depends on the specific historical process in which they are embedded. Reviewing this article in terms of a contingency perspective on interdependence offers an alternative explanation many of the differences found in Barley's descriptions of specific historical processes.

Turning to the last concept within March's [9] conception of an information system, the measurement of IT. This factor presents a measurement challenge in situations where the production of information involves partnerships. Within the context of my research setting of collaborative information service units, the two partners are generally composed of highly differentiated groups of information professionals. Typically each information profession brings with it histories that differentiate staff in regard to their approach to such issues as service levels, appropriate use, costs and benefits, or goals. Further, each profession focuses on different types of ICTs within the information service point, which is unto itself an ICT system Given this situation, Orlikowski and Barley [9] quite convincingly argue that IS's conception of technology is superior to contingency theory's conception of technology in explaining the process of organizing within an ICT-intensive context. The conundrum is that the IS approach to measuring technology is epistemologically incompatible with my desire to build a contingency theory based causal model. The compromise was to use Lawrence and Lorsch's {, 1967 #712} instrument for measuring behavioral differentiation. This instrument is at best a loose proxy for an IS conception of technology, but its measurement of behavior in terms of goal, time, and interpersonal orientation should capture part of the underlying forces that are eventually expressed through IS's conception of technology as both a social and physical artifact.

My research into integrated information service unit seeks to build upon prior work that has largely failed to confirm expected contingency theory relationships. Analysis of these studies suggests that this problem results from researchers underestimating the complexity of the information production context in terms of the relationship between interdependence and coordination and the potential moderating effect of technology derived behavioral differentiation [7,10,11]. This underestimation leads to large units of analysis, such as divisions, that are internally heterogeneous or externally homogeneous, thus confounding efforts to confirm expected relationships. My research resolves this problem through two different methodological designs. First, my focus on integrated information service units represents a smaller unit of analysis thus decreasing the presence of extraneous variables. Second, I accept the IS definition of technology as a complex social and physical artifact and as such substitute interdependence and behavioral differentiation as the causal variables within information service units.

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