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THE ELIMINATION OF DETRIMENTAL SHADOW SYSTEMS:
A PARTICIPANT OBSERVER CASE STUDY

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EXTENDED ABSTRACT

This research in progress study investigates the emerging key process indicators (KPIs) of an ongoing development project at a small academic institution located in the Midwest. Based on her professional background, the researcher was invited to participate on the sub-committee charged with revising the business processes and supporting information system for the human resources (HR) functional area. This project is expected to last at least two years, and may extend to four years, if necessary. The executive team, including the University President, is firmly behind this major modification, and the Special Assistant to the Vice President of Administration is the champion for the entire project of which the HR Data Structures is one of three parts. The sub-committee is working with two consultants to determine the direction of the development project, and to answer questions regarding the enterprise system. They also provide examples of how other academic institutions have implemented Banner® (Ellucian enterprise product). This has already proven quite useful, since the sub-committee’s dominant concerns have often been successfully resolved elsewhere. We don’t have to navigate through uncharted waters. The sub-committee includes representatives from most of the stakeholder groups on campus; HR, Budget Office, Administrative Information Services, Accounting Services, and Institutional Analysis.

The HR Data Structures portion of the overall project was selected as the starting point because of the underlying KPIs that impact the other two dimensions; Security Roles and Salary Planner. Fixing the systemic problems inherent in the underlying data is essential to improving these other major information systems. The consultants were instrumental in assisting the project planners from the start, helping them to see the “big picture” and to determine a generalized path to completion. Weekly dialogue with the consultants in this early development stage is critical to maintaining the motivation and focus of the sub-committee. Additionally, one of the consultants has participated via conference call for several bi-weekly meetings.

For brief background information, the current system has evolved over two decades and is no longer capable of integrating with the Banner® product commercially available. The original system did not include many of the features required to support HR business processes at this institution. Therefore, information technology (IT) staff created shadow systems to alleviate the problem. This is a common work-around for organizations when they confront information systems lacking specific capabilities (Chae and Poole, 2005). Boudreau and Robey (2005) define shadow systems as localized systems operating external to the centralized enterprise system that corresponds to specific functional requirements. The main problem with shadow systems is their inability to integrate with the standard enterprise systems. They often create sub-optimal outcomes for organizations, typically not established in industry best practices. Their purpose is to respond to locally focused needs (Morton, 2006).

An important issue that was uncovered in early sub-committee discussions is the absence of standard employment codes for positions and roles within the academic institution. This leads to the dysfunctional necessity of creating many individual account records as “exceptions”. The individuals do not neatly fit into the ambiguous categories defined by the shadow system, so the record becomes an exception to the rules of database input. And, as data storage capacity grows, the inefficiencies are amplified throughout the organization. Decision making and reporting to external agencies are both negatively impacted.

The researcher was surprised by the emotional attachment communicated by process owners to their current business processes, even though the processes are inefficient and cumbersome. The constant frustration they experience and resulting confusion have created passionate response to the processes. In effect, no one can replace the process owners because their process and domain knowledge is impossible to codify. Accomplishing the tasks has become tacit knowledge for the departmental experts. This situation creates vulnerability for the organization, since the loss of one of these integral agents would create a knowledge void.

The sub-committee is following lean principles, creating Kaizen profiles for each major business process that needs to be revised. Process owners, along with their stakeholders, are documenting the problems, identifying the objectives of the
change, and listing the steps required to accomplish the task. The sub-committee then comes together to discuss whether or not the problem falls under the purview of this task force.

Not much attention has been shown to shadow systems in the IS literature (Boudreau and Robey, 2005; Chae and Poole, 2005; Morton, 2006), although it is likely that they are pervasive in industry. In particular, they seem to be a byproduct of organizational growth and maturity, with systems that have been cobbled together over time. But, at some point, organizations must make the difficult decision to replace the barely-adequate shadow systems with well-designed, integrated enterprise systems. The real challenge begins when the organization commits to changing business processes to comply with the enterprise system. Forcing individuals to give up their shadow systems is not an easy task (Boudreau and Robey, 2005). But, in order to take advantage of the full range of benefits afforded by vendor-supplied enterprise system, based on best practices and efficiency, organizations must abandon their homegrown solutions and inefficient business processes. This study will document the real world experience from an academic setting. The implications will be useful for decision makers facing similar challenges with shadow systems and the systemic problems with inconsistent coding of data. Results will inform the IS discipline increasing understanding of KPIs and business integration. Future work will continue to develop the theoretical foundations of this important research topic.

Keywords
Shadow systems, systems development, participant observation.

REFERENCES