



The creation of ‘best practice’ software: Myth, reality and ethics

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Received 11 March 2006; received in revised form 10 April 2006; accepted 11 April 2006

Abstract

The notion of best practice is a foundational concept for vendors of Enterprise Resource Planning systems who use it to support a claim to provide tried and tested, ‘best of breed’ process models. This study illustrates how a best practice ERP system was actually created. The product resulted from a socio-political process involving negotiations amongst a small group of interests in a particular context. This process is illuminated through the presentation of an intensive case study in which we follow the creation of the ERP product destined to be marketed as a best practice solution for higher education institutions. We focus on the design of an ERP-based grants management system to highlight the role of software in shaping operations and strategy at both a firm and industry level. The design of IT shapes the boundaries of organizational knowledge and decision-making by classifying work practices and translating them into the software. The focus of our investigation is the process by which a small group of powerful actors came to define the ‘best practice’ for an industry. Findings reveal the politics involved in constructing, marketing and disseminating best practice claims. Using theoretical concepts from Science and Technology Studies literature, we illuminate how the design of the ERP product changed the nature of work, and how later such practices were locally refuted and amended, despite the original product continuing to be sold by the software vendor. The ethics of such ‘best practice’ claims are questioned.

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Keywords: ‘Best practice’ software; ERP systems; Ethics; Higher education administration; Interpretive case study research

1. Introduction

One of the challenges facing information systems professionals is supporting the integration of business processes across multiple functional units within an organization. The risks involved in this endeavor prompt many to rely upon software packages like Enterprise Resource Planning (ERP). Vendors of ERP systems claim that their products are tried and tested, building upon a wealth of experience that enables them to provide a state-of-the-art solution for specific industry sectors or company size (Klaus, Rosemann, & Gable, 2000). The capacity of ERP systems to integrate organizational business processes and share information across functional areas through a common database has prompted commentators to declare that they are a prerequisite for success in the 21st century (Davenport, 2000). This has fuelled sales of ERP making it arguably the most popular business software of the last fifteen years (Robey, Ross, & Boudreau, 2002).

The popularity of ERP is in part due to its promise of transferring exemplary business practices embedded within the technology’s design (Timbrell, Andrews, & Gable, 2001). A great deal of investment is made by software firms to find, embed, and transfer exemplary practices as a way of leveraging their past experiences and transferring their knowledge into a product that is saleable to the widest number of clients within an industry segment (*ibid*). We define these so-called ‘best practices’ as routine uses of knowledge that are judged to be superior to others. These practices are often ‘developed outside a business unit or company and are then brought into an adopting organization in an attempt to get them on a level playing field with their competitive set’ (Gratton & Ghoshal, 2005). As such, best practices are central to the value proposition of ERP systems since these practices reassure customers that their operations are in-line with those recognized as ‘best of breed’ (Cortada, 1998). Despite holding a purportedly central role in shaping operations and strategy at both a firm and industry level (Davenport, 2000), the *creation* of these so-called best practices are not well investigated in the literature. While the limitations of implemented ‘best practice’ systems are considered (Soh, Kien, & Tay-Yap, 2000; Wagner & Newell, 2004) the creation of such systems remains relatively uncharted territory.

Configuration of ERP software is the process by which organizations are expected to create local information systems that will be used to meet particular processing and business goals. Each ERP product includes a catalogue of 8000–10,000 software templates from which the implementing organization will choose in order to create relevant functionality for their organization. These templates determine the boundaries of practice for client organizations whose configuration choices are limited to those practices that can be accommodated within the finite catalogue. Evidence is mounting that these options are not sufficient for creating a working information system (Boudreau & Robey, 2005; Kalinikos, 2004; Scott & Wagner, 2003).

The case presented in this paper explores the impact of ERP on professional practices and reveals that although the creation of new software-based best practices is assumed to be a thorough, exhaustive, investigative process they may have been decided by a rel-

atively small interest group and their early progress surrounded by controversy. We use concepts from the field of Science and Technology Studies (STS) to explore the classification work involved in shifting the boundaries of administrative practice through the design of software templates. We pose the research question: how are ‘best practices’ created and embedded in new ERP software? To answer this question, we draw on an in-depth case study where ‘best practices’ were defined and then designed into an ERP product that is currently being marketed to higher education institutions. Our case study documents a development partnership between an Ivy League university (Ivy) and an international software vendor (Vision) who joined together to create a ‘best practice’ ERP for higher education. Through the design of two new software modules related to grants management, Vision modified its existing Government/Public Sector ERP product and began selling it to universities around the world as an ‘industry standard’ solution. A key part of their marketing strategy is Ivy’s involvement in the development of the ERP higher education module as co-creator, test site, and role model for the product.

The Ivy case offers a novel perspective not previously presented in the IS literature because it describes the actual creation of new ERP software. Typically during ERP implementations, organizations embark on configuration and choose which best practice, as embedded in the software, to implement. While this implementation issue existed at Ivy, the project started with a clean slate in terms of grants management: the software had not yet been developed and the range of possible solutions was vast. As such, the Ivy case raises similar issues as those associated with designing a new system from scratch. The political battles that were present at Ivy are considered elsewhere (Scott & Wagner, 2003) and are in line with seminal studies of power and politics in systems implementation (e.g., Markus, 1983). Despite the growing literature on ERP systems, the literature fails to consider how ERP software is actually constructed and then sold as ‘best practice’ for a particular market segment. The Ivy case highlights the lack of rigorous investigation of design options and the consequent contestation of these ‘best practices’ within Ivy. Despite this, the product is being marketed and sold as an ‘industry standard’ solution.

The remainder of the paper is organized as follows: the next section frames our research by critiquing the best practice term. This is followed by a presentation of our research methodology in section three. Next, the theoretical foundations of the paper are discussed. The case is described in section five, followed by an analysis and discussion of the empirical data. The paper concludes by considering ethics and implications for research and practice.

2. Critiquing current use of the term best practice

The term best practice is widely used by business and IS professionals and forms part of contemporary parlance. At the time of writing more than one-and-a-half million unique hits were returned from Google when a search on the phrase was conducted. Over half-a-million links were returned on the search string ‘best practice’ and ‘software’, indicating a connection between information technology (IT) and its embedded practices. Notwithstanding, we find that best practices are not well investigated within the IS literature. We systematically reviewed five years of IS literature and found only twelve articles in

Table 1
Uses of the term best practice

Best practice refers to	Exhibited in	Primary user group
Reference models	<ul style="list-style-type: none"> • Protocols • Blueprints • Optimized structure 	Designers/Suppliers
Guidelines for risk management	<ul style="list-style-type: none"> • Legal and regulatory compliance • Standard of practice 	Regulators
Perceived levels of service and assured performance	<ul style="list-style-type: none"> • Tested/proven track record • State-of-the-art • Streamlined/effective experience 	Consumers
Identifying competitive market conditions	<ul style="list-style-type: none"> • Aspirational goal • Benchmarking 	Product/Service Providers

peer-reviewed journals and major conference proceedings on the topic.¹ Eight of these proposed their own best practices to improve performance and none of which dealt with best practices as the point of analysis.

In order to contextualize the term ‘best practice’, we provide examples that demonstrate the breadth of the term’s use (refer to Table 1). While the table should not be interpreted as an exhaustive taxonomy, it provides a synthesis of insights emerging from multiple sources including trade and practitioner publications, and scholarly publications for the last five years. 65 articles that resulted from a Proquest database search on the terms ‘best practice’ and ‘strategic management’ were reviewed in an attempt to refine our understanding of how the term is used.

‘Best practice’ refers to a variety of phenomena. When engineers and suppliers talk of best practices they often refer to reference models or designs that provide a blueprint or protocol for optimizing technical, organizational, and processual structures (e.g., standard naming conventions for relational database objects) (Kondreddi, 2001). In contrast, regulators use best practice as a means to promote a risk management perspective for legal and regulatory compliance.² A company’s association with best practice boosts its reputation and standing in the eyes of the consumer, giving an assurance of a proven track record, or its state-of-the-art (Dube & Renaghan, 1999). Manufacturers consider best practice in relation to a competitive marketplace where they aspire to benchmarks such as revenue goals (Cortada, 1998; Hammer, 2001), or levels of service (Dube, Enz, Renaghan, & Siquaw, 1999).

‘Best practice’ has been associated with business process reengineering (BPR) initiatives where organizations benchmark “practices and processes which are recognized as being best by function or within an industry” (Cortada, 1998, 2). Mega-packages like ERP set industry benchmarks when they make best practice design claims. As these practices become available to all organizations in the software marketplace, best practices shift from a source of competitive advantage to a standard prerequisite for business efficiency (Gratton & Ghoshal, 2005; Carr, 2004; Porter, 2001).

¹ We surveyed two IS conferences (ICIS and AMCIS) and journals ranked within the A+ to B range (MISQ, ISR, Journal of MIS, Information and Organization, Journal of MIS, Data Base, JIT, JIS, The Information Society, IT and Management, EJIS, IT and People).

² The US General Accounting Office issues best practice reports (<http://www.gao.gov/bestpractices/>)

The suggestion that an organization does or does not adhere to best practices is used in value judgments and is thus also a political weapon. Concepts like best practice help drive IS management fads and fashions, these in turn fuel a bandwagon effect. These management fads and fashions influence the demand for, and adoption of, particular techniques or ideologies (Abrahamson, 1996; Kieser, 1997):

“...management ideologies or rhetorics about ‘best practice’ are promoted selectively via those social groups (or fashion setters) with vested interests in their adoption and who have the ability to penetrate social networks. This emphasizes the importance of active fashion setters (consultants, gurus, IT suppliers, professional groups and so forth) in packaging and commodifying management rhetorics about ‘best practice’ (Newell, Robertson, & Swan, 2001, 78)

A parallel can be drawn with critical success factors (CSF) (Rockart, 1979), which have also been used as black-boxed shorthand for business success. The CSF approach, as originally articulated, is valuable for “helping executives to define their significant information needs” (Rockart, 1979, 84) so that they can achieve organizational goals. Central to Rockart’s argument is the emphasis on the crucial role of information systems in helping to align organizational goals activity in support of those goals. He maintains that, through the identification of standard sources of CSF, executives are better able to identify information measures vital for accomplishing business objectives. Similarly, the identification of best practices is meant to provide a shortcut for busy executives in managing superior operations to accomplish organizational imperatives.

The CSF concept has become so diffuse that the value of its original meaning is subsumed by a prescriptive approach to management where success is purportedly achieved through adherence to a list of factors. We see a parallel with the pervasive use of the best practice concept despite the lack of a clear understanding of how such classifications come to be, and be used, within organizations. A lack of critical understanding about pervasive management terms can lead to their misuse and limited organizational benefits. We argue that the challenge to understand how ‘best practices’ are created is crucially important at a time when ERP use is so widespread and when such packages are marketed as incorporating best practices.

Given the limited IS scholarship on best practices, we reviewed two monographs on the subject of ERP systems, which make explicit the link between software and best practice. Both books identify managers as their target audience with the aim of illuminating the ‘pros and cons’ (O’Leary, 2000), or ‘promises and perils’ (Davenport, 2000) of ERP systems. Both authors’ use of best practice is representative of the majority of the ERP literature in that the term remains black-boxed, unquestioned and apparently unproblematic. O’Leary (2000, 22) defines best practice as “the better or best ways of performing a particular process”, while Davenport (2000) fails to define the term. Although both authors acknowledge the important role played by best practices in ERP projects they do not explain how new best practices are constructed and embedded in the resultant software.

Davenport (2000) makes explicit the relationship between ERP software, business processes, and best practice early in his book. He states that enterprise systems “are perfectly respectable; they are based on a generic set of ‘best practices’ that are better than what most firms employ today” (Davenport, 2000, 22). O’Leary (2000, 5) goes further:

“ERP has diffused many best practices. Enterprise resource planning systems are based on so-called best practices – the best ways of doing processes. SAP’s R/3 [ERP product] incorporates over a thousand of them! What this means is that any firm that installs R/3 has access to a wide range of best practices. Furthermore, new business practices are being added all the time. As new best practices are found and embedded in particular applications, they become available for inclusion in new versions of R/3; as they become available, other firms install them. Hence there is a cycle of finding best practices. Building them into software, and diffusing them out to users.”

He suggests that best practices have become an accepted way of choosing between new processes and different ERP designs and, due to the nature of ERP packages, this makes the claim to best practice highly influential. Generic ERP packages target multiple industries and are modified for use in specific industries through the creation of new software templates. Unlike bespoke software, ERP software must be configured before it can be used. As Davenport (2000, 138) puts it:

“Enterprise systems link process design and implementation through design aids (*templates*), that guide an organization in best-practice process designs, for which information systems support is available when the resulting system is implemented.”

O’Leary (2000, 153) notes the key role played by industry in arriving at the templates used for configuration:

“The templates are often structured by industry, so that if I work for an oil company I can start with a set of configuration decisions that are typical for an oil company. . . . Of course, the risk with such templates is that companies will settle for a poor fit between their enterprise system and the way they would like to do business. Adhering to an industry template may mean that the company loses a better, perhaps even more competitive, way of performing a key business process.”

While configuration provides options for the client organization, the catalogue of best practices is finite and as such it enables, but also constrains configuration choices. Therefore, a real tension exists between adopting a ‘vanilla’ ERP system, which adheres closely to the industry templates, and modifying the so-called best practices in favor of prioritizing local needs.

As best practices are transferred through processes/templates and are then embedded into software through the configuration of the software, it is valuable to study the dynamics involved in their local appropriation. However, we have been hard pressed to find detailed accounts that acknowledge competing definitions of best practice. As a result, the adoption of best practices is made to sound like a neutral design process where identification and configuration leads to the realization and acceptance of those practices. Although both O’Leary and Davenport acknowledge the important role played by best practices in ERP projects they do *not* tell us how new best practices are constructed and embedded or what happens to them over time – hence the focus of this paper.

3. Methodology

This study focuses on understanding how best practices are identified and embedded within ERP software. We adopt an interpretive perspective which seeks human articula-

tions of the world as individuals attempt to make sense of their surroundings and persuade others of their perspective. In so doing we gain insight into the interlocutors' versions of a socially constructed reality (Walsham, 1993). This epistemological position is aligned with constructivist studies because multiple interpretations, when combined together, highlight a web of socio-technical agency – an ensemble of interests – that is *created* and maintained over time (c.f. Orlikowski & Iacono, 2001). Intensive field research involving qualitative research methods facilitated the study of best practice creation, the implications for work, and the later local refutation of many of these practices. Data were collected by the primary author during multiple phases of field work between June 1999 and August 2000 (refer to Table 2 and Fig. 1). The timing of the field research is visually represented in Fig. 1 and coincides with Ivy's installation of the ERP product they helped design.

Preliminary background research was conducted in the summer of 1998 when the primary author worked as an independent contractor within the Accounting and General Ledger ERP project team. As a former full-time employee at Ivy, the researcher was well positioned to enter the field site with an informed understanding of cultural values and norms. This facilitated communication with the project team through the appropriation of local language, symbols and practices. Gaining access to these individuals and garnering their trust was timely because the researcher was viewed as in 'insider/outsider'. Thus, she was quickly able to establish her credibility and develop interpretations of context with greater depth than would likely have been the case in less familiar surroundings.

Field data included 129 repeat interviews with 53 Ivy stakeholders who were directly involved in the creation of the ERP or were expected beneficiaries of the system. University leaders and the Ivy project team who worked with Vision to create the ERP modules were administrative managers and intended beneficiaries of the product. These individuals made up 60% of the total interviews conducted (Table 2: Designers and Beneficiaries). The remaining 40% of interlocutors were not involved in the design of ERP but were intended beneficiaries of the system (Table 2: Recipients). The majority of interviews were conducted based on the narrative interview (NI) convention (Bauer, 1996) where the interviewee is asked to discuss what happened during a particular timeframe and to raise issues that are important to them at the time without prompting from the researcher. The interviews were taped and verbatim transcripts were produced totaling nearly 200 h of empirical material. Preliminary analysis was facilitated through an incremental transcription process enabling preparation for the next series of interviews. Field notes were taken within a hardbound journal and complemented the interview transcripts by providing qualitative information that influenced the field researcher's interpretation of the interview

Table 2
Categorization of interviewees

Number of interviewees	Category	Number of interviews			
		Summer	Winter	Spring	Summer
		99	99	00	00
13	Designers and Beneficiaries	28	18	20	21
21	Recipients	6	9	19	8
		34	27	39	29
53	Total				129

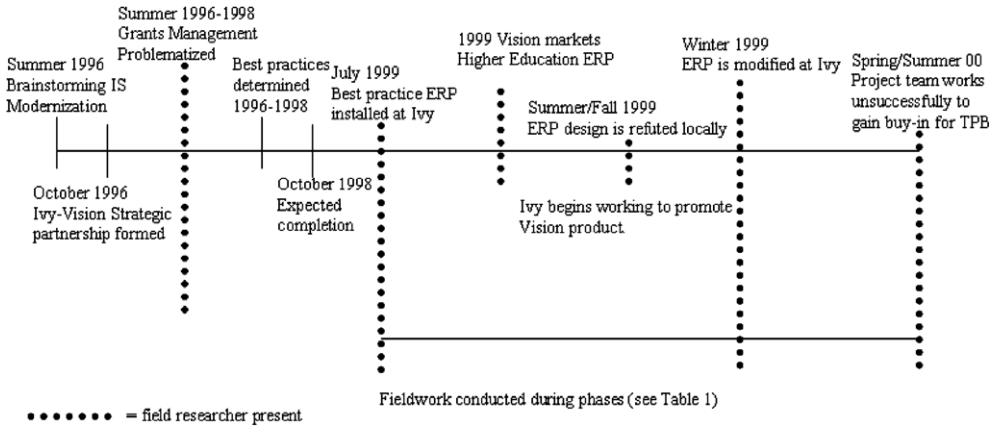


Fig. 1. Timeline of events.

content or the interviewee him/herself. In addition, notes from meetings, project documentation, technical materials, and PR content supplemented the interview data.

The fieldwork was designed to follow actions that were discussed during interviews so that the process of creating new software could be studied. Subsequent to exploratory interviews with the project champion and his team, the field researcher transcribed each interview and analyzed its content to identify key actors and related to ‘hot topics’ or controversial issues surrounding the software project. The data illuminated multiple interpretations of the same events as well as the formation of alliances and ensuing negotiations. The researcher arranged meetings with those individuals mentioned in the transcripts, thereby gathering further perspectives and building a ‘picture’ of the power relations at work within Ivy. By combing the interview transcripts incrementally the field researcher was guided to her next round of meetings, not by interviewee recommendations, but rather based on actors whose names/roles were mentioned. This meant that the perspectives of allies *and* ‘enemies’ were collected, thereby subverting the silencing of particular voices (Star, 1991). When reference was made to technical components (i.e., an ERP module, a proposed best practice), the researcher interviewed the person representing those interests (Pouloudi & Whitley, 2000).

The plausibility of these ‘hot topics’ as important data points relevant to the design of the system was discussed during regular meetings with colleagues, and assessed during email communications with project participants. Large wall charts outlined site visits, the relationships between storylines and their hot issues. Together, these analytical tools enabled the researcher to create visual ‘network’ representations of controversy, negotiation, action and resolution as it occurred over time. The presence of multiple interpretations of the same hot issue illustrated the conflicting networks that were present during each controversy. Identifying these conflicting networks highlighted the highly political and exclusionary process by which the system was designed. Due to the longitudinal nature of the fieldwork the researcher was able to follow the way in which one set of interests was carried forward while others were not – only to become subsumed into the dominant network or temporarily ostracized. This network approach framed the fieldwork in a way that ‘gave shape’ to the large volume of data.

4. Theoretical underpinnings

In this paper we adopt a science and technology studies (STS) perspective and combine this with concepts from literature on the social construction of professional practices within accounting to help us understand why particular practices are classified as best practices and become embedded in technology. A key concern of both literatures is the construction of scientific knowledge; the definition of problems, the progress of controversies, the construction of facts, and the way that some knowledge claims gain epistemic weight and influence in the world. In the first sub-section, we focus on the work of Miller (1998) and consider his analysis of normative practices in accounting. This helps us examine competing definitions of ‘the way things are done’ and provides insights into shifting boundaries of knowledge within a profession. In the second sub-section, we present concepts from Bowker and Star’s work on processes of classification. For Bowker and Star (1999), the act of classification helps us to organize in a complex world by standardizing actions and processes. But what are the implications of classifying one particular way of doing work as the best practice? To understand this we now discuss the processes by which practice shift.

4.1. *The social construction of professional practice*

In his research on the social construction of professional practice, Miller (1998) argues that by tracing trends of practice we can understand the ways in which norms form and come to be accepted as ‘the way’ to do business. He follows the evolution of several calculative practices, that tend to be taken for granted as ‘facts’ by accounting professionals, back to a time when they were considered marginal. It is at the boundaries of professional knowledge that a controversy occurs between a current standard and a new practice. Our analysis of the Ivy case study highlights this process and extends it by considering the role of information systems like ERP in establishing new boundaries of knowledge.

According to Miller, the ‘best practices’ that make up accounting’s body of knowledge are not static but evolving. Accounting is an ‘historically situated and ad hoc accretion of previously marginal activities, calculative methods and rationales’ (Miller, 1998). Actors with preferences for particular practices negotiate for a dominant position by garnering resources and calling upon contemporary issues/concerns in an effort to inscribe preferred calculative methods into the accounting knowledge. The negotiations that ensue may result in shifting boundaries and legitimizing a new practice. Such a shift is often accompanied by the de-legitimization of a legacy practice deemed less useful or appropriate:

“Problems’ have to be made recognizable, a particular perception has to form, people have to be convinced that problems are intrinsic to a particular device rather than contingent, a measure of agreement has to be reached as to the nature of the problems identified, a consensus has to form that something needs to be done, and another way of calculating that fits the problem identified has to be made available. Then, and only then, do things change. (Miller, 1998, 175)”

It is this tension between inclusion and exclusion that we seek to illuminate in order to highlight how best practices are created.

In this paper, we focus on how the creation of best practices come to be embedded – or inscribed – into artifacts – such as ERP software. As Latour notes, “technology is society made durable” (1991; 103), meaning that in their design, practices take a more tangible

form and thereby stabilize social interests. Creating a standard practice within software creates the ability to gain reach and momentum across disperse groups in order to regulate actions. Once a standard is reified as a best practice and becomes inscribed into the material infrastructure of an organization through information systems like ERP it gains technological agency. As a socio-technical actor it then acquires the capacity to configure users, condition organizational options, and shape industry imagination. Having proposed that the definition of norms, like best practices, are socially constructed and reflect the interests of those involved in their constitution we now turn our attention to the implications of such classifications. In the next sub-section, we present concepts from the literature on classification in order to understand the processes involved in the reification of knowledge into best practices.

4.2. Classification and difference

Classification involves the necessary formalization of categories in order to standardize and account for normative social activities. A body of knowledge appears cohesive at any given moment in time precisely because of the ability to classify particular practices as existing within its boundaries. The benefits of classification systems include the organization of complex data in a timely manner so that it may aid financial governance and performance measurements. In addition, standardizing practice helps delineate and legitimize the knowledge boundaries of a profession and provides a common language, facilitating communication.

However, as Law (1992) reminds us, order is never achieved without cost - classification activities shift the margins of practice and thereby *give and take away* legitimized status. The inscription of new practices into an artifact – in this case an ERP product – makes a statement about what is valuable to know (i.e., designating particular processes and skills as strategically important). Simultaneously, the exclusion of practices illuminates what has been discarded as irrelevant and, as such, can cause upset amongst those who feel excluded. As Bowker and Star (1999, 5–6) note:

“Each standard and each category valorizes some point of view and silences another. This is not inherently a bad thing – indeed it is inescapable. But it is an ethical choice, and as such it is dangerous – not bad, but dangerous.”

That such activities are not neutral, but rather inherently entangled within ethical and value-based perspectives, is important because these classifications determine the nature and extent of legitimized knowledge. Inscribing practices within software boundaries is an act of creating a particular worldview that gives voice to, and silences, particular perspectives (ibid; 229):

“Large information systems...carry with them a politics of voice and value that is often invisible, embedded in layers of infrastructure. The ‘politics of artefacts’...may affect markets, differential benefits from particular technologies, and the visibility of constituencies...They are important in organizing work, and they are often used explicitly as vehicles for professional and organizational transformation, via accounting and legitimization processes. They appear as parts of accounting schemes in technologies of organizational change such as business process reengineering and total quality management...”

Stable organizational reality relies on classifications of practice to inscribe, delineate and support normative work practice. Through the categorization and embedding of practices into software, the system of classification takes on fact-like status and the categories come to represent all that a particular work domain is, or could be. ERP systems are built on this premise and attempt to create order and standardization by connecting discrete silos of classification through an enterprise-wide infrastructure. During the classification process local interests either become abstracted and inscribed within ERP mandated 'best business practices' or are pushed outside the boundaries of legitimized practice. The result is not only a shift in normative practice but also the potential to push users toward a new way of working that might impact the ethos of the organization itself.

Focusing on classification work is a component of the STS agenda because it highlights how such facts are claimed as such and become (or fail to become) accepted across social worlds. When so-called best practices are constructed and designed into software, claims have been made about the best techniques and most valid forms of knowledge that are generally applicable. There is value in understanding how such claims become categorized as best, how they travel across social worlds, and the extent to which those claims are later refuted, even if they remain part of the technology. We now explore these issues further by turning to a description of the Ivy case.

5. Case description

In the summer of 1996, senior management at Ivy chose to modernize the university's administrative infrastructure to meet what they regarded as an increasingly complex financial and regulatory environment. Not only did legacy systems no longer adequately support core activities, central managers were also uncomfortable with high levels of departmental administrative autonomy and the impact that decentralized work practices had on their capacity to conduct audits or manage financial risks. A new Vice President for Administration (VP), with a predominantly corporate background was hired. One of his 'pet projects' was to convert Ivy to an integrated and standardized operating environment.

At that time, ERP software vendors had begun to target higher education as a market for their products and services. 'Vision' corporation announced an interest in translating their government/public sector package for the university context. In October 1996, Ivy's Provost and VP announced a joint venture with Vision to create an ERP Higher Education (HE) product. This ERP 'solution' was expected to enable collaborative working, meet funding body regulations, integrate administrative functions, and provide an enterprise-wide environment for managing financial activities. Vision explained that the goal of an industry partnership was not just to modernize a single organization, but to identify university-based best practices. In particular they sought Ivy expertise to design two new modules that would streamline the grants management process from the pre-award stage of faculty grant application through post-award financial management and reporting. These new modules, when combined with the existing suite of products, would help Vision reach a previously untapped market.

While Ivy was happy with its existing pre-award grant process, they agreed to partner with Vision and create these new modules. While Ivy recognized the added complexity of working with Vision, the initiative appealed to top managers who were keen to be identified with thought-leadership for 21st century higher education:

“[Ivy] has always been known for its excellence in research and teaching and this partnership . . . gives us the opportunity to update our infrastructure and create an administrative center of excellence that others can emulate. (Central administrator, winter 1999)”

Internally, the ERP initiative was presented to Ivy stakeholders as a way to improve work practices for all members of its diverse community.

Both Central leadership and academic stakeholders advocated a technology-based solution that could update and integrate Ivy’s administrative processes. While the ‘integrated approach’ was not controversial, the negotiations that resulted in the determination of the grants management process were particularly fraught: changing from an ad hoc approach – Commitment Accounting (CA) – to a corporate accounting process – Time-Phased Budgeting (TPB).

The management of individual grant expenditures was a process controlled by faculty Business Managers (BM) on behalf of the academic principle investigator. The fiduciary competence of the university is based upon its ability to spend grant awards down to zero by the installment end-date. To ‘under spend the grant’ would mean that Ivy would have to return the funds to the awarding body. ‘Overspending the grant’ would implicate the Principal Investigator (PI) and Ivy as poor financial managers who must cover the expenses with funds from other sources. At an institutional level, grants that are improperly managed increase the University’s financial risk and impact its reputation within the scientific community.

The Commitment Accounting approach had been in use at Ivy for over twenty years. Originally designed by faculty, home-grown systems developed over time to support CA. The ultimate goal of CA is to tell the principal investigator (PI) how much money they have left to spend on their grant. The PI draws up a list of budget items and regards that money as committed from the start of their research project. Their Business Manager (BM) generates individual PI reports based on the needs and expectations of each faculty member. Prior to the ERP implementation, there were approximately 200 different PI report formats within Ivy. The PI would check their report and adjust their project spend accordingly if and when a surplus or deficit was noticed.

With Time Phased Budgeting, principle investigators are expected to turn their projects into a timeline against which an overall spending pattern can be monitored. Central financial managers no longer wanted to see itemized list, but would assign a lump sum pertaining to each grant for the academic to spend as they see fit (as long as they comply with the terms set out by the awarding body). The details of the spend (budget items) were delegated to the principle investigator and business manager. Instead of being organized as a ‘vertical list’ the project expenses were now expected to be set on a horizontal timeline and assigned to phases of the project. At regular intervals during these phases the PIs must compare their actual spending against budget, thereby enabling timely and corrective interventions. TPB was not piloted, tested, or otherwise validated across internal academic user groups. Yet it was the only financial management approach designed in to the ERP system.

In the spring of 1999, the ERP design met with resistance from faculty and BMs leading to negotiations at the highest level of the university. A faculty advocate shares his confusion:

“We don’t know of even one research school that is using this methodology. We’ve done some research [on this] as an institution and no university that we know of has been using the [time-phased] method as implemented in the [Ivy-Vision] ERP.”

While BMs and PIs indicated that they were open to shifting to an integrated method of grants management, they resented an institutional mandate in which they were not involved. Faculty demanded that the Commitment Accounting process be designed into the ERP system before they would use it. A customized piece of software was thus bolted onto the Ivy ERP in order to enable CA within an enterprise-wide environment. In addition, two administrative support centers were created to handle the increased level of work required of academic departments whose staff and faculty were required to translate CA practices into the new TPB categories. At the time of writing, Ivy faculty continue to use the bolt-on and MS Excel shadow systems alongside the local ERP. TPB remains unused:

“As far as [TPB] goes, that is pretty much a non-starter here. I don’t even support it myself, because you end up wasting time correcting the system for timing differences in your actuals.” (Senior Manager, follow-up email 2005)

Thus, the ERP system works locally only with the help of additional mechanisms that are excluded from the standard ERP software package being sold by Vision. Notwithstanding, Ivy leaders are committed to working with the vendor on further developing the ERP product:

“We are trying to strongly influence what is being tested in the upgraded version because we want to have a strong presence in order to have an impact on what results from the upgrade.” (Project leader, summer 2000)

In an attempt to ensure that Ivy’s interests continue to be considered, Ivy central administrators encourage colleagues at other universities to adopt the Vision solution:

“You know, it’s tough – we want to be honest when schools come to us for advice – it wasn’t easy and the ERP that they are thinking of buying isn’t perfect. So what should we say – how much do we tell them because we don’t want to end up with a system that no-one else uses because if that happens then [Vision] will drop resources for higher ed and we’ll end up with a behemoth of a system that we don’t know how to upgrade or maintain. It’s better if more universities adopt the ERP . . . [we’ll] have critical mass and [it’ll be] easier to work through the problems.” (Project leader, summer 2000)

The gap between what is being used locally at Ivy and what is being sold as a standard for higher education offers a point of departure from which to discuss the creation and embedding of best practices into ERP software.

6. Case analysis and discussion

The higher education ERP product was meant to create a ‘gold standard’ that Vision could claim as best practice – an administrative system that enables routine uses of knowledge that are judged to be superior to alternatives. The system was expected to be accepted locally by Ivy while also being appropriate for use in other higher

education contexts. This is in keeping with Gratton and Ghoshal's (2005) definition of best practices being 'developed outside a business unit or company and then brought into adopting organizations in an attempt to get them on a level playing field with their competitive set'. Ivy grants management practices were classified according to the Time Phased Budgeting approach that was embedded into the ERP design; this, despite a viable alternative being in place, and despite a lack of evidence that TPB was tried-and-tested within university administrations. TPB became *the* method for tracking and fiscally managing externally funded university grants. This decision impacted not just the way work should be done and knowledge accumulated within Ivy, but across all institutions that select the ERP system.

Our analysis focuses on the process that resulted in the creation of a new 'best practice' claim. In particular, we consider the implications of this process by analyzing work changes arising from the new standard. In order to do this our analysis is structured in three parts. We begin by examining the socio-political process of creating an ERP-based best practice. We then investigate how work is changed as a result of this claim. Finally, we discuss the local refutation of 'best practice' in spite of it being sold as an industry standard.

6.1. Creating new practice

In this sub-section we focus on the process by which TPB became the normative practice for grants management. We do so using Miller's (1998) analysis of shifting boundaries of a body of knowledge. We begin by considering the way in which the ERP project created an environment for reforming the professional practices surrounding financial grants management at Ivy. The problematization of CA was a necessary precursor to successfully identifying TPB as the new practice.

6.1.1. Problematizing legacy practice

When it came time to develop the new modules as part of an integrated grants management process, representatives of Ivy's financial management team saw an opportunity to reorganize work. The ERP initiative was used as a vehicle for professionalizing accounting practices at Ivy. The ad-hoc and decentralized financial management process was declared problematic for institutional governance. Ivy leaders wanted to require faculty to monitor actual expenses against their projections on a regular basis:

"If they don't like it, we ought to fire 'em – and get new users! . . . It's a . . . retreat. . . I taught Karate for years – you know what? If you're afraid to fight, you'll never fight! . . . [we're] spending millions and millions of dollars to go forward, not to duplicate what we had . . . we have 4,000 grants. . . we don't do [CA] here any more. I mean – we just don't!" (summer 1999)

This quote from the Ivy Budget Director (BD) illustrates how faculty practices were problematized as unsophisticated and backward. His description illustrates the way in which actors build narratives that, as Miller puts it, make 'a particular practice appear problematic and is eventually seen to be in need of modification or replacement' (Miller, 1998).

The Budget Director was instrumental in creating the perception amongst the ERP project team that CA was outdated. Further, in his role as functional leader of the Financial

Planning team, he uniquely bypassed the ERP project manager and reported directly to the VP. He was strategically positioned to champion TPB. Together the VP and BD employed a rhetorical device in which stories were told of inappropriate grant expenditures as evidence of the need for change:

“...[T]he idea that people would create spending plans ad hoc just because they have money left ... doesn't make any sense ... there shouldn't be large cost transfers that happen late in the life of [a] ... grant because while it may not be fraud – if I was an auditor it would certainly raise my flag... 'what do you mean you've been spending \$4,000 a month and the last 60 days charged \$85,000 because the money was left?' I would call [this] suspect ... we have an audit risk as an institution.” (BD, summer 1999)

The danger of continuing with CA was reinforced by the VP:

“[Faculty] go all the way to the end of the grant and find that they have...\$10,000 left over. ... they go back and re-adjust the labor allocation so that the \$10,000 gets spent. I mean, let's be honest ... what we want people to do is to keep proper account of their time so that at the end of the day they aren't looking back and saying – 'well I'm going to adjust it and make it get to zero'. That should be your target up front and you should manage how you're going to do that” (summer 1999)

Not only do these quotations frame legacy practices as institutionally dangerous, they align the problems with the specific practices of CA rather than, for example, attribute them to the intrinsic ebb and flow of academic research. It is the CA practice that is 'the problem'. This is in keeping with Miller's analysis of how practice boundaries shift: he argues that in problematizing legacy practice a particular perception must be created amongst interest groups that identify problems as intrinsic to a particular device rather than a feature of the non-integrated operating environment.

Instead of exploring other possible influences on the situation, an alternative professional practice is proposed:

“I would say that the [CA] mentality that we've had...for managing is primitive ... it's old-fashioned...the corporate world left it many years ago...Many faculty think of things fundamentally wrongly. We want to move people towards a management model where we're going to ask [them] to put together a time-phased budget and management plan.” (BD, winter 1999)

Here, the Budget Director is promoting the redesign of all financial planning, management, and reporting based on the approach used by his office – the Center for University Budget and Planning. He makes expert claims to best practice based on what he sees as valid knowledge – corporate accounting – and in so doing, provides a powerful justification for shifting the boundaries of grant practice. Furthermore, the Director is aligning the ERP project with the need to 'corporatize' the university context.

Professional managers are running universities in the United States in an effort to compete within a higher education marketplace that has grown increasingly complex and competitive over the past ten years (Barnett, 2000; Brennan, Fedrowitz, Huber, & Shah, 1999). The early 1990s saw a time of increased competition, forcing university administrations to consider the economics of their institution in a manner not seen before (Brennan et al., 1999; deBoeur, 1999):

“We have a 1.3 billion dollar operating budget and I don’t think you can afford to do things in an ad hoc way anymore. . .it’s not comfortable to me that a bunch of tweedy academics will get together and do this . . . It goes to the [Vision] systems; I think certainly the motivation for having this more high powered enterprise software is that the place has become more complex and we need better data. We need to make better decisions based on data. . .It’s a recognition of the need to do that because we’re running a huge financial behemoth. . .higher ed has become an incredibly complicated business . . .” (BD, summer 2000)

The Budget Director was particularly vocal about the future of higher education as a business. It was argued that Time Phased Budgeting created a standard unit of measurable risk that would enable Ivy to more accurately communicate its financial position. Driven by the alliance between the Budget Director and the Vice President, TPB became talked about as a top priority from an institutional perspective.

A small group of actors not only vilified Commitment Accounting in the context of the Ivy ERP project, they propagated a broader agenda in which TPB was presented as a way to modernize the higher education industry more generally. During the ERP project, the Time Phased Budgeting claims became so embedded in the project team’s rationale that they acquired the status of ‘facts’. Analysis of interview data revealed fragments of the VP’s TPB narrative spliced into actors’ own stories revealing the extent to which the project team and Vision staff had been enrolled into an epistemic community. The absorption of particular phrases and expressions into everyday parlance showed the extent to which the calculative practice of TPB had begun to shape organizational options and strategic imagination. TPB was a purposeful epistemic shift in professional practice and illustrates the social construction of such activities. As the leader of the technical team whose staff embedded TPB into the ERP design put it:

“By making a decision to go with [Vision] financials, senior management either consciously or semi-consciously – I think it was the former – was making it impossible for [Ivy] to continue doing business in fragmented silos. Like it or not, you’ve got to work with a new way of accounting. It’s integrated – it’s slower, it’s a pain in the ass. And the faculty who used to do it the old way for years decide it’s absolutely terrible - they don’t want to do it ’cause it’s not [Ivy’s] way. But development is about setting up an environment. You make a set of decisions – a set of changes at the top – that force change regardless of whether it’s consensus or not. . .you just can’t do grants like you used to. . .you don’t like it? You are out of the consensus picture. If you are more inclined to accept the changes and deal with them, then you’re in the narrow universe of people we’ll work . . . with.” (summer 2000)

The TPB approach managed to redraw the boundaries of accounting within Ivy because of its inclusion within the Vision ERP. In addition, grants management shifted from the decentralized academic domain to that of Central administrative governance. By linking grant accounting to the broader idea of integrated financial management, by renaming the activities ‘budgeting’, and by establishing linkages between these concepts and the notion of corporate governance and audit, grants management increased in importance within the ERP initiative. The new vocabulary of TPB brought with it new calculative practices (Miller, 1998) and re-forged the boundaries of valid knowledge at multiple levels by translating them into software.

This sub-section has illustrated that shifting practice is not a scientific and rigorously tested process. In Ivy, it was a process influenced by a small group of powerful actors whose interests became stabilized through the design of the ‘best practice’ software. Where the standard practice creates the ability to gain reach and momentum across disparate groups in order to regulate actions. In the next sub-section we examine more closely how changes to a seemingly mundane accounting practice has the power to change the nature of work.

6.2. Best practice claims change how work is done

To non-accountants, the difference between Commitment Accounting and Time Phased Budgeting might seem pedantic. After all, both approaches aim to manage grant finances so that the ‘zero balance’ goal is achieved on completion. Accounting and financial management activities tell one of the most powerful stories of contemporary organizations through their financial reports and, as such, the ways in which these calculations are determined are of utmost importance. These reports provide the basis for institutional accountability and are often generated through calculations and classifications of data that reside within information systems. Therefore, the design of such practices into IS determines what is to be ‘taken into account’ and, by definition, states what is valuable to know, record, and analyze. By default then, the embedding of accounting practices into software also determines what is discarded as irrelevant.

The ERP development activities reclassified Ivy’s previous accounting practices and shaped the boundaries of valid professional practice to meet the interests of a small group of actors with a particular institutional-level agenda. Indeed, for the Vice President and Budget Director, TPB was about ‘best interest’ rather than ‘best practice’. TPB and its management reports gained technical agency through the ERP and were thereby capable of configuring the features of work life and disrupting the professional options of users. The ERP project at Ivy illustrates the use of IS design to shift the boundaries of standard practice by redefining centers of calculation within an organization: who and what will be legitimized and valued. As [Bowker and Star \(1999, 239\)](#) argue “new infrastructures do more than support work that is already being done. They change the very nature of what it is to do work and what will count as legitimate”. The classification of TPB defines how work will be done for an industry. This is an ethical choice.

When a calculative practice such as TPB is inscribed into software it is accompanied by tools and business processes that reinforce its epistemological weight and further discipline the ideological foundation. What results is the standardization of both methods and theories of working ([Star & Griesemer, 1989](#)). We argue that this is because software is designed as an operational mechanism for classifying and standardizing how to work, and that enterprise systems in particular embed within them particular ideologies that discipline *what work is* and *why it should be done*. So, while TPB is a theoretical construct, its design into Ivy’s ERP product means that its users receive a toolbox for ‘doing TPB’, and a way of thinking about grants management. Further, classifying finances into time-phases rather than commitments means that it would no longer be possible directly to answer the question of ‘how much money is left to spend on a grant’. Instead, the question being asked must change to an inquiry about ‘where I am in relationship to where I thought I would be at this time?’ and ‘what does this mean for the future?’. The exclusion of the ‘commitment’ category illuminates that shifts in vocabulary can at times be accompanied

by new approaches to the creation of meaning, which in their embeddedness into software, classify professional practices into the acceptable and unacceptable.

Classifications are never perfect but they are necessary in order to formalize work and standardize the process by which work occurs (Bowker & Star, 1999). Ivy's ERP initiative was driven by an agenda that aimed to professionalize administrative practices for the greater good of universities. This is reflected in the level of focus in TPB; 'vertical' budget lists showing estimated costs and actual spend are subsumed by TPB which regards such details as immaterial in relation to the overall process of organizational financial management.

At the heart of this design is the view of budgeting, not as a control mechanism to limit spending above an approved budget figure, but as a 'dynamic, rolling process of monitoring variances between actual activity budgeted spending patterns' (Kersnar, 2004). This trend for dynamic/rolling budgets took root in the late 1990s and is now designed into software products (ibid; Leone, 2003). TPB's rolling approach involved a real-time financial posting-cycle, and as such, it was argued that the need for commitments was eliminated: the 'real time' posting of financial transactions would capture and report on all material figures, thereby adequately meeting PI reporting needs. This classification of budget practice delineated and supported a particular worldview that gave voice to corporate financial planning tools. Where previously Ivy's financial activity was posted and reflected in the statement of record once a month, the integrated ERP technology reduced this time-lag. Users could obtain account balances anytime by running the available data-warehouse reports that reflected actual financial activity, as well as automated ERP commitments for large and repetitive items such as salaries. However, the ERP system made it increasingly difficult to 'stop time' in order to monitor contingencies. Detailed reconciliation of grants was a difficult and perpetual activity within the new operating environment. This had the effect of silencing the legacy practices and legitimizing TPB as representing all that grants management is, or could be.

The TPB categorization of activities created tension between the formal classification system and the multiple approaches to work upon which the system is being imposed (Bowker & Star, 1999). This is illustrated in the following quote from a follow-up email interview (2002):

"We're not aware of any other major research university monitoring sponsored agreements and grants with a timed-phased budgeting approach, or of any institutional advantage that might be gained by making such a profound change. We agree that grants are a huge source of operating revenue that needs to be managed well. And monitoring and managing any huge revenue stream in an integrated system is a good thing. We agreed here, this was our common ground – but then [the project team] went and developed a system that isn't fully incorporated, supported, and built with the end users in mind, and so it falls short of this 'integrated' goal. (BM)

The inscription of TPB as the ERP-based best practice began to impact Ivy ethos. The question asked by the academic constituencies at Ivy after going live with the ERP system was: why TPB rather than an integrated version of CA?:

"Why did the integrated technology have to be TPB when we had one before that worked for the faculty? I mean the legacy [CA] system could have been fully integrated as an ERP – it was technically supported as one, but was only ever managed

and used at the departmental level. Why not design [CA] as the integrated, standardized technology??? It worked for faculty for years. . . I hope you understand that it's not [TPB] itself that's at issue. It's the lack of understanding and regard for the people bringing in the money and the people doing the work that's so frustrating." (BM, follow-up email 2002)

This quotation expresses the confusion about the creation of so-called best practices related to grants management. The narrator, having been confronted with the distinction between CA and TPB realizes that the classification scheme within the ERP system has created a shift that is presenting challenges to users. How was it that end-users were not involved in reshaping university work practices? How was it that CA failed to be recognized as the best practice? As a result, academic users still need to complete the work that pre-existed the new system – these activities have not disappeared; they are now simply expected to fit within the ERP rubric (Bowker & Star, 1999).

This sub-section has illustrated that in creating an institutionally rigorous system, the ERP system itself began to mandate the nature and extent of administrative practice inscribing *out of the system* autonomy and locally negotiated outcomes. The result was a silencing of Ivy's locally-held traditions and values because the 'best practice' ERP system inscribed working methods and mandated higher-order decisions. The design of TPB into the ERP software not only made an important difference to Ivy as an organization, but also to all other universities who would adopt the product as 'best practice'. In the next sub-section we consider the irony – and the ethics – of the Ivy-Vision system being sold as an industry standard, while locally, substantial customizations were taking place.

6.3. Best practice ERP is sold and refuted at Ivy

In the last sub-section we discussed the way in which the inscription of Time Phased Budgeting into the ERP development process began to mandate administrative practice, altering control/autonomy relationships with central financial management, and systematically ejecting locally negotiated professional practices from the organization. In this sub-section we consider broader economic, social, and political pressures coming to bear on ERP development and the ethics of the Ivy-Vision system being sold as an industry standard, while locally, substantial customizations were taking place.

The best practice classifications designed for the Ivy ERP system should not be seen as solely based on the personal preferences of a small group of actors. Rather, classifications are also related to perceived 'market pressures, frames of meaning and regulation', which provide a macro-level influence on the choices being made (Bowker & Star, 1999, 147). By considering the different influences shaping the construction of the Ivy ERP we are given an insight into the way that knowledge boundaries interconnect at multiple levels and create organizing forces that are hard to resist unless you have an alternative power base (as in the case of the Ivy academic staff). Firstly, we consider the market forces driving Vision's production of ERP modules; secondly we explore the epistemic trajectory of accounting logic and the way that professional practices are being assembled around it.

Vision's insistence on creating grants pre-award functionality illustrates the market pressures on the software company to achieve a product that will give them an economy of scale capable of insuring a return on their investment in the development process. Ivy's agreement to participate in the creation of functionality that they did not

really need provides insight into the political negotiations that result from strategic partnerships between single organizations and software giants. Ivy realized that they would be able to leverage grants management during their partnership with Vision, and in return, align themselves with a global trend toward modernizing the university. However, such a streamlined and integrated grants management process never included the consideration of an integrated CA approach. There was no evidence presented during, or after the study, to suggest that CA was implausible within an integrated environment. However, there *was* evidence showing that TPB was untested within university contexts: a novel approach that failed to convince end users that it was ‘best practice’ for Ivy. In addition to these recognizable business challenges our analysis suggests a further management of change issue that continues to challenge ERP projects: where should the focus of organizational change be? What role can technology play in achieving a balance between local and global practices?

In the end, Ivy was only able to make the system work locally with extensive changes to organizational structure, and customization of the product they helped design. TPB failed to be accepted across Ivy social worlds and as such the fact claims were challenged. Below, an Ivy project leader contemplates the project team’s negotiation between global and local boundaries of practice by drawing a parallel with a policy battle during a USA presidential race:

“So – Barry Goldwater ran for president . . . running against Lyndon Johnson. Lyndon Johnson of course was sponsoring all the civil rights legislation after JFK was assassinated. Barry Goldwater . . . said ‘*you can’t legislate love*’ and *he was right*, you *can’t* legislate love. But he didn’t take it far enough. I think what happens is . . . you change the administrative architecture [and] slowly the culture changes to adapt to that architecture. So, I don’t think the *overall mission or direction* of [Ivy’s] going to change, and that’s really where all the power and movement is, or *lack of movement* [laugh]. That’s where it *really all is* . . . out there in the research and academic departments. But I think that the *culture of administration* is going to change in response to this [project]. *So, maybe you can legislate love. Okay? Maybe you can!* Maybe you can say – ‘we’re going to make this change in architecture and the cultures of doing accounts payable, and payroll, and purchasing are all going to have to change’” (summer 2000).

Just as President Johnson sought to create a political and social infrastructure that would uniformly and universally legislate for the needs of American citizens based on his ideas of best practice, the project team expected to define, create, and operationalize an administrative environment that would meet Ivy’s needs, and those of other Higher Education institutions alike. In this way, the Ivy-Vision ERP would become a kind of ‘lingua franca’, providing a basis of communication for administering, managing and governing research grants in universities. While Johnson had visions of a great society, the cultural changes that he hoped to make were less successful than the infrastructural shifts: he set up the mechanisms for change but still he could not force universal compliance to his ideas. As a result, Goldwater’s perspective was fulfilled: you can’t legislate that which is deeply felt, and vigorously defended by a group of people. Thus, while the Vision system is being marketed, and claims are advanced about the ‘best practices’ embedded within it – such as TPB – adoption cannot be forced onto reluctant faculty; more amenable financial administrators possibly, but not necessarily users within the research community.

Similarly, Ivy was challenged by its attempt to legislate love through its material infrastructure. Proposing a best practice that standardized how faculty should do work was an ethical and value-based proposition that was unsuccessful and led this professional in our legislating love narrative to reconsider the classification work. The narrator contemplates whether one might successfully legislate deeply felt and rigorously defended local practices by adopting a step-wise approach where an enterprise-wide infrastructure is selected without demanding uniformity of work practices across diverse groups. At the time of writing, this has proven more successful at Ivy.

Despite the desire to enroll users into the ‘best practice’ system, Ivy’s project team were forced to negotiate a series of software modifications based on participatory design activities that translated some Commitment Accounting requirements into a bolt-on system for faculty members. At the time of writing, the status of Ivy’s ERP environment was such that the two ‘interim’ support centers were still in operation, the format and content of faculty reports were still under debate, and the shadow systems remained in use. Ironically, the ERP mandated best business practices were pushed outside the boundaries of Ivy practice thereby reconstructing legitimate financial grants management activities to include CA in the way things are done.

The choices made during the ERP development process at Ivy not only dictated the status of local professional practices, but were also designed with the goal of shaping grants management practices throughout higher education. An analysis of the pressures upon the Ivy ERP initiative provides insights how boundaries of knowledge are interconnected and the movement of epistemic agendas across fields. We have evidence of actors, like the VP, translating corporate priorities to the academic administration ERP module. There is also a push by professional accountants and budget managers within central administration to force their requirement for a global view of the organization on other knowledge workers.

The nature of university work has become increasingly complex and there is a systematic move toward the “rituals of verification” (Power, 1999) characterizing what some regard as an audit culture within professional accounting practice. Twenty-first century academics engage in commercial enterprises as patents for technical discoveries gain commercial momentum, their research (e.g. bio-technology, genetics) has ethical implications that attract regulators exposing the university to potential penalties and litigation. Funding bodies have become increasingly rigorous about reporting processes and grant decisions can be influenced by an institutions capacity (or not) for financial management. Implicit in the accommodation of a risk management and audit culture into the professional practices of administrators in higher education institutions is the rise of accounting logic. The consequence of this is an epistemological re-ordering as risk management becomes the organizing logic shaping organizations.

The Ivy ERP project provides a distinctive analytic window into the meeting of epistemic cultures within an organization. The expectation that the professional accounting ‘best practice’ of Time Phased Budgeting in the ERP system would act as a standard administrative system was challenged because the project team was confronted by an alternative claim about how Ivy should best be managed and governed. Significantly, during the first year of ERP use at Ivy, three powerful spokespersons for the ‘best practice’ system and its TPB approach – the VP, BD, and Financial Controller – all chose to leave Ivy for posts at other top universities. The project team had to prioritize accommodation and compromise over ‘being right’. Faculty users of the ERP were able to draw upon their status as core

knowledge workers to resist the imposition of TPB; a privilege that less powerful workers in other organizations are unlikely to be able to imitate.

The overly legislated design of the ‘best practice’ software left behind defining aspects of Ivy’s knowledge work. If Ivy cannot localize the global standard that it helped design, how can other universities be expected to do so? The system failed to mobilize enough resources through its technical agency to condition Ivy options and configure the users. Therefore, the extent to which this package can shape industry imagination and act as a global standard is questionable. Regardless of the professional trajectory of senior actors involved (the VP, BD, project leaders) will import the principles of Ivy’s ERP project to other institutions; they have become delegates for a ‘best practice’ claim that has not proved durable. The Ivy case teaches us the importance of tracking the progress of a best practice claim over time and asking source organizations how *their* ‘best practice’ works for them in practice. In so doing we see both the claim to best practice and, over time, its refutation.

7. Ethics and implications

It is unrealistic to expect that organizations approached, as Ivy was, to develop best practices, to take a position of full disclosure when later communicating with other potential client organizations. The drawbacks to doing so are tangible:

“The thing about [Vision] is, they have made a commitment to higher ed but it’s much harder than...they thought it was going to be because they thought we were much more like governmental than we really are...They’ve made an investment and they continue to invest in this market but you have to wonder how long they’re going to do that. There are only about 50 institutions that comprise the [US] market...” (Project leader, spring 2000)

The fear that Vision would back out of the higher education market was palpable. Where Vision prioritized developing and upgrading the higher education product in the most efficient manner possible, Ivy’s level of commitment was substantial and would have long-term implications for their operation and governance. It follows then that their moral responsibility to the other takes a backseat to their internal obligations to the Ivy board of trustees. In the next section we consider the broader implications of the Ivy case study further.

We call for increased awareness about the political nature of ERP development in which determining the strategic alliances that exist in order to create the product become part of the process of due diligence that occurs during vendor selection. Recognizing the ‘sales pitch’ involved in the perpetuation of the ‘best practice’ myth would appear to be a necessity. Critically assessing the extent to which rigorous testing took place in order to validate such practices as better than all other options should surely become standard. Further, recognizing that the vendor–client relationship extends beyond the implementation of software is imperative. This is so since the ERP installed-base must be maintained and upgraded as part of a schedule of market-based migrations if continued vendor support is sought.

One way to subvert the power of vendors to quickly and selectively define best practices might reside in the creation of open-source alternatives to software development. The *Kuali* project is one such initiative within higher education where a consortium of institu-

tions are joining together to create a ‘best practice’ product that rivals ERP products. The project is described in *The Chronicle of Higher Education* (Young, 2004):

“...A key motivation for the Kuali project is concern over consolidation in the financial-software market. ‘We’re losing all of our small vendors that cater to colleges,...These vendors then have a lot of pricing power, and they don’t have to pay attention to some of our needs quite as closely as we would like. ...Because Kuali will be derived from software that has been in use at Indiana for years’ ...it will have a proven track record’.”

Not only does such an initiative create a more collaborative environment where partner organizations contribute as they see fit to the design of the software, but it shifts the power dynamic from multi-national software vendors to universities themselves.

Thus, this study directly questions the process by which ‘best practices’ are created. One area for future research would be to consider the extent to which a backlash will eventuate. The Ivy-Vision ERP package is currently being sold as inscribing the best business practices for global university contexts. As people try to apply these practices to their local situations we argue that they will have to evaluate the extent to which their local work practices are of greater value than those mandated by the ERP package. The rejection of certain best practices occurred at Ivy in order to create a working IS, but not without a price. It would be interesting to consider the extent to which the ‘best business practice’ model is storing up trouble for ERP software companies and the potential trickle-down effect on application service provisions (ASP) agreements and maintenance outsourcing.

Currently, universities that are moving away from local design initiatives are implementing the Ivy-Vision ERP product with the understanding that the technology will act as a point of translation, helping them straddle the juncture between local practice and global standards. Their expectation is that the ERP standard will allow them to embrace a globalizing future, and through configuration alone, also carry forward valued aspects of their past. At a fundamental level, this is the rationale behind all ERP technology where industry-specific ‘best business practices’ are inscribed within each functional module. The ERP system that is currently in place within Ivy differs from that which is being sold by Vision – both versions are sure to shift in their design over time. Following this process provides insight into the re-creation of so-called best practices, and the impact of design decisions on contemporary working life.

Acknowledgement

The authors would like to thank Dan Robey, Robert Davison and Maris Martinsons who commented on a previous version of this manuscript.

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