Culture and Evidence-Based Management

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Abstract

This chapter explicates the role that organizational culture plays in the ways evidence is used to inform management practice. Both culture and the process of making management practice evidence-based are multifaceted and complex. We offer a framework that allows one to assess how and why evidence-based management (EBMgt) is or is not used in a particular organization’s cultural ecology. We characterize culture as a complex, but only partly coherent, set of patterns shared by a group, where a pattern consists of mutually supporting elements, including beliefs, values, and practices. Patterns vary in how coherent and important they are to a given culture. We then describe EBMgt as a pattern, identify its core beliefs, values, and practices, and explain which cultural patterns are necessary for EBMgt to take root in an organization’s cultural ecology. We go on to propose eight ways in which culture and EBMgt affect each other, and conclude by suggesting steps to implement EBMgt in organizations, research programs, and classrooms.

Keywords: Culture, Evidence-based practice, Values, Mental models, Evidence-based organizations
Every day, organizations use evidence to guide conscious decisions about how to manage their operations. They differ in what evidence they use, how and where they use it, and why. A key factor in an organization’s use of evidence is its cultural environment. Consider, for example, how organizations with cultures as different as a Fortune 500 company, a church, a manufacturing plant, a law firm, and the military might use evidence to inform their respective management practices. The underlying premise of this Handbook is that the management practices in organizations such as these would be and remain more effective if they were more systematically informed by current scientific evidence. The focus of this chapter is to better understand the role that culture plays in this process.

The reader may hope to find in this chapter some insight into what a culture that supports evidence-based management (EBMgt) looks like. Both culture and the process of making practice evidence-based, however, are multifaceted and complex. It is insufficient to offer piecemeal suggestions about how a culture should support EBMgt. Rather, our aim is to offer a framework that allows one to evaluate how any such suggestion might fit into a particular organization’s broader cultural landscape -- a landscape that differs by country, industry, and member composition. Our framework is built on descriptions of culture, evidence-based management, and the ways the two are related in a way that we believe is sufficiently theoretically grounded for scholars yet useful to practitioners and educators. The descriptions, however imperfect, allow the reader to think about how culture and EBMgt are related in a way that yields testable hypotheses and is actionable.
The chapter consists of four sections. In the first we draw on theories and concepts of culture to characterize it as a complex, but only partly coherent, set of patterns shared by a group. Each of its patterns consists of mutually supporting elements, including beliefs, values, and practices, and these patterns vary in their coherence and importance to the culture. Finally, we propose that organizations do not have one culture, but rather an ecology of cultures with interacting elements and patterns. The second section builds on the definition of evidence-based management. In it we characterize EBMgt as a pattern, and describe the specific beliefs, values, and practices that are core to the pattern. In the third section we identify eight ways in which culture and evidence-based management affect each other. In describing each, we explain what cultural characteristics are necessary for EBMgt to take root in an organization. In doing so, we take the opportunity to anchor prominent suggestions about how to make a culture one of EBMgt. We then suggest ways in which the cultural characteristics that are not absolutely needed for EBMgt might still affect and be affected by EBMgt. In the final section, we suggest future steps for scholars, practitioners, and educators.

Our goal is that all readers will have gained a clearer understanding of culture, EBMgt, and how the two are related. Practitioners should gain sufficient understanding to systematically assess the relevant cultural patterns in a given organization for implementing EBMgt, including how evidence is currently viewed and used. This understanding should help in identifying those elements and patterns that can be leveraged in an organization, what would need to change.
in the organization, and what would be ideal if it were (eventually) changed, to better support EBMgt.

Scholars should gain some insight into how different dimensions and aspects of culture and EBMgt are related. The chapter identifies several open questions and hypotheses about the relationship between culture and EBMgt. Ideally, the scholar will herself identify important gaps in our descriptions of culture, EBMgt, and how the two are related and help address those gaps theoretically and empirically.

Finally, the educator can benefit by identifying opportunities to help managers think about culture in a way that bridges their practical process-improvement needs with the latest evidence about how best to do that. The framework this chapter provides is intended to help inform case analyses and field exercises in assessing an organization’s cultural environment, and how that affects its current and potential use of management-related evidence. Finally, it can help the educator interested in teaching management in an evidence-based manner to address issues closer to home: To assess the impact of the cultural ecology in her own classroom on evidence-use.

Perhaps the greatest impact of this chapter would be if it stimulates a mutually beneficial, evidence-based dialogue on how the patterns of our own cultures -- the scholarly, industry, and educational -- help and/or impede moving EBMgt forward across the board.
Culture

There are many different approaches to understanding culture, from the thick descriptions of anthropological ethnographies (e.g., Martin, 1992; Trice & Beyer, 1993), to typologies (e.g., Quinn & Rohrbaugh, 1983), hierarchical models (e.g., Schein, 2010), and dimensional conceptualizations of culture’s facets (e.g., Hofstede, 1983). In this chapter we adopt a dimensional model of culture that is a synthesis of several other models (Detert, Schroeder, & Mauriel, 2000), and supplement it with a few helpful cultural concepts. The goal is to use this hybrid to help characterize culture, if imperfectly and incompletely, to set the stage for the reader to better understand the ways in which culture and EBMgt affect one another. To do so, we present culture in sufficient detail to be of scholarly value, but not so burdensome as to lose its practical use for managers implementing EBMgt. We adopt the view that culture is a complex system of elements -- symbols, language, stories, myths, heroes, artifacts, norms, beliefs, values, and practices -- shared by and shaping their identity as group of people.

The system of elements that make up a culture are typically not entirely coherent (Alvesson, 2002; Hitlin & Piliavin, 2004). There are contradictions, tensions, ambiguities, and gaps within any culture: “Coherence is at most a characteristic of part not the ‘whole’ of culture” (McSweeney, 2009, p. 24). Consequently, we hold that if one is to meaningfully study and make practical use of the concept of culture, identifying what parts are and are not (relatively) coherent is paramount. We propose two levels at which to characterize a culture’s coherence. At the first level are the “cultural patterns” of interconnected elements.
Cultural patterns, as we will show, exist on a continuum of specificity, but for pragmatic reasons we categorize them as broad patterns and specific patterns. At the second level is the set of connected cultural patterns that delineates, even if sometimes in a fuzzy manner, the boundaries of what is and is not part of a given culture. Both of these levels of coherence are addressed below, starting with what a cultural pattern looks like.

Cultural Patterns

For simplicity’s sake, we limit our examples of cultural patterns to the three most important elements and their interrelationships: beliefs, values, and practices. A “belief” is a truth claim about the past, present, or possible future state of the world: It is a claim about what was, is, or will be the case. The degree to which a belief is justified depends on one’s theory of justification, and the three principle theories are foundationalist, coherentist, and correspondence (though mixes of these exist). Briefly, the foundationalist theory holds certain beliefs as given (i.e., first principles), which act as the basis for the justification of all other beliefs. A coherentist theory holds that the justification of a given belief is contingent on its compatibility with other beliefs, making them mutually supporting. Finally, the correspondence theory of justification rests on whether a belief accurately describes a state of the world. Regardless of which theory of justification one uses, a set of beliefs that together constitutes one’s understanding of a phenomenon is called a mental model (Gentner & Stevens, 1983). However, both theories of justification and mental models are shaped by culture (Hirschfeld & Gelman, 1994).
In contrast, a “value” is a specific type of belief -- one about how things ought to be (or ought to have been) -- given beliefs about how things can possibly be (or could have been) (Schwartz, 1992; Rokeach, 1973). That said, stating that one values a specific state of the world from among two or more possible alternative states in, say, a mission statement or press release (“espoused values”) is distinct, and often different, from what one’s actions reveal about one’s “enacted values” (Argyris & Schön, 1978).

Finally, we depart from theories of culture by considering organizational practice, instead of behavior, as an important element of culture. The principal reason for this is that practices, and not merely behaviors, are what EBMgt aims to improve. We adopt Cook and Brown’s (1999) definition of practice as “the coordinated activities of individuals and groups in doing their ‘real work’ as it is informed by a particular organizational or group context” (p. 386–7). A management practice, then, is a special kind of behavior that is characterized not only by having a specific meaning, but by having meaning that is drawn from, contributes to, and can be evaluated against some shared body of knowledge. It is worth noting that, given this definition of practice, it is ironic that “best practices” are often thought of, implicitly if not explicitly, as context-free. We can now propose how beliefs, values, and practices are related to each other in what we refer to as “patterns.”

In any given organizational culture, patterns of beliefs, values and practices will vary from each other in a number of ways, including how coherent, shared, core, and stable they are (e.g., “value trumping” where the relative
importance of cultural values depends on context, Osland & Bird, 2000). To better understand how patterns emerge, are sustained, strained, changed, or broken, it is helpful to first understand how the elements within a pattern affect each other. “Onion” models of culture (e.g., Schein, 2010) generally place hidden assumptions (i.e., tacit beliefs) at the center of culture, and these radiate outward to influence values, which, in turn, influence behaviors (which one could reasonably substitute with practices). The linear chain of effect has beliefs setting the boundary conditions for values, which are then enacted in practices. There is considerable evidence, however, that beliefs, values, and practices influence each other. For example, the outcome of attempting a new practice can increase or decrease both one’s perception of the practice’s effectiveness and beliefs in one’s own efficacy. Feedback from practice can also reveal beliefs to be inaccurate. Whether one notices, accepts, and acts on such feedback can depend on one’s wishful thinking and hopes — ways in which what one values (i.e., wants to be true) can influence what one believes is possible or true. Anytime one updates one’s beliefs, it can lead to subsequent changes in other beliefs and influence values. Practice also influences the formation and transformation of values through various mechanisms, from enacted values that are role modeled during professional socialization (e.g., White, Kumagai, Ross, & Fantone, 2009) to the rationalization of small acts of corruption leading incrementally to the normalization of corruption in organizations (e.g., Ashforth & Anand, 2003).

An actual pattern exists (or emerges) where a set of beliefs, values, and practices is at least somewhat mutually reinforcing, and as a result has some
stability. This implies that a change in one element (e.g., the belief that X) can have repercussions on the elements connected to it. There is evidence that some conceptual changes are harder than others. Some false beliefs can be easily changed, mental models may require one of more core beliefs to change, and some “robust misconceptions” require more profound changes still (Chi, 2008) and have been called “paradigm shifts” at the social level (Kuhn, 1996). But even a seemingly insignificant change in one belief can trigger a tipping point where its effect ripples across and destabilizes that pattern and possibly other patterns.

Cultural patterns guide people in making sense of and acting in the world. However, inconsistencies inevitably arise between existing patterns (or the beliefs and values within them), or between patterns and the experiences they are supposed to help explain and predict. One group of mechanisms aims to minimize these conflicts, and another aims to adjudicate them. The first set of mechanisms functions to maintain a pattern’s stability (i.e., its coherence), for unstable patterns can lead to confusion, anxiety, and even identity crisis, which can destabilize the culture itself. These stabilizing mechanisms include social norms and conformity, as well our tendency to seek and interpret experiences in a way that is congruent with existing patterns (e.g., “confirmation bias,” Lord, Ross, & Lepper, 1979; Nickerson, 1998) and to privilege sources, forms, and standards of evidence that support existing patterns over those that challenge them (e.g., “disconfirmation bias,” Taber & Lodge, 2006).

A second set of mechanisms improves the accuracy of the patterns (i.e., their correspondence to experiences), and is driven by various motivations to
question and discover (e.g., curiosity, creativity, innovation, exploration). The development and refinement of principled and reliable methods and standards to obtain and evaluate evidence (i.e., science) is a prominent example. Ultimately, the two groups of mechanisms compete most clearly when new experiences are inconsistent with existing beliefs, values, or practices that are important. Which mechanisms prevail in any given case depends on the circumstances and on the personal and cultural beliefs about knowledge and knowing (which are themselves patterns) of those interpreting the experiences. After all, two individuals, just as two groups, often interpret the same events very differently.

The patterns that one finds depend largely on the questions one asks. One illustration of this is the effect of the specificity of one’s question. One can ask how cultures differ from one another in broader, more fundamental ways (e.g., authority and control) or on more specific issues (e.g., strategic planning). Understanding the basic ways in which cultures differ is important if one wants to assess the ways in which EBMgt is compatible with a given culture. To answer basic questions of EBMgt-Culture fit, broad cultural patterns are most appropriate.

**Broad Patterns: Cultural Dimensions**

Perhaps the broadest type of cultural pattern is that of a cultural dimension. Various scholars have taken a dimensional approach to characterizing and comparing cultures (e.g., Hofstede, 1983; Smith, Dugan, & Trompenaars, 1996), where dimensions are specific patterns of beliefs and values. (Even when dimensions do not explicitly include values or practices, they have implications
for values and practices.) Detert, Schroeder, and Mauriel (2000) synthesized over 25 prominent theories of organizational culture and found eight general cultural dimensions:

1. *The basis of truth and rationality* concerns ideas about what is real, what one can know about what is real, and the means to do so.

2. *The nature of time and time horizon* concerns whether planning and goal setting tend to focus more on the long or short term.

3. *Motivation* involves ideas about the nature of what drives people to act, what parts are endogenous and exogenous, and what can be done to influence those drives.

4. *Stability versus change, innovation, and personal growth* includes ideas about people’s desires and propensity for stability or change, their openness to it, and their beliefs about whether there is always room for improvement.

5. *Orientation to work, task, and coworkers* distinguishes between work as a social activity versus production activity, an end in itself versus a means to an end, and a process-focus versus a results-focus.

6. *Isolation versus collaboration and cooperation* speaks to beliefs about the relative effectiveness, efficiency, and effects on individual autonomy of working alone or in groups.

7. *Control, coordination, and responsibility* relates to how centralized, controlled, formal, rule-based goals, decision making, and work are and should be, versus how decentralized, flexible, shared, and autonomous they are and should be.
8. *Internal and/or external orientation and focus* refers to where an organization looks for how to improve, its standards for performance, and its sources of ideas and leadership.

Cultures vary in what specific beliefs and values make up each of these distinct, but interconnected patterns. Taken together, the eight patterns are an informative, albeit high-level, way to characterize and compare cultures. Each of these broad patterns plays out in more specific patterns, which consist of proportionally more specific beliefs, values, and practices. Cultural beliefs about the motivations of individuals (#3), for example, are central to more specific cultural patterns concerning employee incentives, recruitment and retention, leading change initiatives, sales, marketing, negotiation, and labor relations.

**Specific Patterns: Daily Management Practices**

If broad patterns are useful in getting a general sense of a culture’s beliefs and values and how they compare to those of other cultures and of EBMgt, specific patterns are more directly useful for assessing, comparing, and improving day-to-day management practices. For example, Rasmussen, Sieck, & Smart (2009) compared the shared mental models of good project planning of British and American military officers. Using a technique called “cultural network analysis” (CNA), they mapped out the chains of beliefs, values, and resulting planning practices, and found several cultural differences. For example, British plans emphasized communicating the plan’s intent to allow for flexible implementation, whereas American plans aimed to reduce the number of decisions in the field by providing a step-by-step action “roadmap” with several contingencies. These and
other significant differences between the two military cultures had impacted their ability to effectively conduct joint planning operations. The concrete understanding of these differences and similarities in beliefs, values, and practices that made up the British and American planning models allowed for a strategic integration of the two cultures into synergistic and effective planning teams.

Core Versus Peripheral Elements, Nodes, and Patterns

Given the aims of this chapter, one of the most important differences among patterns and among elements is how “core” they are to a given culture. Extending Lachman, Nedd, and Hinings’ (1994) distinction between core and peripheral values, core patterns and elements are those that are more deeply ingrained in the culture, exert a stronger influence on the form of other patterns, and shape the identity of cultural members more than do peripheral patterns and elements. Not surprisingly, core cultural patterns and elements are consequently also harder to change. In sum, some patterns and elements will be closer to the core of a culture and therefore harder to change.

Pattern Coherence within Cultures and Connectedness Across Cultures

Thus far we’ve proposed that cultures are made up of relatively coherent and loosely connected patterns. We further propose that patterns are connected to each other through shared elements, called “nodes” (although typically, nodes have been thought of as people, not as beliefs, values, or practices). Similarly, different cultures are connected to each other through shared elements and patterns. The idea of “democracy,” for example, is a pattern of beliefs, values, and practices shared by many cultures through history. Although the core element of the
democratic value might be shared (i.e., rule by the people’s vote), there are many forms of democracy that differ from each other in their specific values, beliefs, and practices.

The more patterns a node is tied to, the harder it is to change any pattern connected to that node because of the stabilizing effects of its belonging to other patterns. Following this logic, any change to a node will have broader repercussions, as the effects of the change to the node ripple across any patterns it is connected to, any nodes contained within those patterns, and so on. Using the analogy of a web of beliefs, Quine (1978) argued that those beliefs at the center are connected to many others and so are more fixed, whereas those beliefs at the edge of the web are not, and thus more easily changed (e.g., by experience, diffusion of new ideas). Sieck, Rasmussen, and Smart (2010) similarly propose that an explicit cultural mental model can help in strategically structuring messages to affect “the values of the most vulnerable concept nodes [i.e., what we have called “elements”] (i.e., those for which there is the least consensus) which then propagate across perceived influences to affect the values of other concepts” (p. 17). Finally, how central an element is in the web and the coherence of the pattern(s) it belongs to also affect how easily it is changed. Central elements and patterns are more closely tied to identity, and thus changes are more destabilizing and significant. Coherent patterns are harder to replace or revise because the elements are more mutually supportive.
Not One Culture, But a Cultural Ecology

Each organization exists at the intersection of various cultures. An organization’s own culture is embedded in its industry culture, and in or across national and regional cultures. Depending on its size and mission, an organization can contain various sub- and counter-cultures, based on division, department, location, and profession or trade. Hence, employees, partners, suppliers, and clients each have overlapping memberships to different cultures, and each of those cultures has its set of shared values, beliefs, and practices. With increasing globalization and the ubiquity of multi-disciplinary teamwork, multiple cultures inevitably come to bear on how evidence is used.

We adopt Baba’s (1995) view that an organization is best construed as a cultural ecology. A cultural ecology approach acknowledges that and considers how the different cultures that permeate a given organization interact to affect that organization’s use of evidence. Its systems perspective draws one’s attention to the effects of an organization’s ever-changing context on its evidence use, including everything from new leadership, economic changes, new laws, and industry regulations, to the sudden emergence of risky, “once in a lifetime” opportunities. Each of these can affect what a given culture in an organization considers to be evidence, how it interprets that evidence, and whether and how it applies it.

The upshot is that many organizations do not have “a” culture as much as they have many overlapping cultures. In an era of globalization, people tend to belong to more than one culture: ethnic, national, professional, recreational, etc.
To a greater or lesser extent, each of these cultures shapes a person’s identity, what she values and believes, and how she acts. Organizations are similarly multi-cultural because they are composed of multi-cultural people and made up of distinct, but interacting, regional, departmental, and professional cultures, subcultures, and even counter-cultures.

Why does this matter? Because understanding that an organization is made of interacting cultures, which are themselves composed of dynamically interacting elements, allows one to get a more sophisticated and accurate sense of how receptive a given organization might be to a particular change such as evidence-based management, where and by whom that change might be better received, and the potential effects of introducing that change across the cultural ecology.

Evidence-based Management

As a decision-making process, evidence-based management is itself a pattern with core and peripheral beliefs, values, and practices. The specifics of an individual’s or organization’s pattern will vary, but for it to properly represent “EBMgt” it must possess certain core elements. A noteworthy characteristic of these core elements and the pattern they make up together is that they can vary in their degree of sophistication. A more sophisticated pattern of EBMgt entails a more sophisticated EBMgt process, which tends to generate more sophisticated management decisions. Specifically, sophisticated patterns of EBMgt are ones in which the process is more fully conscientious, judicious, and explicit, and thus

1) less affected by other, less relevant sources of information

2) less sensitive to distortions and misrepresentation of evidence
3) open to inconsistencies in evidence and resilient to premature closure

4) sensitive and responsive to changes in evidence

5) proactive in its own self-directed evolution

EBMgt practices are intended to both provide decision aids and de-bias the decision making in order to compensate for the known limits of unaided human judgment (Rousseau, this volume). A compelling way of gauging the degree of an EBMgt pattern’s sophistication is in how consistently effective its outcomes are across a variety of situations. The sophistication of the practices in a given EBMgt pattern, in turn, is predicated on the sophistication of its beliefs and values. The aim of this section is to first identify those core elements of the EBMgt pattern, and second, to describe what they look like at different levels of sophistication.

Core Elements of the EBMgt Pattern

To better understand the EBMgt pattern, we begin with Briner, Denyson, and Rousseau’s (2009) definition of EBMgt itself (which is derived from Sackett, Rosenberg, Gray, Haynes, & Richardson’s 1996 definition of evidence-based medicine):

“Evidence-based management is about making decisions through the conscientious, explicit, and judicious use of four sources of information: practitioner expertise and judgment, evidence from the local context, a critical evaluation of the best available research evidence, and the perspectives of those people who might
be affected by the decision” (Briner, Denyson, & Rousseau, 2009, p. 19).

The definition above reveals three characteristics of EBMgt, albeit at an abstract level. First, the core practice of EBMgt is making management decisions. Second, EBMgt decisions need to be based on the combination of four sources of information. Third, EBMgt decisions need to be made in a conscientious, explicit, and judicious manner. To understand the pattern that results when these characteristics are combined requires looking more closely at the component beliefs, values and practices of each characteristic.

The Core Practices of EBMgt

Much the same way that we distinguished broad patterns from specific patterns in the previous section on culture, we can break down the core EBMgt practice of “making management decisions” into its component practices at increasing levels of specificity. A common way of characterizing any decision-making process is in terms of three phases: 1) the acquisition of information (or evidence), 2) its interpretation, which culminates in a decision, and 3) the subsequent implementation of that decision. Nested within these three phases are even more specific ways of characterizing the component practices of the EBMgt decision process. Yates and Potworowski (this volume), for example, present a relatively comprehensive, intermediate-level characterization of these component decision practices in the form of ten “cardinal issues.” Some cardinal issues apply across all three phases, such as what resources are expended (i.e., Investment), who does the work (i.e., Mode), and whether the process is done in an appropriate fashion.
(i.e., Acceptability). Other cardinal issues are more specific to one or two phases, such as the generation of alternatives (i.e., Options) during the acquisition and interpretation phases, or assessing their likelihood to occur if chosen (i.e., Possibilities) during the interpretation phase.

By delving into each cardinal issue, one begins to get concrete enough to identify 1) whether there is a measurable, decision-making component practice in place, and if so, 2) how conscientiously, explicitly, and judiciously it is applied, 3) how effective it is, and 4) the degree to which it is evidence-based. The upshot is that it is neither very meaningful nor helpful to try to characterize an individual’s or organization’s entire management decision-making process as evidence-based or not. Rather, by mapping out the layers of nested practices, one can systematically and meaningfully assess what specific parts of one’s process can be made more evidence-based. Answering these four questions for a given practice allows the practitioner to undertake informed practice change initiatives, the scholar to generate organizational research hypotheses, and the educator to create effective, evidence-based management education exercises (e.g., case studies).

Three Levels of Evidence Use

Although the practice of EBMgt consists of making management decisions, it begs the question “decisions about what?” We propose that there are three levels at which one can use evidence to make management decisions. Each level is at a progressively broader level of impact on the organization, and requires greater
sophistication than does the previous one. We call the three levels informative, reformative, and transformative evidence-use.

Evidence Used to Inform

Evidence is said to inform an existing management practice when it is used as input for a discrete management decision. For example, BetaLtd wants to hire a new manager and is considering two candidates: Peterson and Jackson. It uses a mix of organizational needs assessments, tests, questionnaires, and interviews as its normal hiring process, and relies on the judgment of its seasoned interviewers to make the hiring decision. The evidence is the output (e.g., recommendations) from each of these sources, and let us assume that it is gathered, interpreted, and applied in a conscientious, judicious, and explicit manner. Together, the evidence informs the likelihood of whether the two job candidates will turn out to be good employees, and thus can guide BetaLtd’s decision about whom it should hire. In terms of the four sources of evidence, this process draws on the local context (e.g., the needs assessment), the perspectives of those affected (e.g., manager and fellow employees), and interviewer expertise. Whether it uses the fourth source of information, namely, the best available research evidence, depends upon the predictive validity of the tests and questionnaires used. If research demonstrates them to be the best available positive or negative predictors of employee performance in terms of the needs identified, and they are accorded a degree of influence commensurate with how good “best available” is, then this process is an example of EBMgt at the evidence-informed level.
Evidence Used to Reform

At the next level, evidence is used to reform an existing managerial practice (e.g., displaying emotions in negotiation; see Potworowski & Kopelman, 2009) or organizational practice (e.g., how employee feedback is given). The focus of the decision is on how best to conduct the practice itself, so at this level a question about the hiring process might ask: “On what bases should we be making our hiring decisions?” or more specifically “What evidence supports how we use the Myers-Briggs inventory in hiring managers?” When this level of EBMgt is practiced on a relatively regular basis in a relatively systematic way, one has in place the foundation of continual improvement process and so too, a learning organization (Garvin, Edmondson, & Gino, 2008; Senge, 1990).

Evidence Used to Transform

The third and highest level of evidence-use is transformational, whereby the EBMgt process is self-reflexive. At this level, the focus is on improving the evidence-use cycle of the EBMgt decision process itself, in other words, on making it more sophisticated. The decision can center on how to improve some facet of the acquisition, interpretation, or application of evidence when making reform decisions, or else on how to make any part of the process more conscientious, judicious, or explicit. Finally, the use of evidence to transform can also aim to make the organizational context more conducive for EBMgt to take root or grow more sophisticated. In this sense, it helps make (further) reformation or transformation more likely. In the context of hiring, a question at the third level might ask “What can we do to better interpret conflicting evidence about desirable
job candidate characteristics by internal and external expert practitioners?” or “How can we demonstrate to the doubters in our organization that an explicit EBMgt process for hiring managers is worth the risk and effort?”

Again, the cardinal issues (Yates and Potworowski, this volume) can facilitate the systematic use of evidence to improve specific parts of one’s EBMgt process. Such improvement would be at the second level of evidence-use if its object were the majority of managerial or organizational practices and decision processes, and at the third level of evidence-use if its object were the EBMgt decision-making process itself.

The Core Beliefs and Values of EBMgt

EBMgt, like evidence-based medicine (EBM), has instrumental and not intrinsic value because -- and insofar as -- it serves as a means to achieving specific ends. The objective of EBMgt is to methodically achieve “better,” intrinsically valued, management outcomes. What outcomes might be valued (and why) by any given organization falls outside the purview of EBMgt, but they typically include combinations of profitability, growth, efficiency, service, quality, safety, and employee satisfaction, among others. The values and beliefs that are core to EBMgt pertain to its instrumental value, and consist of principles of justification and instrumental beliefs, respectively.

Strictly speaking, the core principles of justification of the EBMgt pattern are not just part of it, but precede it. The principles are the bases on which EBMgt is judged superior over alternative means to achieve intrinsically valued management ends. We propose that three implicit principles of justification
underlie EBMgt: effectiveness, reliability, and transparency. Thus, EBMgt is valued above other means because it results in decisions that most completely achieve intrinsic ends (i.e., effectiveness), does so most consistently across situations (i.e., reliability), and does so in a manner, at least in principle, for all to see, understand, and reproduce (i.e., transparency). Alternative justification principles include efficiency, authority, tradition, faith, coherence, consensus, consistency, convenience, and fidelity to both intrinsic and instrumental values.

Pfeffer and Sutton (2006) address the issue of justificatory principles in their description of how an EBMgt mindset clashes with how managers and organizations typically operate. They explicitly warn against continuing to base management decisions on strongly held, but untested beliefs (e.g., intuition), the status quo, casual benchmarking of successful organizations’ practices, and what was done in the past. Interestingly, and perhaps more controversially, they also suggest adopting a “neutral stance toward ideologies and theories” (p. 71). Whereas adopting a neutral stance initially about a new theory is perfectly consistent with the EBMgt process, it is hard to imagine how this should extend to being open-minded about ideologies. In our understanding, when an ideologies drives decision-making, it often blinds its adherents to any incongruent information and evidence. In short, ideologies undermine the EBMgt process.

The bottom line is that if an alternative means to achieving intrinsically valued management ends were to present itself and be at least equally effective, reliable, and transparent than is EBMgt, we would predict that adherents of EBMgt would consider it. Likewise, if an individual or organization does not
prize effectiveness, reliability, and transparency above the alternative justificatory principles, then EBMgt, in the fullest sense, is not likely to hold much appeal as a means to their ends. The successful adoption of EBMgt rests on an individual’s or organization’s valuing and enacting the justificatory principles of effectiveness, reliability, and transparency above all others.

The core instrumental beliefs of EBMgt concern the means of achieving a decision process that is effective, reliable, and transparent. Specific instrumental beliefs fall under one of two broader beliefs: 1) there are four sources of information that each have something unique and valuable to contribute to decisions about management practice, and 2) to fully benefit from all four sources of information, the process requires integrity. We consider specific instrumental beliefs in the following paragraphs.

On the Information Used in EBMgt Decisions

Why does EBMgt draw on these four sources of information? The simple answer is the belief that each of the four sources contributes something unique and valuable to identifying the best, locally adapted management practice(s). Strictly speaking, this entails that using three or fewer of these sources of information, or including alternative sources of information (e.g., advice from popular management books at face value) will reduce one’s chances of finding the best, locally adapted management practice(s).

The belief that each type of information contributes something unique and valuable can be broken down into two beliefs. First, each source provides a different kind of information that is needed. Second, and partly by virtue of its
kind, each source has its strengths and weaknesses. Thus, only together do four sources cover the relevant types of information needed, and at least partly compensate for each other’s weaknesses. That said, it is necessary, but not sufficient, to draw on these four sources of information to identifying the best, locally adapted management practice(s) because the process of acquiring, interpreting, and applying the four sources can easily go astray.

The EBMgt decision process, like most decision processes, is susceptible to intentional manipulation, but even more importantly to the wide range of cognitive and social biases inherent to the human processes of acquiring, interpreting, and implementing information from all four sources. Moreover, people tend not to be aware of these biases. Research has consistently found, for example, that individuals and groups tend to seek and interpret evidence that is consistent with their prior beliefs (e.g., Ditto & Lopez, 1992; Lord, Ross, & Lepper, 1979; Schulz-Hardt, Frey, Lüthgens & Moscovici, 2000). For these reasons, the definition of EBMgt explicitly specifies that for the process to be properly evidence-based, it must be done conscientiously, explicitly, and judiciously.

Outlined in the paragraphs below, are some specific beliefs about each of the four sources of information and the three characteristics of process integrity for which research data exist.

Practitioner Expertise and Judgment

Who is an expert? There is an ongoing debate about how one should identify experts. On the one hand some have argued that the basis should be peer
nomination, experience, or position (e.g., Shanteau, 1992; Wood, 1999). Others have argued that it should be on the basis of reproducible superior performance on a representative task (Ericsson & Smith, 1991). Although peer nomination, experience, and position are often related to a track record of performance, they are by no means a guarantee of it. The definition of expert that we adopt in this chapter is reproducible superior performance because it ties directly to the justificatory principles of effectiveness and reliability. In contrast, relying on the judgment of an expert on the basis of peer nomination, her experience, or her position can easily turn into an appeal to authority.

Experts have several strengths that are critical to evidence-based practice, but some non-trivial weaknesses that also need to be considered (see Chi, 2006 for a brief review). Most importantly, experts tend to make more accurate judgments than do non-experts. Experts are more accurate because they are focus on the salient cues of a situation, conceptualizing problems at a deep level, and are thus able to identify exceptions to a rule. In principle, experts are in a position to help acquire and evaluate the four sources of information (including practitioner expertise) because they can discern what information is relevant, including what might be missing (see the description of conscientiousness below), and evaluate the external validity of information (see the description of judiciousness below) (Sackett, 1997).

Perhaps not surprisingly, practitioner expertise is typically the most highly valued of the four sources of information, especially by the experts themselves (e.g., Highhouse, 2008; Wyszewianski & Green, 2000). Tellingly, one of the main
sources of resistance to EBM lies in the perception by some that systematic reviews and practice guidelines are restrictive “cookbook medicine” impositions on clinician intuition (see Potworowski, 2010 for a brief summary of the debate). This attitude towards sources of information that might challenge expert intuition serves to highlight several critical weaknesses of experts. Experts tend to be overconfident, bound by their disciplinary training when diagnosing problems and offering solutions, and not as flexible and adaptable as one might expect (Chi, 2006). In addition, experts often disagree with one another, do not tend to exhibit superior judgments in certain domain (Shanteau, 1984), and have motives (e.g., survival, financial, political) that may not always align with those of the organization employing them. Finally, the knowledge and processes that lead to expert judgment are difficult and expensive to make explicit with fidelity (although the means to do so exist; Crandall, Hoffmann, & Klein, 2006).

Evidence from the Local Context

There are at least two forms of evidence from the local context. One is evidence gathered using a local sample. The second is an understanding of the local context that allows one to assess the relevance of external evidence and information, whether it be research evidence or evidence from another organization. Pfeffer and Sutton (2006) address both forms explicitly when they extol the virtues of constant local experimentation and learning by doing, and warn against the uncritical adoption of practices from outside, or “casual benchmarking,” because what works in one context may not work in another.
Still there are more and less rigorous ways of acquiring and evaluating evidence from the local context. More casual information collection has its share of pitfalls. For example, there are several, often unexamined beliefs that locals typically hold about their context that are not always accurate. These include “X has worked here in the past, so it will continue to work (or work again)” and, “our context is unique, and so external evidence Y does not apply (at all).” A variation on the latter is “Y would not work here because…” There is also the status quo bias (Samuelson & Zeckhauser, 1988), which commonly manifests in this context as “that’s the way we’ve always done things around here.” In short, casual local information collection might not always be appropriate because people do not always understand the salient features of their context as well as they think they do.

Although organizations such as Google and Teach for America are known to gain good insights into their management decisions by investing considerable resources into sophisticated internal studies and data mining, not every organization is equipped to collect formal, local evidence. Where such evidence is collected, there exist several potential shortcomings, including small sample sizes, lack of methodological sophistication, and no independent review of data.

**Critical Evaluations of the Best Available Research Evidence**

This source of information has several advantages tied directly to the foundational values of reliability and transparency. When scientific evidence is gathered together in a critical evaluation such as a systematic review (for a more thorough discussion see Briner & Denyer, this issue), it is the most reliable (though by no
means infallible) of the four sources of information. Its reliability is a result of a rigorous methodology explicitly aimed at eliminating threats to reliability (e.g., biases). Its results are designed to be (and often have been) reproduced, and to be supported by other, independently arrived at results. It also has fewer sources of bias than other types of information, partly because it has several points of independent evaluation. The systematic reviews (or critical evaluations) are transparent in that the component studies are identified, the inclusion criteria for these studies in the evaluation are stated a priori, and the assessment of the strength of the evidence and corresponding practice suggestion are explicitly stated. This allows the reader to re-evaluate the same evidence if she so chooses.

**Perspectives of Those People Affected by the Decision**

The fourth source of information is considerably different from the other three. The analog in EBM is patient beliefs and values, but with EBMgt, the people whose perspectives might be affected by the decision can be both inside and outside the organization. There are at least three reasons to include this type of information in making EBMgt decisions. First, the people who might be affected by the decision can be a valuable source of insight into, for example, the feasibility of a particular practice under consideration. Second, they may have power over the successful implementation of whatever decision is made, and so there is a pragmatic rationale for getting their input and buy-in into the decision process. Finally, one can argue that there exists an ethical rationale -- their values ought to be considered because they will be affected by one’s decision.
This source of information, while valid, may not be reliable. People’s perspectives may be naïve or misguided, and as a result, not in their own best interests. They may not know how they feel about potential practices that might affect them, or they may be ambivalent or change their decisions. Their perspectives can also be manipulated, overtly or covertly. In terms of transparency, they may feel that decision makers are not taking their perspective into consideration, even when an explicit effort is made to do so, which can compromise buy-in. For these reasons, considerable effort has been expended in evidence-based medicine to understand how to make patient beliefs, and so indirectly their values, more accurate. For example, the format in which people are presented probabilities about health (and other) outcomes affects their perception of the risk involved. Thus far this effort has not extended to EBMgt.

Finally, this source of information more than the three others poses a particularly thorny pragmatic challenge: How to identify and seek the perspectives of all the individuals and groups who might be affected by the decision.

**On the Integrity of the EBMgt Decisions**

The success of EBMgt depends on not only on using the four types of information, but also on the integrity with which that information is acquired, interpreted, and implemented. In no uncertain terms, without a clear understanding of why that integrity is necessary and the safeguards needed to ensure it, EBMgt can easily be manipulated and lose its effectiveness and credibility. The integrity of the EBMgt process hinges on the three characteristics
specified in its definition: contentiousness, explicitness, and judiciousness. Each of these is thus a part of the EBMgt pattern, and the related beliefs, values, and possible practices of each are described below.

A Conscientious EBMgt Process

“The conscientious use of the four sources of information means that an EBMgt approach involves paying careful and sustained attention to sources of what can be potentially different, conflicting, and sometimes difficult-to-interpret information” (Briner & Rousseau, 2011).

Perhaps the first beliefs that help make a process more conscientious are that different, conflicting, and difficult-to-interpret information 1) should be expected and sought, 2) is beneficial, and 3) can end in (some degree of) resolution. Pfeffer and Sutton (2006) speak to the first two points by repeatedly emphasizing the importance of being committed to “fact based” decision making, where that commitment involves conscientiously facing the “hard facts” by encouraging truth telling, however unpleasant it might be.

Being genuinely open to, if not seeking, conflicting information can be difficult, uncomfortable, and counter-intuitive. However, knowing that people tend to place greater value on information that is congruent with current beliefs (i.e., myside bias), seek information that supports their current beliefs (i.e., confirmation bias), and seek the company of others with similar beliefs, can be addressed by putting in place organizational practices that act as strategic counter-measures to these biases (e.g., actively seeking disconfirming information, entertaining counterfactuals, and playing devil’s advocate; Heath, Larrick, &
An Explicit EBMgt Process

“Being explicit means using information from each source in a clear, conscious, and methodical way such that the roles played by all the information in the final decision are understood” (Briner & Rousseau, 2011).

Though it can be costly if done from scratch each time, documenting the EBMgt decision process clearly, consciously, and methodically has several advantages. First, when a process is open to scrutiny, the deciders are made more accountable (Lerner & Tetlock, 1999) for having conducted it conscientiously and judiciously (see also process acceptability, Yates & Potworowski, this issue). As a result the process is more credible to those affected, and less easily manipulated. A second advantage is that, given new evidence or a significant change in context or values, making revisions or improvements is considerably easier. This serves to slowly replace extant policies and practices whose rationales have been lost or forgotten with ones whose rationales are captured. Finally, being explicit is crucial for the knowledge management of the EBMgt process and practices, which, in turn, facilitates everything from bringing pilot projects successfully to scale, to the use of evidence to reform and transform.

A Judicious EBMgt Process

“Being judicious involves using reflective judgment to evaluate the validity and relevance of the information from each source. Evidence and information is critically evaluated in relation to the practice context and
problem” (Briner & Rousseau, 2011).

The meaning of “judicious evaluation” hinges on the criteria for validity and relevance and the role of “reflective judgment.” What counts as valid and relevant information, and thus evidence, is the most central question of evidence-based management. Any misunderstanding of what is meant by evidence in EBMgt will inevitably lead to a flawed understanding of EBMgt itself, which results in it being misrepresented, misapplied, and eventually abandoned or rejected. The danger of such a misunderstanding is real. Misunderstanding of what evidence means in EBM has led to it being labeled “cookbook medicine” and has fueled suspicions that it is nothing more than a manageralist means of control. Proponents of EBMgt itself have already had to clear up early misunderstandings (Briner, Denyer, & Rousseau, 2009). What counts and does not count as evidence in evidence-based practice is both epistemically and politically contentious in fields as diverse as EBM (Rycroft-Malone et al., 2004), social work (Witkin & Harrison, 2001), public policy (Marston & Watts, 2003), and education (Slavin, 2002).

What counts as “evidence” is epistemically contentious because people (Kuhn, Cheney, & Weinstock, 2000; Perry, 1970; Wyszewianski & Green, 2000), organizations (Von Krogh, Roos, & Slocum, 1994), and cultures vary in what they consider to be legitimate principles of belief justification. Consider, for example, ethical review boards, whose purpose is to assess whether research proposals comply with the ethical principles (e.g., participant rights) set forth by funding agencies, professional associations, and the institution that the review
board represents. Different research methods carry different ethical risks, so one would expect that such boards have a sophisticated and unbiased method for assessing the appropriateness of the research methods, and the types of evidence produced by these methods, given a proposal’s research questions. There is evidence, however, that medical review boards are ill-equipped to evaluate, and prejudiced against, qualitative methods (American Association of University Professors 2000; Tod, Nicolson, & Allmark 2002), which are the most appropriate means of producing evidence on questions such as the range of patient values for chronic disease management. Thus, the quantitative bias of their epistemic beliefs narrows what constitutes acceptable evidence and the appropriate means to obtain it. This, in turn, affects what gets studied and how it gets studied.

The term “evidence” is politically contentious because evidence-based decisions depend on the mix of evidence that is considered, and that mix can be manipulated for political reasons. Without effective organizational (dis)incentives, checks, and balances, for example, the evidence supporting a conclusion that is a priori desired can be emphasized or exaggerated, while evidence against the desired conclusion can be played down, obfuscated, or even suppressed. It is telling that the English-language edition of Huff’s 1954 classic book *How to Lie with Statistics* has sold over a million-and-a-half copies -- more than any other statistical book (Steele, 2005). This leaves the question of how reflective judgment is involved.

Over the last 25 years, psychologists Patricia King and Karen Kitchener have developed a concrete model of reflective judgment (see King & Kitchener,
The seven stages in their model fall into three broader clusters: pre-reflective reasoning (stages 1–3), quasi-reflective reasoning (stages 4 and 5), and reflective reasoning (stages 6 and 7). What distinguishes one stage from the next are beliefs about how knowledge is gained (or the basis of knowledge), how certain knowledge can be, and whether problems have a “right” answer. In pre-reflective reasoning, the two sources of knowledge are authority (e.g., people, texts, traditions) and direct experience. In addition, all problems are believed to be solvable and to have a right answer, and so knowledge claims are either correct or incorrect. In quasi-reflective reasoning, knowledge claims are believed to be uncertain because information is incomplete and the methods of getting that information are imperfect. Because how evidence entails certain conclusions is not well-understood, knowledge claims tend to be subjective. Finally, in reflective reasoning, knowledge claims are assumed to be tentative and believed to vary in how reasonable they are. Because the reasonableness of a knowledge claim is contextual and based on what data is available, it can change. Consequently, claims are held to be open to reconsideration in light of new data or methodology.

Pfeffer and Sutton (2006) advocate several strategies to make evidence-based decision processes more judicious that are characteristic of the reflective reasoning described above. These include being suspicious of “breakthrough” ideas and (single) studies, emphasizing the drawbacks (e.g., risks) and virtues of different options, carefully examining the logic of the evidence (i.e., gaps, inferences, incentives), and recognizing the limits of what one knows (which they
call the “attitude of wisdom”). Having considered both culture and EBMgt as patterns of beliefs, values, and practices, we can now turn to see how these patterns can clash and coordinate.

**Culture and Evidence-Based Management**

The successful adoption of an EBMgt process is both contingent on and can transform personal and cultural beliefs, values, and practices. Once the EBMgt process is in place, the adoption of specific evidence-based practices that it generates is also contingent on and can transform the culture. Understanding the dynamics of EBMgt process and practice adoption can increase their likelihood by helping an organization more strategically address potential cultural pitfalls and leverage synergies. We propose eight ways in which organizational culture and EBMgt interact -- four of which involve the EBMgt process and four the EBMgt practices that emerge from that process.

1. Culture influences whether the EBMgt process gets adopted
2. Culture shapes the form that the adopted EBMgt process takes
3. The EBMgt process changes the culture into which it is adopted
4. The EBMgt process draws on parts of culture as information
5. Culture influences which existing practices are subject to scrutiny by EBMgt
6. Culture influences which new EBMgt practices are adopted and institutionalized
7. Culture shapes the form that adopted EBMgt practices take
8. New EBMgt practices, whether adopted or suggested, transform culture
How the EBMgt process draws on parts of a culture as information (#4) -- from beneficiary values, to practitioner beliefs and local practices -- has been addressed in our section elaborating the EBMgt process. We thus turn to the seven remaining effects because understanding and, where possible, anticipating these effects is valuable for the practitioner, scholar and educator alike.

**How Culture Affects Whether the EBMgt Process**

Detert et al. (2000) point out that contingency theory (Lawrence & Lorch, 1967; Thompson, 1967) predicts two important things about the implementation of any given change into an organization. First, not all eight values in Detert et al.’s culture framework would be equally important for every change. Second, not all of the elements of culture that do relate to a specific change will be affected to the same degree in different parts of the organization. Detert et al. then suggest that more research is needed to “identify the cultural configurations of successful adoption of specific innovations, including the internal patterning of these cultures…[especially] the interplay between enhancing subcultures (those that particularly embrace the new initiative) and countercultures (those that actively oppose it) in order to understand why some cultural conflicts end with real changes and others with a return to the status quo” (p. 858). In this spirit, this section proposes which cultural beliefs, values, and practices are necessary to support the implementation of EBMgt. It does so by mapping the core features of EBMgt onto Detert et al.’s cultural framework. The result is an account of EBMgt-Culture fit that has both normative and contingent dimensions. We first adopt a normative stance by identifying how the cultural ecology of any
organization *must* align on three cultural dimensions if it is to successfully adopt and institutionalize even the most basic EBMgt process. We then describe how a culture that meets these minimum requirements can shape the form that EBMgt takes, based on what it is like on the remaining cultural dimensions. We only offer a couple of examples because not all combinations of dimensions and their effects on EBMgt are understood. For this reason, we echo Detert et al.’s (2000) call for more study of culture-implementation fit, but specifically for EBMgt.

Incorporating EBMgt into one's organization can be an especially challenging cultural change. It not only changes the very process by which decisions are made, but also entails implementing new practices brought to light by that new decision process. Although EBMgt as a pattern has core elements that define it, the form its more peripheral elements take can vary. Exactly what configuration of EBMgt core and peripheral beliefs, values, and practices will “stick” (Szulanski, 1996) in a given organization depends on what works in that organization’s cultural ecology. Improving the chances of successfully implementing EBMgt into a specific ecology, then, is itself an evidence-based endeavor best undertaken by understanding both what EBMgt entails and the specifics of that ecology.

If an organization's cultural ecology is not compatible with the core beliefs, values, and practices of EBMgt, then it is exceedingly difficult to adopt EBMgt, except perhaps in the most extreme circumstances such as the proverbial burning platform. We propose that one way to assess that compatibility is by mapping the core elements of the EBMgt pattern onto three of Detert et al.’s
(2000) culture dimensions: 1) Beliefs about the basis of truth and rationality in the organization, 2) orientation towards stability versus change/innovation/personal growth, and 3) internal and/or external orientation and focus.

**Beliefs about Truth and Rationality**

Central to EBMgt are the beliefs that four types of information should be used as sources of evidence to inform management practice, and that the process requires three characteristics to help ensure its integrity. As was described in the section on EBMgt, this entails certain beliefs about what constitutes evidence, and how that evidence justifies (beliefs about effective) management practice. It also entails beliefs about the value, strengths, and weaknesses of each of the four types of information. Finally, it entails a cluster of beliefs about how conscientiousness, judiciousness, and explicitness improve the integrity of the process. Taken together, these beliefs are “epistemic” -- that is, they are about knowledge and knowing -- and thus clearly describe what a culture must believe about the basis of truth and rationality.

In EBM, these principles are explicitly embodied in the hierarchy of evidence (Guyatt, Rennie, Meade, & Cook, 2007). In this hierarchy, formally collected evidence is valued over subjectively interpreted uncontrolled experience, and within formal evidence, more rigorous study designs are valued over less rigorous ones. The epistemic rationale is that valid and reliable measurement of the effects of interventions on health outcomes is paramount. The hierarchy arises because formally collected data are much less affected by the well-known biases that affect human judgment than are subjectively interpreted
experiences and opinions, and among formal studies some designs control potential biases and confounders better than do others. However, the epistemology of EBM is inextricably linked with sample size and subject matter; the kinds of evidence it prioritizes require that interventions be implemented and measured hundreds or thousands of times, that many other variables be controlled, and that the relationship between intervention and outcome can be modeled by linear or other straightforward models (i.e., not by complex nonlinear dynamics). Although these particular requirements are often not possible or applicable to the subject matter of management, EBMgt does entail an epistemic judgment that places formally evaluated experience above subjectively interpreted experience and requires explicit consideration of context.

*Change vs. Stability*

That EBMgt aims to improve management practice is at this point obvious, but EBMgt can be thought of as a form of continuous improvement in that it aims to identify superior management practices from four evolving sources of information: Practitioners develop more expertise, the realities of the local context shift, external science advances, and beneficiaries or their values change. That EBMgt is fundamentally oriented to change, process innovation, and the personal growth of an organization’s members should therefore also be obvious. However, organizations are not all open to change in the same areas, nor to the same degree. This leaves us with the theoretically interesting and practically important question: How does an organization’s cultural ecology affect its openness to the
progressively greater degrees of change entailed by informative, reformative, and transformative evidence use?

**Internal vs. External Focus**

A third cultural dimension from Detert et al. (2000) that bears on a culture’s compatibility with EBMgt is where the organization looks for its new ideas and standards of performance: internally, externally, or both? On the one hand, EBMgt is internally focused in that it draws on information from the local context. On the other hand, EBMgt is externally focused in that it considers the best available scientific evidence. When it comes to practitioner expertise and beneficiary values -- EBMgt can look internally, externally, or both. One could even argue that a judicious EBMgt process involves finding the balance between the two orientations such that the strengths of one offset and outweigh the weaknesses of the other, and vice versa. Moreover, the “right” balance will change depending on the quality of information from each of the four sources. Consequently, to the extent that any organizational culture holds beliefs about, values, and acts on one orientation (internal or external) to the exclusion of the other, it cannot successfully implement EBMgt. Similarly, to the extent that it remains fixed at a balance point between the two orientations when the quality of the evidence suggests a different balance point, that organization would not be adjusting its process, and thus only be using evidence to inform.

In summary, for an organization to adopt and institutionalize the most basic level of EBMgt, it must 1) have compatible epistemic beliefs, 2) be oriented towards change, and 3) balance an internal and external focus. Although these are
the necessary conditions for its cultural ecology to support an evidence-use cycle that considers the four sources of information conscientiously, judiciously, and explicitly, they don’t guarantee it will adopt EBMgt. We propose that what an organization looks like on the remaining five cultural dimensions is less critical to whether EBMgt is adopted, but if it is adopted can affect and be affected by both the EBMgt process and the practices the process proposes.

**How Culture Can Shape the Form the EBMgt Process Takes**

Consider AlphaCorp, whose employees built almost a cult of personality around their founder and leader, Kyle Barry. With the help of a select few individuals within and external to the organization, Barry has a pretty effective EBMgt process in place. Although they do not submit all management practices to the scrutiny of EBMgt, the select few have together systematically improved many practices. Barry sets rules that tend to restrict managerial and employee autonomy, but when the rules do not improve management practice, he takes responsibility and tweaks them. Barry has also implemented an incentive structure that encourages employees to compete more than cooperate, which seems to work well. AlphaCorp is undeniably successful, and everyone would agree that the management practices are clear, generally effective, and are constantly improving. Interestingly, although how Barry and his team make practice decisions using the evidence-use cycle is explicit to them, it is opaque to everyone else in the organization. Employees only know that Barry asks for their views, but doesn’t always implement their suggestions. He does a great job at communicating how things are going to be done, but rarely offers much detail about why. For all the
employees know, Barry could be using a crystal ball to make decisions (but judging by his success, it would have to be a very good one).

AlphaCorp has highly centralized control, coordination, and responsibility, and the culture encourages employees to work alone and compete, more than cooperate. Furthermore, the culture is such that these areas are not (yet) open to reconsideration. AlphaCorp has appropriate epistemic beliefs for EBMgt, is oriented towards change, and seems to balance an internal and external focus. How does the rest of AlphaCorp’s cultural ecology shape the EBMgt process? For one, the employees’ culture seems clearly distinct from, but related to, that of the decision making team. The employee culture supports EBMgt as a passive part of the decision-making teams’ evidence acquisition process and active (and effective) implementation of the team’s implementation process. Because employees follow rules and have little decision-making autonomy, they have little need for and may not have even heard of organizationally relevant external scientific evidence. The rest of AlphaCorp, then, does no independently support the EBMgt process because they have no access to it. Yet taken as a whole, AlphaCorp’s cultural ecology could support EBMgt.

The simple and somewhat extreme example of AlphaCorp illustrates several things. First, it suggests how one of the other dimensions, in this case centralized control, coordination, and responsibility, might affect the EBMgt process while itself being closed to it. Second, AlphaCorp drives home the point that one needs to consider EBMgt in the context of an organization’s cultural ecology, and not assume that there is one culture, to understand whether and how
EBMgt might get done. Finally, that the ecology will shape the ways and extent to which EBMgt gets done in an organization.

How the EBMgt Process Can Change the Culture Adopting It

The EBMgt process has both direct and indirect effects on the culture into which it is adopted. The main direct effect is that it changes the way decisions about management practice are made. The exact effects depend on how (and how consistently) a given organization was making management decisions before it explicitly adopted EBMgt. For example, making explicit (to at least one culture within the ecology) the conscientious and judicious process by which management practices would now be made, and the beliefs and values underpinning that process, could affect the cultural ecology in a number of ways. First, the transparency should increase the accountability of the decision process. Second, it could alter what information and suggestions are provided to decision makers. In fact, it would be surprising if it did not have repercussions on how a number of the cardinal issues were addressed in the organization’s decision routines. Moreover, if an organization were to adopt reformative or transformative evidence-use, then the EBMgt process would continuously change the culture.

EBMgt has an indirect effect on culture through the effects of the evidence-based management and organizational practices that it generates. Although this is discussed later in the section, the success or lack of success of the evidence-based practices can act as a feedback loop to the effect of the EBMgt process. There is a long and somewhat obscure causal chain between an effective EBMgt process and evidence of that effectiveness. Nevertheless, with the
appropriate outcome measures and attributions, an effective EBMgt process can get its due credit. If one accepts that successful processes generally gain recognition within an organization (and unsuccessful ones gain notoriety), the success or failure of EBMgt rests on that of its fruit. Only if the evidence-based practices brought about by EBMgt are successful, can we realistically hope that EBMgt might be afforded a greater and broader role in shaping other organizational practices. As the role of the EBMgt process expands, it becomes an ever more prominent means to the organization’s ends, slowly replacing alternative methods of identifying so-called “best” practices. This may also lead to more reformative and transformative evidence-use. With increasing success and influence, EBMgt becomes increasingly core to the culture until, ideally, it becomes institutionalized and the primary means of decision making.

Depending on the original cultural ecology into which EBMgt is introduced, and how the successes of the management practices it generates affect the different cultures in that ecology, EBMgt could itself become a inter-cultural node. As an inter-cultural node, EBMgt would be an embedded set of mutually supportive beliefs, values and behaviors that spillover into other parts of the organization and its cultural ecology. That is, it could lead to greater homogeneity in the process of management practice evaluation and adoption across the organization. There is a danger, however, that under certain circumstances the successes of EBMgt practices could be viewed with suspicion or as a threat, and exacerbate existing differences and tensions across cultures in the ecology. A
longitudinal investigation of the effects and the diffusion pattern of EBMgt adoption across the cultural ecology would prove insightful in this regard.

**How Culture Affects Practices Open to Scrutiny by the EBMgt Process**

Although a given organization might use EBMgt, it may have fixed cultural beliefs and values about certain practices. In principle, the more that these beliefs, values, and practices are core to the culture, the less likely that they would be opened to scrutiny by the EBMgt process. After all, when a practice is subjected to the EBMgt process, it runs the risk of being replaced. Consider, for example, the military, which spends millions of dollars a year on research to improve its management practices. Which management practices the military is willing to consider changing and which it is not is an interesting question, and the answer might be surprising. For instance, one might consider that the chain of command, which falls under Detert et al.’s (2000) dimension of control, coordination, and responsibility, is core to military culture. As such, the chain of command might be considered off limits to EBMgt. Yet circumstances often arise where two or more important cultural values conflict, and sticking with the status quo would be at the cost of one or more of those values. This is precisely the situation the U.S. military faced recently in Iraq and Afghanistan.

The Military Decision Making Process (MDMP) is the traditional process of bringing information from the field up the chain of command and the resulting strategic decision back down to the field. It was found to be too unreliable and slow in the fast-paced theatres of Iraq and Afghanistan, making troops in the field less responsive to changing and unexpected conditions, and thus compromising
their safety and effectiveness. Since the MDMP was instrumentally valuable, and troop safety and effectiveness are intrinsically valuable, the military decided to replace the MDMP in certain circumstances with the more nimble Tactical Problem Solving Process (TPSP) (see Winkler & Russell, 2010, for a description of how TPSP was learned). By providing added decision making training and a more complete understanding of strategic goals, TPSP empowers lower-level field officers to make decisions for which they would have previously have needed authorization from superiors. The adoption of this evidence-based and evidence-supported practice has resulted in faster, more adaptive decision making in the field. In so doing, it also changed the army’s cultural patterns of control, coordination, and responsibility.

This example illustrates that even practices that one might think are based on an organization’s core values, may be less important than competing values when push comes to shove. Circumstances do bring important cultural values into conflict with each other, and force leaders to reflect on which are more important and decide how that will ultimately be expressed in practice. Although conflicts between important organizational practices and values are not common, they do offer an important opportunity for EBMgt to demonstrate its capacity to solve key management problems and shape the culture itself.

**How Culture Can Affect Which EBMgt Practices Are Adopted**

When an organization adopts a new EBMgt practice, culture will have had two or three points in the process where it influenced that adoption: its acquisition, evaluation, and implementation. When a need arises in an organization for a new
practice, either because no practice exists or the current practice is called into question, alternative practices are considered. The earliest effect of culture on the adoption of a practice is through the influence of culture on practitioner beliefs, beneficiary values, and information from the local context used to identify practice options in the acquisition phase of evidence-use. Culture also affects adoption through the effects on the same three sources of information during the evaluation of candidate practices. Finally, practices that are chosen to be implemented are (iteratively) adapted to better integrate into the existing cultural ecology, and elements and patterns in the ecology can be tweaked to better accommodate the practice (see Ansari, Fiss, & Zajac, 2010 for a review).

**Culture Can Shape The Form That Adopted EBMgt Practices Take**

Much in the same way that culture can shape the form that the EBMgt process takes, it can shape the form new EBMgt practices take. For example, in deciding who in the organization performs the new practice (see Mode issue, Yates & Potworowski, this volume), a culture that values isolation will likely arrive at a different answer than would a culture that values collaboration. Two organizations that differ on how centralized their power is, or on whether they have a short- or long-term focus would also likely arrive at different solutions. One should also expect that cultural differences in beliefs about motivation (e.g., carrot versus stick) and cooperation versus competition would lead to different incentive structures to get their members to perform the new EBMgt practice (e.g., individual versus team performance bonuses). This illustrates that what evidence-based practice is most locally suitable is directly related to how it will be
implemented. In considering potential EBMgt practices for a given organization, it stands to reason that one should reflect on how each of the culture’s eight dimensions bear on the form that practice would most realistically take.

**How New EBMgt Practices Can Change Culture**

Although evidence-based practices are chosen because of their anticipated results, they may well have unanticipated positive or negative effects as they interact with other patterns in the cultural ecosystem. As anyone who has tried to implement an organizational change knows, it usually doesn’t go completely right the first time. There is usually some tweaking involved, and it is not always the new EBMgt practice that is tweaked -- sometimes existing assumptions, values, and practices are challenged and need to change. The adoption of after-action reviews, for instance, can have ripple effects on the willingness of subordinates to voice problems to their bosses and on subordinates’ willingness to acknowledge failure. Similarly, improving healthcare delivery in organizations has shifted from relying on individuals change to a systems reengineering approach, which has led to role changes and consequently adjustments to healthcare professionals’ beliefs, values, practices, and identities.

New practices, from when they are proposed through to when implemented, can also call into question the beliefs, values, and practices in that culture’s other dimensions. For example, a new EBMgt practice may have unanticipated short or long-terms effects, not respond well to the incentive structure initially coupled to it, be more effective if done individually (or collaboratively), or might better meet local needs if the balance in how
standardized and tailored it is was changed. These unexpected results can have implications for other beliefs, values, and practices and are themselves a form of local evidence to be fed back into the EBMgt process.

In calling into question an existing belief, value, or other practice, a new EBMgt practice can end up clarifying their relative importance across the cultures in the ecology. This, in turn might trigger a change in the coherence of the ecology. That is, the change could reduce cultural fragmentation by bringing about either greater integration (i.e., all cultures in the ecology embrace the new EBMgt practice) or differentiation (i.e., cultures in the ecology disagree about the value of the practice; Martin, 1992). Either way, it affects the culture. In fact, accepted or not, the explicit consideration of practice options can plant the seeds that grows into a discussion and a re-examination of cultural beliefs and values—what they are, whether they are shared and by whom, how important they are relative to other values, etc.

Finally, to the extent that a change to a practice (and associated values and beliefs) is closer to the core of that culture, the more that new practice will affect the character of the organizational culture—both directly and through the radiating influence that core changes have on the rest of culture through its nodes. The U.S. military’s adoption of TPSP, for example, clarifies and thus redefines beliefs, values, and practices about field officer decision autonomy. Once TPSP has been in place and refined (or rejected), it will have generated new beliefs and values (e.g., “It works!”). Even a small shift in beliefs and values will influence
which future EB practices are considered and adopted (i.e., non-linear path dependence).

**Summary and Next Steps**

The aim of this chapter was to offer a framework that would equip the practitioner, scholar, and educator with an actionable understanding of how culture and EBMgt are related. We began by describing culture as being only partly coherent, and proposed that its coherence consists of a group of patterns. Patterns, we argued, are thematic sets of mutually reinforcing beliefs, values, and practices, and are as coherent and stable as the relationships between these elements. We showed how a pattern could be construed broadly as a cultural dimension (e.g., cooperation vs. competition), or more narrowly based on a specific practice (e.g., strategic planning). We distinguished core from peripheral patterns, with the former being more closely tied to identity and to other patterns through shared beliefs, values, or practices we called nodes. Core patterns are harder to change because they are more closely tied to identity, and a change in a node would affect all the patterns it is part of. We suggested that when a change is attempted in a core pattern that affects many other patterns at once, the coherence mechanisms that stabilize those patterns would likely prevent that change from materializing. Finally, we adopted the notion that an organization does not consist of a single culture, but rather exists at the intersection of multiple cultures. These cultures exist in a cultural ecology, and are connected to each other through nodes of shared elements and patterns.
We then described EBMgt as a pattern, and identified its core beliefs, values, and practices. The core practice of EBMgt is making decisions, which consists broadly of the acquisition, interpretation, and implementation of evidence into practice. We suggested that the cardinal issues discussed by Yates and Potworowski (this volume) could allow one to identify whether more specific and measurable decision-making practices are evidence-based. We then distinguished the three levels at which evidence can be used: as input to inform decision-making practices, to question and reform those practices, or to question and transform the EBMgt process itself. We proposed that the core values of EBMgt consist of enacting three principles of justification: effectiveness, reliability, and transparency. How these values were best enacted is what made up the core beliefs of EBMgt. On the one hand, EBMgt rests on the belief that four sources of information are essential to the process, as well as on more specific beliefs about the value, strengths, and weaknesses of each source. On the other hand, EBMgt rests on the belief that the integrity of the process requires that it be conducted conscientiously, judiciously, and explicitly. Finally, we suggested that culture and EBMgt are related in eight distinct ways -- four of which involve the EBMgt process and four the EBMgt practices that emerge from that process.

Armed with this understanding, practitioners can now begin to systematically assess the areas where, extent to which, their organizations are prepared to adopt EBMgt practices. They can begin by considering the potentially low-hanging fruit that will showcase the EBMgt process. These are management practices for which there is solid, external evidence indicating more and less
effective forms (see Pearce, 2009 for some examples), and the local form of practice is not the most effective. Practitioners can then identify a shortlist of EBMgt practices by drawing on the three other forms of information to conduct a rough cost-benefit analysis using, for example, Rogers’ (2003) criteria for the diffusion of innovations. The shortlist would include EBMgt practices whose benefits would be significant, immediate, and measurable, and that would be relatively cheap, easy, low-risk, to pilot test locally and reverse, if needed.

At one or more points in this process, practices could be vetted, more or less extensively, for their cultural fit. A more thorough assessment might involve formally identifying the beliefs and values associated with candidate EBMgt practices and those of the current organizational practice (e.g., by conducting cultural network analyses). This would not help identify which practices would most easily fit in the cultural ecology, but also important implementation leverage points (i.e., practice beliefs and values already extant in the culture). Each EBMgt practice that is adopted and successful provides a “small win” (Weick, 1984) that offers proof (or evidence) of concept that further establishes the credibility of EBMgt as the decision process of choice to effectively, reliably, and transparently achieve the organization’s intrinsic ends.

Scholars may have identified important gaps in our descriptions of culture, EBMgt, and how the two are related (e.g., the role of cultural norms). They may have also identified a number of interesting theoretical questions worthy of empirical investigation, or thought of ways to address the questions we raised about the relationship between culture and EBMgt. Finally, the educator should
be better equipped to help managers think systematically and practically about how culture affects (evidence-based) decisions about management. Hopefully the chapter may have inspired the educator with novel ideas for exercises and projects, and provided the basis for investigating the variety of tacit cultural beliefs, values, and practices held by her students and enacted in her classroom.

This chapter would have its greatest impact if practitioners, scholars, and educators recognize and embrace the key roles each plays in making EBMgt a reality (Potworowski & Green, 2011). The hope is that the chapter can frame the discussion of how EBMgt might become a shared pattern across the cultures of industry, scholarship, and education, and in so doing benefit all who are involved in and affected by management decisions.
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