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The influence of culture, competence, and style of decision-making on the perceived adoption of evidence-based management sources among Polish managers

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Abstract

Purpose – In this study, we explored factors driving evidence-based management (EBM) decision-making in Poland which has experienced changes from state-controlled market environments to more competitive ones. Evidence-based management requires the critical use and adaptability to information to deal with complex problems.

Design/methodology/approach – In total, 422 Polish managers responded to a telephone survey measuring their perceptions about decision-making culture, styles, competence, and their use of specific sources to derive the evidence to enable them to make evidence-based decisions. Informed by theoretical principles, we used Hayes' PROCESS macro (Model 4) to examine whether each factor produced direct effects on EBM decision-making and the mediating influence of competence and style in the relationship between culture and perceived evidence-based decision-making.

Findings – All three factors correlated positively with perceived evidence-based decision-making. Moreover, style was not predictive of EBM decision-making compared to competence and culture while culture had an imposing effect on decision-making both as a direct effect and indirectly through competence.

Originality/value – This study provides important insights into the perceptual state of EBM among Polish managers. It emphasizes the importance of embracing diverse cultures and improving critical thinking to help managers make more evidence-based decisions during significant changes in the business world.

Keywords Evidence-based management, Decision-making culture, Decision-making competence, Decision-making style, Evidence-based decision-making, Poland

Paper type Research paper

Introduction

The notion of evidence-based management (EBM) is not new to the literature. Barnard (1938) was the first to hint at it but only Rousseau and colleagues introduced the term in mainstream

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management parlance from an academic perspective (Rousseau, 2006, 2007; Barends, Rousseau, & Briner, 2014). The concept follows evidence-based medicine that we owe to Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) who redesigned the teaching of medicine from a prescriptive mode to one that requires a level of critical and reflective thinking about the best knowledge-based solutions to medical problems.

Barends *et al.* (2014) define EBM as "making decisions through the conscientious, explicit and judicious use of the best available evidence from multiple sources. . .to increase the likelihood of a favorable outcome" (p. 2). Since then, the topic has garnered a wide review (e.g. Rousseau, 2020) and criticism. Some objecting the statement that scientific evidence is easily and universally transferable into practice (e.g. Morrell, 2008; Hodgkinson, 2012). Eventually, scholars changed this view and the present understanding of EBM is the timely and effective use of a number of sources (not just scientific evidence) to inform better the quality of interventions in terms of impact in an attempt to drive high-quality decisions that reduce risk and increase effective outcomes (Barends *et al.*, 2014). However, this is not an automatic process and requires a change of mindset, attitude, and context-acceptance to critically evaluate the evidence in a safe and tolerant mode. Several authors (Rousseau, 2006; Rousseau & Barends, 2011; Rousseau & Gunia, 2016; Barends *et al.*, 2017) highlight three key factors important for managers to adopt evidence-based practices. The first factor is the decision-making style, specifically the attitude toward new or contrasting evidence. This broadly refers to the manager's mindset of adopting a style that questions and critically evaluates the evidence with little emotional influence to drive his or her course of action (Kahneman, 2012). The second factor refers to the ability and competence to make well-calculated decisions that weigh the benefits against the costs in a timely and adequate manner. Studies in managerial judgment to mitigate enterprise risk by utilizing EBM sources find that human cognition significantly impacts the implementation of design systems against human error (Crawford & Jabbour, 2023). In evidence-based practice, scholars cover it with the so-called six A's (asking, acquiring, appraising, aggregating, applying, and assessing) (Barends *et al.*, 2014). Finally, the third factor is the decision-making culture within the organization that encompasses, and somewhat drives, the first two factors as culture sets the proper context to allow for managers to see decision-making quality using evidence-based practice as part of the expected set of behaviors and beliefs of the organization (Rousseau & Barends, 2011).

We explored the extent to which these three factors influence managers' choices to adopt specific sources of evidence to better inform managers' decision-making processes. This is the first study conducted in Central and Eastern Europe, specifically in Poland, where organizations have shifted from an institutional-centric protected market to a competitive, business-driven environment. We aimed to highlight how people perceive these three factors and how they impact the use of EBM sources. The rest of the article is organized as follows. First, we will provide a contextual background, namely the evolving organization in the Polish business environment. Then, we will describe important aspects related to EBM prior to presenting our conceptual model and theoretical underpinnings. Next, we will provide the hypothetical pathways that we tested. Finally, we will describe the method, present the results, and the discussion based on the findings within the Polish business context.

Literature review

Management evolution in Poland

Poland joined the European Union in 2004 together with seven other ex-communist nations, which radically changed the business landscape. Of course, these changes did not happen upon membership. They were part of a gradual process of preparation to join the European economic block. Strużyna (2004) describes the challenges Polish companies faced in transforming their HR practices, including changes in professional skills, strategic views,

technology, and business approaches. This transformation of CEE-based organizations from a socialist institutional legacy to a more performance-driven one is not easy. Moreover, cultural innuendos and remnants of the past era heavily influenced the process (Horie & Kumo, 2019). For instance, Strużyna (2004) reported a high level of deficiencies in the functioning of HRM in the smaller companies which represent a strong part of the Polish economy. Such deficiencies included a lack of planning, poor employee selection methods, high levels of centralization, and poor management approaches. These factors undoubtedly undermine the quality of decision-making within the organization. Strużyna (2004) specifically argues in favor of a change of attitude and culture to improve the status of HRM in Poland. A few years later, Skuza, Scullion, and McDonnell (2013) argue that Polish companies have struggled to take up Western-based models of human resource management. They blame Polish culture for hindering traditional management practices and attitudes, making it difficult for Polish companies to transition to a Western-style market economy. Over time, several authors have discussed several social and managerial challenges (e.g. Garavan, Morley, Heraty, Łucewicz, & Suchodolski, 1998; Listwan, Pocztowski, & Stor, 2009; Sienkiewicz & Wojtczuk-Turek, 2013). They reported that managers of both large privatized companies and small Polish firms had few opportunities to learn new management skills and that, simultaneously, managers failed to see the need to develop further and shed off old practices (Wasilczuk, 2000) with culture playing a crucial role (e.g. Sienkiewicz, 2022). This implies that the cultural norms of business in Poland impacted the state of both managers' abilities and attitudes toward prompting them to bring about the necessary internal organizational transformations. A more recent study by Vetráková, Smerek, Włodarczyk, Mazur-Wierzbicka, and Misiak-Kwit (2021) reveals that Poland has accelerated the adoption of some more professional HR practices over the years compared to other CEE countries (in this case Slovakia). Moreover, in general, Poland has adopted more HR practices that are comparable to Western-based teachings in a bid to render organizations more competitive and more strategic. Literature confirms this trend (e.g. Purgał-Popiela, Pauli, & Pocztowski, 2023; Stor, 2023). This does not mean that such adopted HR practices are necessarily evidence-driven. Indeed, misconceptions are still relatively high (Bezzina, Cassar, Tracz-Krupa, Przytuła, & Tipurić, 2017) although these findings are no different from those obtained in other more advanced European countries (e.g. Sanders, van Riemsdijk, & Groen, 2008) or the US (e.g. Rynes, Colbert, & Brown, 2002). Indeed, these findings imply that developing HR practices do not necessarily equal the appreciation of which HR practices actually work and those that are less founded on evidence. To summarize, we argue that the context for EBM in Poland is still in its infancy with echoes of the past which has seeped into the cultures of organizational life although there are clear indications that changes are also happening at an increasing rate which has gradually accelerated over the more recent past. This describes the context within which we present our conceptual framework for this study.

Evidence-based management

Evidence is any information that will generate knowledge for improved decision-making (Barends & Rousseau, 2018). Managers face the challenge of ensuring the reliability and validity of information, as unreliable or invalid information is of little use in decision-making. The notion of EBM utilizes four information sources, namely practitioner expertise and judgment, evidence from the local and organizational context, a critical evaluation of the best available research evidence, and the perspectives of those people who might be affected by the decision (Briner, Denyer, & Rousseau, 2009). This understanding of EBM has a number of implications. We will focus on three of them. First, EBM is a non-random and orderly process of systematically making sense of the information available. This means that the search for evidence requires time, effort, and a high level of critical evaluation (Rousseau, 2006). In fact,

EBM provides the tools to critically evaluate and extract the best quality of information from a variety of sources. The proper, timely, and effective utilization of these sources helps to reduce the uncertainties around any decision that matters (Barends *et al.*, 2014). Relying on old or "tried-and-tested" formulae is not necessarily the "best" choice. Neither is there any guarantee for managers that such formulae offer reliable results (Jepsen & Rousseau, 2022).

Second, EBM is based on information derived from multiple sources including research and the wider scholarly literature, organizational data, stakeholders, and one's managerial expertise. It is not enough to appreciate these sources as fountains of evidence. It also requires that one can effectively exploit these effectively to one's advantage. For example, in the case of research, Rousseau (2006) postulates that this management approach will help to close the gap between research findings and practitioners' actions that may deviate from evidence. Furthermore, Rousseau and McCarthy (2007) suggest that relying on science involves three crucial steps. First – developing awareness in professional decision practice; second – diagnosing the underlying factors related to decisions; third – developing and contextualizing the knowledge derived from the available evidence. Likewise, in the case of organizational data, Donaldson (2012) argues that using organizational data to generate inferences means adopting a critical eye on the soundness, precision, and reliability of such data and the avoidance of common traps such as small numbers and error variance within the quality of data collected.

The third implication might be the most important one. Decisions lie at the core of EBM as much as decision-making lies at the heart of management practice (Baba & HakemZadeh, 2012). Undoubtedly, decisions bear monetary, time, and resource implications and they are an important foundation for managers' learning (Rousseau, 2006). This is even more so given that business environments are composed of complex market topographies filled with challenges, uncertainties, and therefore risks (Bhalla, Dyrchs, & Strack, 2017). Thus, this topography increasingly needs to undo failed business models and develop new organizational capacities to forecast and manage risk in the process of adaptation. Indeed, Hofmann and Frese (2011) postulate that learning how people make decisions, evaluate risks, and take action should be a prime motive for utilizing better management knowledge from scholars and researchers, especially in a world driven by huge masses of information. Thus, for managers' decisions to rely on plausibility rather than accuracy is a recipe for disaster. Indeed, this perspective concords with Weick's (1995) sense-making theory which partly involves the formation of reasoning that is not necessarily correct but seems to fit the facts at that moment in time, without the effort to break down the decision-processes into smaller and complete chunks. Sense-making happens either because managers lack the time to evaluate the data or have incomplete data or both. In fact, Pfeffer and Sutton (2006) observe that it is not unusual for managers to neglect new evidence and to base their decisions on dogma and belief.

Thus an understanding of the evidence source, one's preparedness for evaluation of the evidence, and an appreciation of the influence of evidence on quality decisions are the three implications, that emphasize that EBM requires specific competencies, styles, and a cultural context of social norms that support and cultivate these practices. As already hinted, typical Polish organizations are still battling with traditional past practices although clear improvements are already in sight. Nonetheless, within such a socio-economic ecosystem, EBM is not a mere "skill" that is transferable but also requires managers to possess a specific mindset and an element of control in terms of self-efficacy to master the power of evidence in its multiple forms (Rousseau & Gunia, 2016). Indeed, it is predominantly a management philosophy beyond being a set of prescriptive rules to follow and hence understanding how different factors, namely decision-making culture, competence, and style among Polish managers are useful to begin to explain their relative importance in determining their impact on the perceived use of evidence-based sources. In other words, evaluating the extent to which each of these factors contributes toward managers appraising the value of source-based

practices as defined in EBM is critical. To present each of these factors, we draw on earlier works by Rousseau and Gunia (2016), Barends *et al.* (2017) and Weber, Wyverkens, and Leuridan (2023) so as to describe our conceptual model for this research, in view of its application among Polish managers.

Conceptual model

Rousseau (2020) specifies that EBM is not merely a static and constant state of a universally accepted "decision-quality standard" that goes unchallenged and unquestioned. Rather it involves a process of discovery on improving organizational practices that influence decision-making. These may jolt the status quo and refer to this as realist rationality which she defines as "the pursuit of goals through means intended to overcome the limits of bounded rationality and its adverse effects on organizations and stakeholders" (pp. 415–416). The avoidance of blind faith, lack of inquisitiveness, and failure to challenge one's current knowledge state are central issues to this problem (Rousseau & Barends, 2011). Indeed, Weber *et al.* (2023) capture very well this process of discovery and exploration. They propose that Barends and Rousseau's (2018) definition of EBM that qualifies EBM as "evidence" and "claim" requires expansion to include "method." The process underlying the discovery of evidence generates both better management but also a sense of exploration. In their words, "the value of the method and its results is that it may create new perspectives" (p. 15). Their position is therefore that the method of searching for information determines to a large extent the usefulness of the evidence implicating the style of search. We argue that this flexibility one may possess toward evidence is even more possible in work environments that are tolerant of provocation and developing new ways of doing things. In other words, cultures that allow experimentation. Within this vein, Barends *et al.* (2017) utilize Ajzen's (1991) theory of reasoned action to specify that apart from social norms, people's appraisal of the importance of evidence also impacts the willingness to evidence-based practices. As Rousseau and Barends (2011) claim, EBM is a radical change from management as usual. Therefore, we also postulate that the decision-making culture is also critical (e.g. Austin & Ciaassen, 2008; Ost, Blalock, Fagan, Sweeney, & Miller-Hoover, 2020) in determining the extent of methods adopted (processes) in construing quality decisions (Weber *et al.*, 2023). Such practice involves an initiative to evaluate both the quality of a decision and its outcomes with a choice to correct it (Rousseau & Gunia, 2016). This undoubtedly requires a mindset that actively understands the reasons underlying a specific course of action and one that allows its revision in a timely manner (Knaapen, 2013). Indeed, Rousseau and Gunia (2016) capture this as involving a degree of predisposition to act in accordance with the availability of the evidence and one's predisposition to evaluate it accordingly in a critical way. This requires a level of competence that enables a manager to be in control of one's faculties and take responsibility for the course of the chosen action. According to scholars, the benefits of self-control over decision-making include enabling appropriate resources to forward actions deemed relevant to the user and making the proper approximations (Boureau, Sokol-Hessner, & Daw, 2015). According to Rousseau and Gunia (2016), these competencies include general skills and knowledge required to engage in decisions underlying a high degree of evidence while more functional competencies are specific skills and knowledge related to discrete activities, such as searching the evidence and appraising it.

In view of the above, Figure 1 represents our conceptual model. We will now elaborate briefly on the hypothesized pathways.

Decision-making culture, competence, and style

Central to our conceptual model based on the literature is the criticality of the decision-making culture in the organization. Cooke and Rousseau (1988) emphasize that shared norms

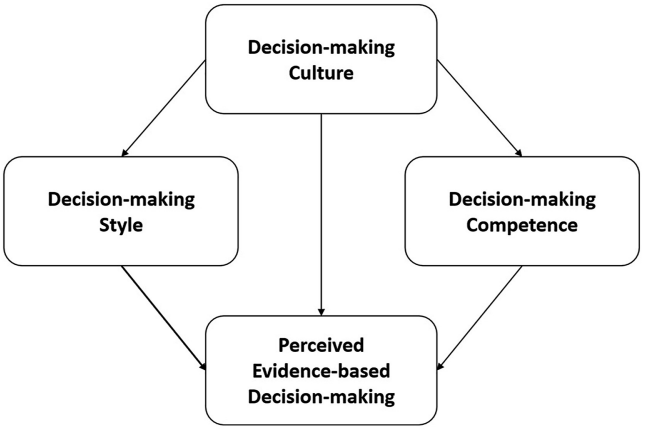

Figure 1.
Conceptual model

Source(s): Own elaboration

and expectations are very specific aspects of an organization's culture as they are responsible for guiding the thinking and behavior of members. This idea originates from the shared beliefs of members within an organization, shaping its culture and practices. Potworowski and Green (2012) explain how cultural norms, as representatives of culture, generate behavioral and attitudinal patterns regarding the use of evidence for making better decisions. They distinguish between organizations that embrace evidence and foster evolving practices, and those that inhibit experimentation and critical thinking to challenge the status quo. For instance, they refer to how much an organization delegates power versus keeping it centralized at the top levels. In a similar vein, Speicher-Bocija and Adams (2012) construe evidence-based practices as a form of innovation that requires acceptance before being diffused. They argue that a questioning culture is more likely to accept evidence and the utilization of evidence as informing better-informed decisions. In contrast to status-quo cultures, wherein evidence, especially contrasting evidence, this is construed as a threat. Barends *et al.* (2017) also highlight this fact.

> It is likely to be easier for managers to engage in EBP where they are in senior positions within their organizations or where they work with *like-minded others*. Educating a new generation of managers to engage in EBP is important to the development of organizational cultures supporting evidence use (p. 10).

Therefore, the culture-shaping decision-making processes significantly influence the value placed on evidence-based sources. This impact occurs directly and through its influence on management competence, where an open and inquisitive culture better prepares managers to critically evaluate evidence, and on management style, enabling greater flexibility in addressing specific challenges. Therefore, we hypothesized.

> A decision-making culture has a direct effect on perceived Evidence-Based decision-making (H1).
>
> A decision-making culture has an indirect effect on perceived Evidence-Based decision-making through its influence on managers' decision-making competence (H2) and decision-making style (H3).

At the individual level, the literature also argues about the relative importance of competence and style at utilizing appropriately the source benefits of evidence for

enhanced decision-making. In terms of competence, one essential ingredient for EBM is a high degree of critical thinking. Scholars often refer to top critical thinking, the ability to evaluate evidence and arguments independently of one's prior beliefs and opinions interchangeably with cognitive ability. However, studies indicate that heuristics and biases are also constituents of critical thinking such as probabilistic thinking or thinking about alternative explanations (West, Toplak, & Stanovich, 2008). In EBM, practitioners utilize the process of asking, acquiring, aggregating, appraising, applying, and assessing the evidence (Barends *et al.*, 2014). These 6As are best modeled into a cycle of constant evaluation of evidence from a variety of sources and a degree of mental and contextual flexibility rather than in a pre-conceived standardized or rigid practice (Weber *et al.*, 2023). Indeed, Briner *et al.* (2009) strongly argue against the notion that EBM is a rigid, formulaic approach to decision-making. They contend that the adoption of the 6As process can vary with each decision and source of evidence. Rousseau and Gunia (2016) support it as they assert that practitioners need to be able to identify their information needs first and then change these into questions to enable them to acquire the necessary evidence before evaluating them and eventually applying them. Practitioners must equally be competent to assess the quality of the evidence and its applicability to inform their actions. In such a perspective, we understand decision-making competence as an aggregated set of actions that informs professional judgment, business information, critical evaluation of the evidence, and informed courses of action (Rousseau, 2006; Briner *et al.*, 2009; Rousseau & Barends, 2011). Hence, we hypothesized.

> Decision-making competence has a direct effect on perceived evidence-based decision-making (H4).

Likewise, approaching evidence, including evidence that is not necessarily in line with one's beliefs, requires a combination of attributes stemming from knowledge, ability, motivation, one's value orientation, and also tolerance for ambiguity (Kahneman, 2011). Therefore, the decision-making style reflects subjective decision-making as a function of how a manager is likely to perceive and comprehend external stimuli and the manner they choose to respond and move ahead (Donelan, Walker, & Salek, 2016). Therefore, style is grounded in a number of important dynamics such as behavioral control over the potential outcomes and the beliefs one holds as to how one should proceed (Rousseau & Gunia, 2016). These will generally increase one's self-efficacy and are related to seeking more evidence-based-driven decisions (Beidas & Kendall, 2010). However, this is not a straightforward association or contingent on specific attributes. For example, Criado-Perez, Jackson, Minbashian, and Collins (2024) show that cognitive reflection is generally associated with higher decision-making accuracy. This holds true particularly in passive pathways to seeking evidence, and when exposed to low cognitive load. Their studies also indicate that negative emotion-inducing stimuli can strengthen the effect of cognitive reflection on evidence collection. This approach to EBM emphasizes the critical role of cognitive reflection, which varies depending on situational factors like the perceived normality and adoption of such behavior by others. Rousseau and Gunia (2016) argue that employees who face uncertainty or rely upon existing norms may or may not support EBP such as groups with shared beliefs that EBP is difficult. In such a case, an individual is less likely to perceive EBP as effective. In general, scholars postulate that where decision-making styles are more structured and proactive driven by a motivation to address the problem the higher the likelihood of endorsing EBM sources for effective decision-making. Therefore, we hypothesized:

> Decision-making style has a direct effect on perceived evidence-based decision-making (H5).

Method

Participants

The study targeted Polish personnel with a real influence on the decision-making of organizations. Prior to any data collection, we sought to determine the minimum sample size required for this study. Based on the percentile bootstrap method after considering various factors that are associated with mediation (e.g. the level of effect sizes, number of indicators, magnitude of factor loadings, etc.), the recommended sample size for a parallel mediation model is 387 for partial mediation and 300 for full mediation conditions (Sim, Kim, & Suh, 2022).

With this minimum sample size in mind (i.e. 387), we commissioned a certified research company to collect data on our behalf. The company used a comprehensive respondent database of several thousand establishments in Poland. This allowed it to randomly select Polish managers from several SMEs and large companies of different sectors and sizes, having Polish and/or foreign capital sources. Between the 12th and 27th of July 2023, the company made 3,256 contact attempts, of which 422 provided complete responses to a telephone survey. The managers participated voluntarily and willingly and the research company did not divulge any personal information to the researchers other than the data required for the research. In total, 55% of the respondents were middle managers, 28.4% were supervisors, and the remaining 16.6% were senior managers. The majority were men (52.6%) and involved in teaching or training related to their area of expertise (76.3%). The sample mean age was 36.5 years (SD = 9.7), with ages ranging from 20 to 63 years while the sample mean experience in the current role was 7.9 years (SD = 6.08), with scores ranging from 1 to 30 years.

Research instrument

The questionnaire collected demographic information related to gender, age (in years), years of experience in the current role, managerial level occupied (supervisory/middle management/senior management), and the type of sector they worked in (manufacturing/services). The remaining items consisted of Likert-type items pertaining to the following four constructs:

Decision-making culture, an organizational level influence, consisted of 11 items taken from Part I: Section B (items 13–23) of the Quality Decision-Making Assessment Instrument (QoDoS) by Donelan *et al.* (2016). An example item is "My organization effectively communicates the decisions it makes." The company requested the respondents to the extent to which each aspect reflects the current reality in their organization on a scale ranging from 1 = "not at all" to 5 = "always." The measures pertaining to the first nine items of this construct were reverse-scored so that higher scores reflected a stronger decision-making culture. Cronbach's alpha was 0.87.

Decision-making competence, an individual-level influence, consisted of 14 items taken from Part II: Section A (items 1–14) of QoDoS (Donelan *et al.*, 2016). An example item is "I use a structured approach in my decision-making". The company requested the respondents to rate the extent to which each aspect described them on a scale ranging from 1 = "not at all" to 5 = "always," such that higher scores reflected more decision-making competence. Cronbach's alpha was 0.89.

Decision-making style, an individual-level influence, consisted of 10 items taken from Part II: Section B (items 15–24) of QoDoS (Donelan *et al.*, 2016). An example item is "I underestimate problems which adversely impact my decision-making." The company requested the respondents to rate the extent to which each aspect described them on a scale ranging from 1 = "not at all" to 5 = "always." All item measures pertaining to this construct were reverse-scored so that higher scores reflected a decision-making style that led to better decision-making. Cronbach's alpha was 0.85.

Perceived evidence-based decision-making consisted of four items pertaining to perceived evidence-based decision-making. We selected and adapted these items from the EBM Assessment for Organizations which is available on the Centre for Evidence-Based Management (CEBMa) website (CEBMa, 2021). We held a discussion with three experts from CEBMa who unanimously confirmed that these four items accurately reflected the four sources of evidence that practitioners should consider in their decision-making. The company requested the respondents to rate their level of agreement on a scale from 1 = "strongly disagree" to 5 = "strongly agree," such higher scores suggest that the manager is more evidence-based and compatible with the principles of EBM. Since this scale was not previously validated, we conducted a principal component analysis (PCA) on the four measures (see Table 1).

Table 1 shows that all items loaded on one factor. Furthermore, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy exceeded 0.50. It examines the proportion of variance among the item measures that might be common variance. Bartlett's sphericity test was statistically significant implying a substantial correlation in the data. Cronbach's alpha was 0.70 and thus provided evidence of the internal consistency reliability of the measures (Hair, Black, Babin, & Anderson, 2014).

Data analysis procedure

In preliminary analysis, we generated an exploratory factor analysis with maximum likelihood estimation and an oblique rotation method (Direct Oblimin) to determine whether the 39 construct measures loaded on their respective factor and that there were no significant cross-loadings that exceeded 0.3 (Hair *et al.*, 2014). After removing any problematic items, we generated a confirmatory factor analysis (CFA) to determine model fit using the following measures and thresholds: $\chi^2/df \leq 3$; confirmatory fit index (CFI) ≥ 0.90 good and ≥ 0.95 great; and root mean square of approximation (RMSEA) ≤ 0.05 (Hu & Bentler, 1999). In the presence of a reasonably good fit, we computed composite scores and used the PROCESS Macro (Hayes, 2022) to investigate direct and indirect effects in a parallel mediation model (Model 4). Here, we specified X = decision-making culture, M_1 = decision-making competence, M_2 = decision-making style, and Y = perceived evidence-based decision-making. To investigate direct effects (a_i, b_i, and c'$_i$), we examined the *b*-coefficients and their corresponding *p*-value; a significant *p*-value for the regression coefficient implying a significant direct effect. We kept all the other factors in the model fixed. To investigate indirect effects (a_i x b_i), we used the bias-corrected percentile method with 5,000 bootstrap samples and a 95% confidence level and interpreted the two-tailed un/standardized effect. If there was no zero between the lower-bound and upper-bound of the confidence interval (CI), then we considered the indirect effect significant (Hayes, 2022).

Before any decision is taken, a manager should. . .	Component
1. Consult experienced professionals within one's organization to verify claims regarding assumed problems or effective solutions	0.76
2. Consult the most important stakeholders to verify claims regarding assumed problems or effective solutions	0.74
3. Systematically evaluate internal data to better understand the nature of the problem	0.67
4. Consult the scientific evidence to better understand the nature of the problem and guide decision-making	0.68

Note(s): Extraction method: PCA; $N = 422$; KMO statistic = 0.74; Bartlett's test of sphericity: approx. Chi-square = 252.60, $df = 6$, $p < 0.001$; percentage of variance explained = 51.46%
Source(s): Own elaboration

Table 1. Perceived evidence-based decision-making items and PCA output

Results

Preliminary analysis

The EFA revealed that all the 39 items loaded on their respective factor except for a decision-making competence item ("I use my 'gut feeling' in my decision-making") while no cross-loadings exceeded 0.3. We eliminated this item and generated a CFA model with four latent variables and 38 indicator variables. As shown in Table 2, the initial model (Model 1a) required six pairs of error terms to be covaried before we obtained a reasonably acceptable fit (Hu & Bentler, 1999) in Model 1g.

We then proceeded to compute composite variables. Table 3 presents the summary statistics of the construct measures and correlations between them. All correlations were statistically significant and in the expected theoretical direction.

Testing for direct effects

Table 4 provides PROCESS output related to the direct effects investigated in the parallel mediation analysis.

Table 4 reveals that decision-making culture produced significant direct effects on decision-making competence and decision-making style but not on perceived evidence-based decision-making, thereby refuting Hypothesis 1. Decision-making competence produced a significant direct effect on perceived evidence-based decision-making, thereby supporting Hypothesis 4 while decision-making style did not produce a significant direct effect on perceived evidence-based decision-making, thereby refuting Hypothesis 5. This meant that only decision-making competence emerged as a potential mediator in the relationship between decision-making competence and perceived evidence-based decision-making.

		Modification			Goodness-of-fit indices					
Model	Construct	Error terms of items	M.I.	Parameter change	χ^2 value	*df*	$\Delta\chi^2$	χ^2/df	CFI	RMSEA
1a	–	–	–	–	1425.45	659	–	2.16	0.87	0.05
1b	DMC	10 and 11	82.49	0.57	1334.67	658	90.78*	2.04	0.88	0.05
1c	DMCP	4 and 5	22.69	0.26	1311.29	657	23.38*	2.00	0.89	0.05
1d	DMCP	1 and 2	15.82	0.16	1294.66	656	16.63*	1.97	0.89	0.05
1e	DMS	9 and 10	11.54	0.18	1282.58	655	12.08*	1.96	0.89	0.05
1f	DMC	3 and 7	9.08	0.15	1269.79	654	12.79*	1.94	0.89	0.05
1g	DMC	1 and 2	9.01	0.12	1260.15	653	9.62*	1.93	0.90	0.05

Table 2. CFA model improvement, re-specification and comparison

Note(s): M.I. = modification index; item numbers reflect the sequence in the QoDoS instrument (Donelan *et al.*, 2016), DMC = decision-making culture, DMCP = decision-making competence, DMS = decision-making style
*$p \leq 0.01$; RMSEA decreases from 0.053 in Model 1a to 0.047 in Model 1g
Source(s): Own elaboration

Construct	M (SD)	DMC	DMCP	DMS	PEBDM
Decision-making culture (DMC)	2.84 (0.81)	1.00	0.51	0.65	0.17
Decision-making competence (DMCP)	3.29 (0.78)		1.00	0.52	0.43
Decision-making style (DMS)	2.96 (0.80)			1.00	0.16
Perceived evidence-based DM (PEBDM)	2.83 (0.60)				1.00

Table 3. Descriptive statistics and correlations

Note(s): M = mean, SD = standard deviation; all correlations are statistically significant at $p \leq 0.01$; $N = 422$
Source(s): Own elaboration

Testing for indirect effects

Table 5 provides a summary of PROCESS output for indirect effects in parallel mediation analysis.

Table 5 shows that decision-making competence fully mediated the relationship between decision-making culture and perceived evidence-based decision-making, thereby supporting Hypothesis 2. However, decision-making style did not mediate the relationship between decision-making culture and perceived evidence-based decision-making, thereby refuting Hypothesis 3.

Discussion and conclusion

As expected, decision-making culture, decision-making competence, and decision-making style were significantly correlated with the respondents' propensity for utilizing evidence-based sources for improved decision-making in line with the literature (e.g. Rousseau & Barends, 2011; Rousseau & Gunia, 2016; Rousseau, 2020). More specifically, participants who reported a higher state of decision-making culture in the organization (Barends *et al.*, 2017) adopted proactive and thoughtful rather than reactive styles (Beidas & Kendall, 2010). They also showed better competence at making decisions that are structured rather than taken haphazardly (Briner *et al.*, 2009) and had a greater tendency to consider adopting evidence-based approaches in their decision-making process. More notably, the mean scores for style and culture were generally on the lower end of the scale with only decision-making competence scoring beyond the mid-point. This suggests that most Polish managers acknowledge that their organization's culture or style does not always align with environments that typically seek evidence-based courses of action. Moreover, on average, respondents rated the perceived evidence-based decision-making lower than the mid-point. One plausible explanation for this trend may be that these Polish managers and their organizations are still aligning themselves to a more fluid business environment and one that is more open to changes and competitive forces filled with potential risks compared to one that is generally stable and predictable over the long term. Much of the literature does hint at

Parameter	Coefficient[a]	S.E.	*t*-statistic	*p*-value	95% CI
DMC → DMCP	0.49	0.04	12.18	<0.01	(0.41, 0.57)
DMC → DMS	0.65	0.04	18.63	<0.01	(0.59, 0.73)
DMC → PEBDM	0.03	0.05	0.58	0.58	(−0.06, 0.11)
DMCP → PEBDM	0.37	0.04	9.13	<0.01	(0.29, 0.45)
DMS → PEBDM	−0.04	0.05	−1.03	0.30	(−0.13, 0.04)

Note(s): [a] unstandardised effect; S.E. = standard error; CI = confidence interval; DMC = decision-making culture, DMCP = decision-making competence, DMS = decision-making style, PEBDM = perceived evidence-based decision making
Source(s): Own elaboration

Table 4. PROCESS direct effects output (Model 4)

Parameter	Effect[a]	Bootstrap SE	Bootstrap CI's
DMC → DMCP → PEBDM	0.18	0.04	(0.07, 0.23)
DMC → DMS → PEBDM	−0.03	0.03	(−0.09, 0.03)

Note(s): [a] unstandardized estimates; DMCP = decision-making competence, DMS = decision-making style, PEBDM = perceived evidence-based decision making
Source(s): Own elaboration

Table 5. PROCESS indirect effects output (Model 4)

the fact that Polish firms and management systems are often in ambivalent states of the need to simultaneously change while resisting the new state of affairs (Strużyna, 2004; Skuza *et al.*, 2013). Indeed, a business environment that requires an ability to deal with sudden changes and with no pre-set decision-making standards would in turn require managers to face problems within a context of critical appraisal and innovative solutions (Ost *et al.*, 2020; Jepsen & Rousseau, 2022).

With a closer look at how well the data supports the hypotheses, one finds that within the competing mediation model, culture had both a direct and indirect effect on evidence-based decision-making primarily through decision-making competence but not via style. Therefore, we found support for H1 and H2 but not H3. These findings indicate the importance of a culture that allows experimentation and an opportunity for questioning new ways of doing things. This is even more important in evolving economic landscapes that are open to competitive advantages but also risks (Barends *et al.*, 2014) as is Poland's status as a full-member state in a European economic block trying to emulate more Western-based models of HRM (Skuza *et al.*, 2013). An open culture that encourages experimentation, curiosity, and critical evaluation of diverse solutions significantly influences both the inclination to adopt multiple information sources for decision-making and enhances managers' competence to seek factual information, thereby promoting better evidence-based decisions. In fact, one may also argue that such a culture may indeed equip managers better to overcome potential misconceptions (Bezzina *et al.*, 2017). Moreover, we also found support for H4 as understanding the foundations of a problem and looking at the problem from a variety of perspectives is more likely to lead someone to adopt actions to seek a variety of sources. In fact, people who are more aware and knowledgeable of the potential risks due to the fluidity of the market will be more motivated and able to scan the wider environment for the reduction of uncertainties and risks (Hofmann & Frese, 2011).

On the other hand, the data did not support H3 and H5. In other words, it seems that the style of decision-making characterized by proactivity is not necessarily linked to perceived evidence-based management decisions over and above other factors like competence and culture. There may be multiple explanations for this but perhaps studies like those of Criado-Perez *et al.* (2024) may provide insights into why this may be the case. Essentially, decision-making styles that show a more rational (structured) approach may be necessary but not sufficient. While Kahneman (2011) has emphasized rationality over the use of heuristics, the degree of cultural allowance, and normative beliefs of what is or is not acceptable (Rousseau & Gunia, 2016) may diminish one's willingness to seek evidence-based sources for improved decision-making, irrespective of how well structured the decision-making style is. In fact, Evans (2008) postulates that decisions cannot be dichotomized purely into the so-called system 1 (heuristic-based) versus system 2 (rational-based) but some decisions exist at the preconscious state and contextually (culturally) influenced to take shape by other deliberative reasoning prompted to seek, or fail to seek, evidence-based information sources. In some way, this is consistent with Weber *et al.* (2023) who insist that EBM should move away from the simple "evidence" and "claim" but instead also include how the link between the two takes form (method). This is contingent on other factors including culture and competence of the decision-maker keeping in mind that competence is defined as over and above mere cognitive rationality (West *et al.*, 2008).

Theoretical and practical implications

Our findings highlight that culture and competence are more critical than style in determining the effective use of evidence-based sources for decision-making in EBM. This is perhaps understandable given that the specific norms adopted in a working environment are more likely to reinforce specific eventual behaviors to conform with best practices. This is not

only common to the management field but other disciplines benefitting from evidence-based practice which uncovers similar results. For example, adopting evidence-based medicine practices is immensely enhanced by providing institutional practices and norms such as support and a climate of knowledge sharing (Melesse, Amde, & Tezera, 2024). Similarly, having a clear cognitive understanding and capabilities to manage potential distortions is a powerful means of employing better EBM (Crawford & Jabbour, 2023). Indeed, one may argue that theoretically both culture and competence may then feed better into the adoption of styles of use of EBM.

In practical terms, this implies that for Polish organizations to adopt a more EBM approach in their decisions, this would require developing an environment for enhanced acceptance of more varied evidence sources (Speicher-Bocija & Adams, 2012) and, in combination with this, more management education that is grounded in evidence rather than conjectured beliefs (Pfeffer & Sutton, 2006). Our general findings support claims by other scholars over the years (e.g. Wasilczuk, 2000; Sienkiewicz, 2022) that emphasize the importance of redesigning the work culture to foster the mindset necessary for Polish organizations to align with Western practices of evidence-based management. This specific study suggests that culture has a greater influence on decision-making over and above other elements like competence and in general a change of mindset will fuel improved management practices. From an applied perspective, this means that organizations would require a fresh way to conceptualize and utilize data, information, and broader evidence in their strategic function by engaging a more critical approach to planning and allowing more possibilities for experimentation and decentralization to engage a wider stratum of internal and external stakeholders into the decision-making process (Skuza *et al.*, 2013).

Limitations

This study has its fair share of limitations, especially in its current state as an exploratory study. Firstly, we did not adopt a cross-sectional design rather than a longitudinal one, making causal pathways difficult to infer. Second, the study did not differentiate between sectors and most probably patterns would emerge if this was considered. Third, the study focused on Poland and hence further research is advisable to generalize these trends across other CEE countries. Finally, since random replacements were found for invitees who declined to participate in our survey in order to reach the targeted minimum sample size, this might have distorted sample-to-population inferences (Bezzina & Saunders, 2014). These limitations lend themselves to further research.

Concluding note

Poland is an evolving CEE market transitioning from an extreme socialist model to a more open and Westernized market that is exposed to competition rather than state control. This requires Polish managers to adopt a more open and critical mindset in the way they make decisions given that problems may be novel, unique, or challenging requiring a broader understanding of issues before making decisions. Moreover, EBM approaches require Polish managers to recognize the need for questioning contexts, management competence, and to an extent, motivating styles, to fuel their enhanced approaches toward exploring better-informed decisions based on facts and data, rather than beliefs or misconceptions that go unchecked and fail to fit the needs of the changing business landscape.

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