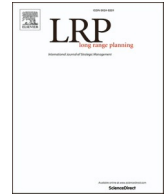




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Mapping and managing productive organizational energy over time: The Energy Pattern Explorer tool

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ABSTRACT

To strategically manage the deployment of collective human resources toward performance, managers must recognize, interpret, and align the volatile resources of productive organizational energy. Despite relevant prior work, research and practice still lack a comprehensive approach toward analyzing and managing energy patterns over time. We develop a framework for temporal configurations and prototypical trajectories of productive organizational energy. We then introduce the 'Energy Pattern Explorer' as a strategy tool to: (1) identify and predict actual patterns of productive organizational energy in organizations, and (2) suggest energy leadership activities specific to current and anticipated changes and patterns of productive organizational energy. We provide examples of how managers can use this tool and conclude with suggestions for research and practice.

1. Introduction

Collective human resources are strategically important for organizations to achieve competitive advantage and success (e.g., Becker and Huselid, 2006; Eldor, 2020), since they are valuable, organization-specific, and difficult to imitate (Barney, 2001; Eldor, 2020; Sirmon et al., 2007). To manage these resources, industry experts have pointed to the importance of establishing rigorous and reliable metrics (WEF, 2019). Here, we focus on the collective resource of productive organizational energy (POE), its respective metrics (e.g., Alexiou et al., 2019; Bruch and Ghoshal, 2003; Bruch and Vogel, 2011; Cole et al., 2012), and its conceptualization over time.

POE captures the extent to which people collectively invest their affective, cognitive, and behavioral resources toward achieving shared goals (Alexiou et al., 2019; Cole et al., 2012; Raes et al., 2013). As such, POE represents a valuable, organization-specific resource that is inherently volatile, and difficult to imitate (Barney, 2001). Therefore, the effective management of POE is a strategic capability, representing an organization's capacity to purposefully orchestrate and modify how people mobilize and maintain the collective energy toward organizational success (Cole et al., 2012; Eldor, 2020; Helfat and Martin, 2015; Jansen, 2004). So far, researchers have provided theoretical validation for the concept of POE, developed a reliable measurement instrument, and demonstrated its practical relevance (e.g., Alexiou et al., 2019; Cole et al., 2012; Bruch and Vogel, 2011). Yet, they have *not* addressed the volatility and dynamic nature of POE, which limits both its conceptual insight and its practical relevance.

Consider, for example, a hospital during the Covid-19 pandemic, where people collectively mobilized and aligned their energetic

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resources successfully during the first wave of the pandemic in spring 2020. When facing subsequent waves, however, both managers and employees noticed that it was more difficult to produce a similar quality of care, because energy was depleted, and adequate recovery had not taken place. This example illustrates that the implicit “more-is-always-better” assumption of prior POE research (e.g., Alexiou et al., 2019; Cole et al., 2012; Kipfelsberger et al., 2019) is not viable when considering POE over time, as it ignores POE regeneration and recovery, as well as processes that relate to mobilizing and maintaining POE. To ensure the long-term sustainability and competitiveness of organizations and their people, managers need to understand and manage (Nelson and Jansen, 2009) energy fluctuations, and be better able to mobilize, maintain, and restore POE.

Based on relevant theories concerning the dynamics of energetic resources, we develop a framework of POE configurations and trajectories to better understand how and why POE fluctuates in the short and the long term. We then present the ‘Energy Pattern Explorer’: a comprehensive strategy tool that helps managers both identify and predict POE fluctuations and patterns, and includes leadership interventions related to specific energy demands at a given moment.

2. The framework of POE configurations and trajectories

POE provides a metric for the shared affective, cognitive, and behavioral resources that people demonstrate when they pursue their organization’s shared objectives, and which prior research has validated and described in detail (e.g., Alexiou et al., 2019; Cole et al., 2012). POE is a *holistic* experience, which managers can observe as the three dimensions of people’s positive emotions (e.g., enthusiasm, excitement), their cognitive alertness, and their high effort for shared goals. POE is also a *collective* experience that results from emotional contagion (Barsade, 2002), shared sensemaking (Salancik and Pfeffer, 1978), and behavioral integration (Bandura, 2001) of individual experiences. Finally, POE is *volatile*, and may be activated, used, or depleted as a function of work activities and experiences (Jansen, 2004; Quinn et al., 2012). POE can be ‘dormant’ and non-activated, or it can be ‘in-use’ and activated (Cole et al., 2012; Etzioni, 1968).

2.1. POE dynamic mechanisms

Researchers have pointed to two relevant mechanisms for the evolution of human energy. First, conservation of resources (COR) theory (Halbesleben et al., 2014; Hobfoll, 1989, 2011) and research on resource depletion and enrichment (Marks, 1977; Rothbard, 2001) suggest that engaging with high energy in work activities can trigger the (re)generation of POE. Experiencing POE is intrinsically rewarding (Chen et al., 2011; Cole et al., 2012), so people are motivated to restore, protect, and expand their energetic resources (Hobfoll, 1989, 2011; Marks, 1977). Conversely, when people perceive POE-consuming activities as unrewarding and feel they are unable to restore, recover, and expand their energetic resources (Demerouti et al., 2012; Fritz et al., 2011), they may lose the motivation to invest in high POE, leading to it decreasing over time (Marks, 1977).

Second, POE can also vary due to a performance-based mechanism. While prior energy research has shown that higher POE may result in higher performance (e.g., Bruch and Ghoshal, 2003; Cole et al., 2012; Kipfelsberger et al., 2019), we suggest here that the way that managers interpret success can also impact POE. Social learning theory (Bandura, 2001) suggests that *positive organizational performance* (i.e., progress, effectiveness, or successful adaptation) supports people’s collective perceptions of efficacy and mastery (Bandura, 2001), and solicits positive affective reactions (Weiss and Cropanzano, 1996). With high performance, people aim for and feel confident about re-experiencing that achievement, resulting in a collective desire to continue working with shared enthusiasm, cognitive alertness, and high effort—that is, with high POE. Conversely, organizations may face a success syndrome (Tushman and O’Reilly III, 1996) and experience a ‘too-much-of-a-good-thing’ effect (Pierce and Aguinis, 2013) when high performance breeds over-confidence and people take success for granted, leading to them reducing their effort and opportunity-seeking behavior (Burgelman and Grove, 2007; Sitkin, 1992). The positive linkage between performance and POE may thus reach a tipping point, at which organizations still show higher performance, but also start to demonstrate increasingly lower levels of POE.

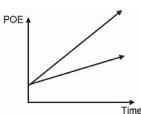

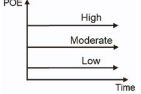
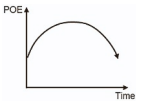
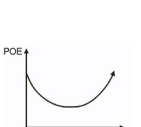
Organizations may also face *negative organizational performance*. People tend to respond to low performance with a lack of confidence, negative emotions, and resignation toward achieving organizational goals (Bandura, 2001; Weiss and Cropanzano, 1996). These responses can reduce POE, which over time may induce a downward spiral (Lindsley et al., 1995) of continuously decreasing levels of POE and performance. Conversely, managers may find that a perceived lack of success and performance can result in increased POE. Negative performance feedback can activate emotions (George and Zhou, 2002) and a shared urgency to act and prevent ongoing failure (Bruch et al., 2007), which can produce increased levels of energetic resources.

2.2. Short-term POE configurations

From the attributes and mechanisms of POE we can derive five *short-term POE configurations* (see Table 1) that show how POE varies along short-term, regular organizational activities (cf. Ancona et al., 2001). These configurations help managers identify how POE evolves in their units¹ over a period of days or weeks, and how these configurations can become building blocks for POE trajectories over longer time periods (see Table 2).

¹ We use ‘unit’ as a placeholder for a range of collective entities, such as a team, business unit, organization, and other relevant collectives.

Table 1
POE short-term configurations.

Configuration	Visualization	Definition	Conceptual background
POE increase		Units collectively show increasing POE that can either be modest or steep.	Positive experiences of POE can be rewarding and generative and create a self-reinforcing upwards spiral as a steep increase. Positive performance feedback feeds an increasing POE.
POE decrease		Units collectively show decreasing POE that can either be modest or steep.	POE decreases over time where engagement in work activities lacks effective recovery. Negative performance feedback diminishes people's motivation to act with (high) POE, based on the expectation that POE will not generate better performance.
Stable POE		Units collectively demonstrate similar POE with a high, moderate, or low intensity.	At a very fine-grained perspective, a stable POE pattern consists of a series of micro-mobilizations and recovery experiences, wherein energy expansion and depletion cancel each other out. Stable POE patterns exist at low, moderate, or high POE levels.
Inverted U-shaped POE inflection		Units experience a phase of gradually slowing POE increases, followed by an inflection point where people start to invest less POE.	With an ongoing POE increase, units overuse POE or lack effective recovery. They decelerate any demonstrating POE to protect existing resources. Over-confidence from ongoing positive performance feedback can reinforce this action. Deceleration continues until a unit reaches an inflection point (Nelson and Jansen, 2009; Metiu and Rothbard, 2013), from where people then start to invest less POE.
U-shaped POE inflection		Units experience a phase of gradually slowing POE decrease, followed by an inflection point where people start to invest more POE.	POE cannot infinitely decline unless a unit is dissolved. After ongoing POE decrease, this decline weakens. When units start to strive to re-experience POE and prior performance, POE decline can bottom out. Units then start to activate any dormant POE.

2.3. Prototypical long-term POE trajectories

POE is inherently volatile, and each unit will thus experience a unique energy pattern. As detailed in Table 2 (below), the theoretical mechanisms and short-term configurations point to a series of prototypical POE trajectories of longer, meaningful time horizons of months or years (Jansen, 2004; Jansen and Hofmann, 2011; Kozlowski, 2015; Solinger et al., 2013)—for example regarding typical strategic planning and performance cycles, transformative initiatives, or M&A processes. Recognizing prototypical POE trajectories is necessary for the strategic management of POE because this ability helps managers to identify the unit's future pattern of energetic resources, the implications of this, and the required targeted interventions. Indeed, failing to recognize such trajectories and instead only evaluating POE at a singular point in time, as do many typical employee-related assessments, may result in the gathering of misleading insights.

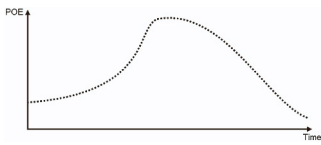
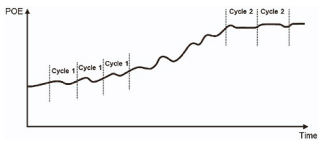
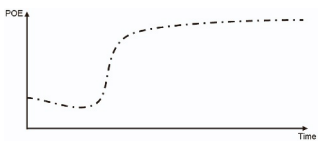
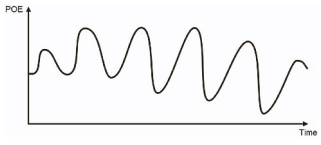
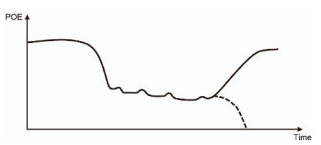
For example, consider a unit that experiences a moderate level of POE at one point in time. As can be seen from the visualizations of the five prototypical trajectories in Table 2, different POE trajectories can show similar moderate levels of POE. However, prior and after those at the outset similar moderate levels the evolution of POE can be very different. In an 'Upwards shock' trajectory, a moderate level is part of an ongoing POE increase, while in 'Rolling waves' trajectories, a moderate level can also indicate a POE decrease; each of these point to different types of leadership interventions. Instead of considering POE at a singular point in time, when managers identify (using our Energy Pattern Explorer) that a moderate level of POE is part of a distinct, long-term trajectory, they can opt for specific activities to either mobilize POE further (e.g., for 'Upwards ripple' or 'Upwards shock' trajectories), or focus on POE recovery activities (e.g., for 'Overheating', 'Rolling waves', or 'Bathhtub' trajectories). Hence by considering POE trajectories, managers can prevent making jeopardizing decisions based on limited insight.

3. The Energy Pattern Explorer

We developed the Energy Pattern Explorer tool to assist managers in utilizing the framework of POE configurations and trajectories and to generate four key benefits. The first benefit is that the metric of POE and the introduced framework allow managers to evaluate and track the level of collective energetic resources over time. Second, by comparing the evidence and data from past and current POE to similar prototypical POE trajectories, managers can project likely future patterns. Third, managers can analyze how this future likely pattern matches anticipated energy needs based on firm-specific business contexts and performance ambitions. Finally, the tool equips managers to identify and execute relevant energy leadership activities, such as mobilizing, revitalizing, cooling off, and stabilizing. These activities can respond to organization-specific requirements and ultimately sustain collective human resources and performance.

The Energy Pattern Explorer and its associated leadership activities are interactive and contextually embedded processes that would likely involve multiple people co-creating leadership (Batistič et al., 2017; DeRue, 2011; Uhl-Bien et al., 2014). In doing so, the tool enables the development of the kind of complex social phenomena that are involved in the coordination of collective human resources (Fulmer and Ostroff, 2016; Uhl-Bien and Arena, 2018). Therefore, it is important to note that working with the Energy

Table 2
POE long-term prototypical trajectories.

Trajectory	Visualization	Description
Overheating		The <i>Overheating</i> trajectory shows a steep POE increase in a unit, followed by an inverted U-shaped POE inflection and a successive steep decrease. In practice, organizations like the one illustrated in Fig. 1, may be on this trajectory when they experience constantly high growth targets and pursue multiple transformations—for example culture change towards agile working, acquisitions toward a digital business model, or international expansions. Overheating starts at low POE, with an initially modest and then a steep increase toward high POE. Recovery experiences may be effective, yet over time a unit’s capacity to recover slowly depletes, and the ongoing acceleration drains the workforce, such that the shared experience of POE peaks. The subsequent decrease is sharp and prolonged, driven, for example, by a severely reduced recovery capacity or negative performance feedback.
Upward ripple		With the <i>Upward ripple</i> trajectory, units collectively experience a continuous POE increase with frequent smaller, cyclical fluctuations of POE toward overall high levels of energetic resources. In practice, organizations may experience this trajectory when operating in steadily growing markets or incrementally expanding their service offerings. The trajectory starts at a low POE when units show a first cycle of POE configurations (Cycle 1): <i>small scale POE increase—inverted U-shape inflection—small scale POE decrease—U-shape inflection—small scale POE increase</i> . Energy gains outweigh depletion, so that units will show sustained moderate POE growth. At some point, POE typically reaches a ceiling. Here, units experience POE fluctuation at an overall high level, following Cycle 2: <i>small scale POE increase—inverted U-shape inflection—stable POE—small scale POE decrease—U-shape inflection—stable POE—small scale POE increase</i> . This aspect is supported by norm building around an expected demonstration of POE (Ehrhart and Naumann, 2004).
Upward shock		Units in the <i>Upward shock</i> trajectory initially see a phase of low POE. In practice, organizations then experience or create a shock-type event that substantially shifts its set-up or context—for example, the market entry of an unexpected competitor, takeover threats, the acquisition of a key rival, or a fight for financial survival with a change in top positions. This can create a U-shaped inflection and a momentum that strongly activates a firm’s dormant energetic resources. After a short and steep phase of POE utilization, people decelerate the demonstration of POE to protect their existing resources. POE settles at relatively stable and high levels. Norm building, the shared motivation to re-experience high POE, and performance feedback can help sustain a relatively consistent high level of POE over time.
Rolling waves		The <i>Rolling waves</i> trajectory has multiple steep and tall POE fluctuations and an overall decreasing trend. Firms demonstrate this trajectory when they pursue a series of transformation programs that affect the entire organization—for example, a firm-wide efficiency program, followed by refocusing the entire portfolio with acquisition and divestment of business divisions, succeeded again by a firm-wide efficiency program. For those POE fluctuations, a steep POE increase is followed by a peak of POE experience and a sharp POE decrease. The POE decline bottoms out, and upon another program or intervention, units demonstrate another steep POE increase. This rhythm is draining: With every repetition, managers notice that the increase of POE is less steep and requires more time, while each decline of POE alternatively gets steeper. Mobilizing POE becomes more difficult because the workforce has had insufficient time to recover. People also learn that continuous large-scale transformations are evident. The self-reinforcing cycle of POE increase may wear out, and each period of POE increase becomes more exhausting. Instead of investing in POE, people hold back.
Bathtub		A <i>Bathtub</i> trajectory starts with a sustained period of high POE, followed by a sharp drop until a unit reaches a floor of ongoing moderate-to-low POE. After substantial time, the units may again experience a steep POE increase. This trajectory is initially not about strategic shifts like the other prototypes. Managers notice this trajectory often when firms experience long phases of success. Given the ongoing success, a unit may believe that investing less POE generates similar success, showing as a POE decline to a lower level. Units interpret early-warning signals, such as diminishing market success or growth, as inconsequential and respond with complacency or over-confidence. The unit shows lower POE on an ongoing basis. Only after a longer period with decreasing performance and/or a shock/event-based intervention, will units start activating POE. Alternatively, when an organization has lost the capability to mobilize energy, and when innovation and performance continues to decline, it may indeed ultimately go out of business.

Pattern Explorer should not be seen as an end in itself, but rather as a way to help orchestrate strategically important collective energetic resources that address relevant business challenges, and thereby produce competitive advantage and success (e.g., Barney, 2001; Sirmon et al., 2007). Table 3 summarizes the four-step approach of the Energy Pattern Explorer tool. Fig. 1 shows a typical example of its output.

3.1. Step 1

Managers start the Energy Pattern Explorer by defining the scope (e.g., unit, top management team, strategic initiative, or organization) and timeframe of the analysis, and by deciding which relevant managers and employees to involve in this collective process. This scoping can be informed by current business events, such as an M&A activity or a steep performance decline, as well as by a lack of shared energetic resources or future business aspirations, for example sustained growth or transformation programs. All of these can

Table 3
The energy pattern explorer.

Step	Tasks
1. Decide on the scope of the application	<ul style="list-style-type: none"> - Decide on the focal unit of analysis—such as organization, unit, top team, or strategic initiative. - Select who is involved in the process: Senior executives, middle managers, employees, external stakeholders, other. - Identify market and industry developments, business events or business aspirations to gauge the firm’s context. - Choose a timeframe: <ul style="list-style-type: none"> • Retrospective (past)—real-time (present)—prospective (future). • Define starting point. • Bi-weekly, monthly, quarterly rhythm. - Decide on data sources and methods of data collection.
2. Develop unit-specific POE patterns	<ul style="list-style-type: none"> - Identify, map, project, and visualize a perceived pattern for past, current, and future evolution of POE specific to the focal entity. - Consider short-term configurations for insights toward complete patterns. - Compare the identified POE pattern with prototypical trajectories to identify similarities and discrepancies. - Mirror current and prospective POE patterns with relevant current and future performance needs and business cycles and their respective demands for collective energetic resources.
3. Identify enabling conditions of the unit-specific POE patterns	<ul style="list-style-type: none"> - Identify key drivers, factors, and events that help explain crucial episodes and changes in the identified POE pattern. - Draw conclusions for both current and future demands of energetic resources and desired POE evolution.
4. Define energy leadership activities	<ul style="list-style-type: none"> - Identify energy leadership activities to achieve the desired POE evolution.

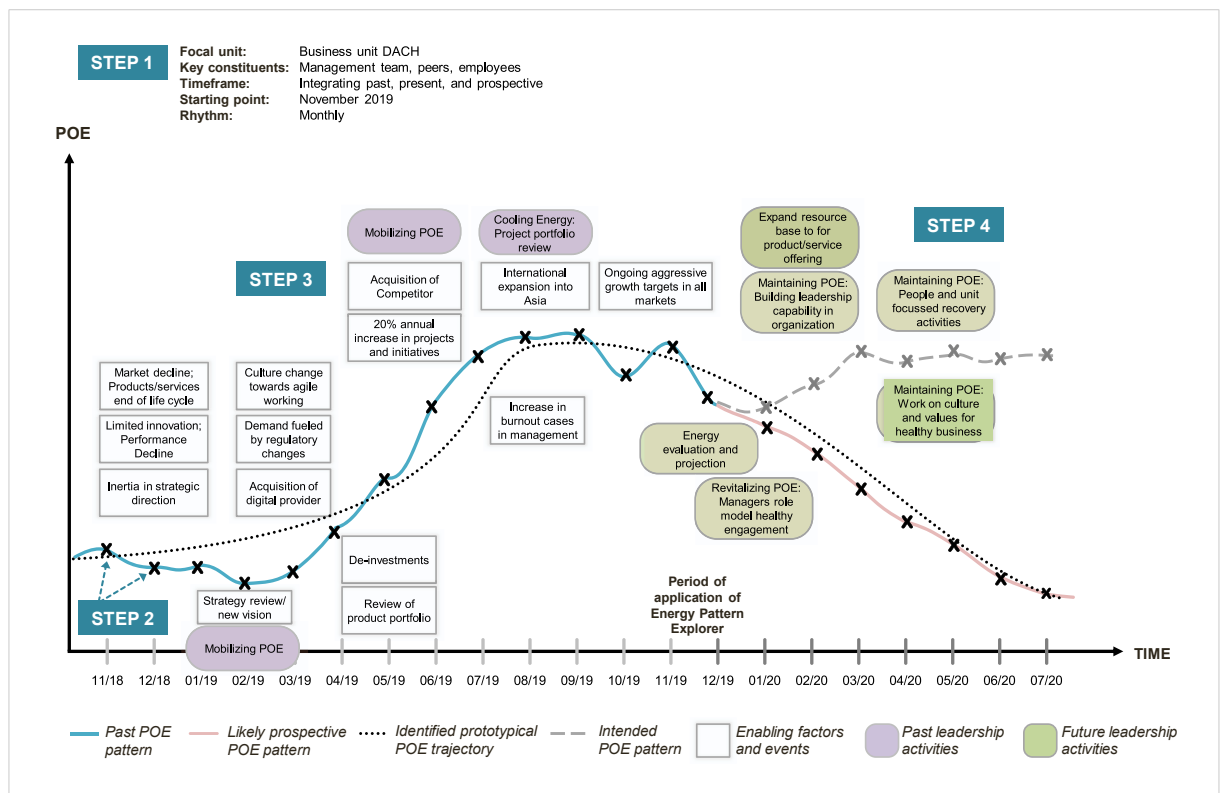


Fig. 1. Application of energy pattern explorer.

trigger engagement with the Energy Pattern Explorer. The decision for the starting point (for example, November 2018 in Fig. 1) shapes how much retrospective analysis and learning can feed into the evaluation. This choice is relevant, as it directly shapes the interpretation of which of the prototypical trajectories is most similar to the actual POE pattern. For example, with a starting point of

November 2018, the pattern in Fig. 1 would be seen as indicating ‘Overheating’. Starting later, for example in July 2019, the pattern would be seen as indicating a ‘Bathtub’ trajectory. Ultimately, when an organization implements an ongoing system for regularly mapping POE, these ambiguities will disappear.

3.2. Step 2

In Step 2, managers achieve two key outcomes: developing and visualizing the observed pattern of POE for a focal unit for a given time-period and achieving insight into a projected pattern for the period after this time horizon. First, managers can identify, project, and map the unit-specific POE pattern based on the past using a real-time or retrospective assessment. Real-time assessment can capture the actual POE level at multiple time moments over a prolonged time period—for example, via a survey approach using the 14-item Organizational Energy survey (Cole et al., 2012). While energy was originally considered as something that is “difficult to directly observe or measure” (Bruch and Ghoshal, 2003, p. 45), a series of studies (e.g., Alexiou et al., 2019; Kipfelsberger et al., 2019; Raes et al., 2013) have empirically tested and validated the 14-item survey developed by Cole et al. (2012). This work has demonstrated that POE is a second-order construct represented by emotional, cognitive, and behavioral dimensions. Based on this prior research, we propose that the Organizational Energy survey can be used for a regular POE ‘pulse-check’ (e.g., weekly, bi-weekly, or monthly) for managers to gauge a unit’s energy level over time. For ease of reading, we have reproduced the original scale of Cole and colleagues in Appendix.

While a regular POE pulse-check provides the most accurate and reliable data, managers may also consider leveraging existing data in combination with a qualitative assessment in case there are concerns about survey fatigue, or for urgent situations (e.g., declining performance, a drop in collective engagement, plummeting innovation). For example, organizations can utilize data routinely gathered through employee surveys on experiences relating to POE, such as job satisfaction, commitment, or burnout (Cole et al., 2012). In addition, employee sick days, voluntary turnover, and other indicators of employee well-being (or lack thereof) may also be used as proof of the potential impact of scarce collective energetic resources. This data can then be complemented by gathering data with qualitative techniques, such as interviews, focus groups, or scenario techniques. The 14-item POE survey can also be a base for these analytical conversations.

The second outcome of Step 2 is an anticipated, prospective pattern of POE for the unit, which managers can achieve by mapping the empirically observed POE pattern to POE configurations and prototypical trajectories. Naturally, managers may face situations where the evolution of POE is difficult to predict, and firms can experience sudden events that punctuate weeks or months of stable POE with a sharp drop in its collective emotional involvement, alertness, and effort. To provide additional information for the prospective trajectories, managers therefore may consider comparable periods or events in the firm’s history to help them consider the likelihood of alternative scenarios (for example ‘Rolling waves’ versus ‘Bathtub’). Organizations that succeed in identifying a POE trajectory that is similar to their actual pattern, can then anticipate how their POE pattern may develop going forward. In Fig. 1, a unit has retrospectively identified a strong increase in POE over several months. This pattern resembles the trajectory of ‘Overheating’ as the *likely pattern* going forward, with an anticipated steep decrease of POE. Managers can then instead consider instigating an *intended trajectory*, such as the ‘Upwards ripple’, and its related leadership activities to stabilize higher levels of POE over time.

3.3. Step 3

In Step 3, managers can identify enabling conditions that influenced and help explain the identified POE pattern. Managers focus on the internal context—including culture, structure and processes, strategy, and overall leadership capability (Bruch and Vogel, 2011)—as well as the external context—for example, market and competition, global economy, or technology (see Fig. 1 for examples). The above-mentioned data available from existing HR employee surveys can also provide further depth and contextual information. With Step 3, managers identify unit-specific enabling factors and events of the past, current, and prospective POE evolution and can also recognize the demands for energetic resources for an organization’s current and future ambitions and performance.

3.4. Step 4

Leadership is a critical capability that helps organizations handle salient organizational resources (e.g., Eldor, 2020; Sirmon et al., 2007). Extending the literature on coordinating energetic resources at work (e.g., Bruch and Ghoshal, 2003; Bruch and Vogel, 2011; Eckardt et al., 2021; Fritz et al., 2011; Kipfelsberger et al., 2019; Schippers and Hogenes, 2011; Vogel, 2005), we suggest four specific energy leadership activities—mobilizing, cooling, revitalizing, and maintaining—to address the demands from real-life POE patterns and prototypical trajectories. In proposing these activities, we consider leadership to be an interactive and embedded process that involves multiple people who co-create leadership (Batistič et al., 2017; DeRue, 2011; Uhl-Bien et al., 2014). Therefore, the following energy leadership activities likely involve numerous organizational members and not just a single focal manager.

3.4.1. Mobilizing

Mobilizing POE includes leadership activities that enable the units to activate dormant energetic resources and increase POE. Managers model and express high levels of positive affect, cognitive liveliness, and effort toward shared goals and, with that, they can influence norms for demonstrating POE. Communicating and endorsing shared organizational purposes or visionary leadership (Carton, 2018; Kipfelsberger et al., 2019) also helps engage unit affect and effort. Complex leadership capabilities involving multiple employees, such as business-opportunity or business-threat focused leadership strategies (Bruch and Ghoshal, 2003; Bruch and Vogel,

2011), help develop shared interpretations (Salancik and Pfeffer, 1978) and bundle and leverage energetic resources toward shared goals (Metiu and Rothbard, 2013). Fig. 1 illustrates an organization that engaged in mobilizing POE, particularly during the lasting phase of POE increase.

3.4.2. Cooling

Cooling POE focuses on protecting the shared energetic resources when organizations face depletion of POE (Marks, 1977; Rothbard, 2001) and risk future performance—for example, in business cycles that require ongoing high POE. Managers support employees to protect their valuable activated energetic resources (Halbesleben et al., 2014). They can model phases of less intense demonstration of POE, thereby legitimizing the valued and expected behavior by organizational members to protect their energetic resources (Luthans and Avolio, 2009). Senior managers can also strategically decelerate POE levels when they prioritize or stop initiatives (Bruch and Vogel, 2011) and refocus employee activities toward critical business competencies and salient services. In Fig. 1, during the long POE increase, the organization should have started a cooling of POE to prevent a drop of energetic resources and an ‘Overheating’ trajectory.

3.4.3. Revitalizing

Revitalizing is the response to POE becoming progressively dormant and scarce. The aim is to protect or recover a unit’s energetic resources and change the course of the anticipated POE trajectory—for example, when units show an initial drop or longer decline of POE. Managers then focus on breaking through this downward spiral to prevent a further decline in shared positive affect, cognitive liveliness, and behavior. To do so, they draw on their idiosyncrasy credit (Hollander, 1958), step outside of the established unit norm of investing increasingly less energy, and instead model higher levels of energetic involvement. This process reduces the agreement among unit members to show low energy and initiates the reactivation of dormant POE. For resource revitalization, units can also deploy energy recovery practices (Fritz et al., 2011; Schippers and Hogenes, 2011). As shown in Fig. 1, from November 2019 onward, when the trajectory projected a strong POE decline, senior managers needed to engage in activities to revitalize POE.

3.4.4. Maintaining

Maintaining POE involves leadership activities that enable high POE over a prolonged period. It requires constant monitoring of POE (Bruch and Vogel, 2011; Nelson and Jansen, 2009)—perhaps best thought of as a unit’s ‘battery level’ and energy needs—and the effective use of mobilizing, cooling off, and revitalizing. Given that the experience of POE is intrinsically rewarding, it is vital for the achievement of a long-term, relatively stable POE to understand the mechanisms that sustain energy, and then to put in place conditions that will fulfill those demands (cf. Amabile and Kramer, 2012). This process ranges from using a ‘dashboard’ to track task progress and performance, and utilizing regular learning opportunities, to celebrating success in practical terms that generate positive emotions and build relationships. In addition to managers’ interpersonal competencies supporting sustained high POE, managers can support a bespoke energizing culture and strategy along with the appropriate structures and processes (Bruch and Vogel, 2011). See Fig. 1 for some activities specific to the demands of the focal organization.

4. Discussion

Collective human resources are strategically important for organizational success as they are valuable and difficult to imitate (e.g., Barney, 2001; Becker and Huselid, 2006; Eldor, 2020). Academics have developed an understanding of such resources, as well as the instruments required to conceptualize and measure them—notably, the concept of productive organizational energy or POE (e.g., Alexiou et al., 2019; Cole et al., 2012). Similarly, the benefits to management are validated in practice when organizations can evaluate collective human resources (WEF, 2019). However, although most resources, including POE, are inherently volatile (Pitariu and Ployhart, 2010)—that is, are depleted and/or generated by their use—it is less clear how managers can identify, evaluate, and help coordinate POE over time. Doing so will help sustain POE and other collective human resources and will, ultimately, assist in the organization’s capability to strategically manage the relationship between human energy and organizational performance.

We bridge scholarly insights and practice demands by outlining the Energy Pattern Explorer tool as an instrument that identifies an organization’s actual dynamics and evolution of POE and their respective tangible leadership interventions over time. The Energy Pattern Explorer helps teams, units, and organizations assess their past, current, and future POE within the business context in which they operate and define leadership activities in response to identified strategic energy needs. This tool empowers managers to identify patterns of POE and compare them to our framework of configurations and prototypical trajectories. When managers see large discrepancies between the to-be-expected and the desired POE trajectories, we suggest specific leadership activities of mobilizing, cooling, revitalizing, and maintaining POE. Therefore, we propose energy management as a key responsibility for leaders.

We contribute to the scientific literature with a new framework of configurations and trajectories of POE to address the under-explored temporal nature of POE (Alexiou et al., 2019; Baker, 2019). In doing so, we challenge the (implicit) assumption of both scholars and practitioners that ‘more’ energy is an indicator of an organization doing ‘better’ (e.g., Kipfelsberger et al., 2019; cf. Pierce and Aguinis, 2013). We instead argue that maintaining a sustainable high level of POE over long time periods requires moments of recovery and a conscious design for work practices that are intrinsically energy-preserving. Taken together, we respond to scholar and practitioner demand for attention to the sustainability of people and organizations (Pfeffer, 2010; Spreitzer and Cameron, 2012).

Our framework has implications for future academic research on POE (Alexiou et al., 2019; Kipfelsberger et al., 2019) and collective human resources more generally (e.g., Eldor, 2020; Ployhart et al., 2011). Future research may refine the proposed and identify potential additional prototypical POE trajectories and corresponding leadership activities. More research and a broad application of

our tool could also match POE trajectories further to specific business contexts and leadership challenges, including remote and hybrid work constellations. Studies can also investigate POE trajectories within specific organizational entities, such as management teams or collaborative networks, and identify prototypical trajectories for other types of energetic resources, such as corrosive energy (Bruch and Vogel, 2011; Raes et al., In press).

Author statement

Bernd Vogel: Conceptualization, Writing- Original draft preparation, Writing- Reviewing and Editing, Visualization. **Anneloes M. L. Raes:** Conceptualization, Writing- Original draft preparation, Writing- Reviewing and Editing, Visualization. **Heike Bruch:** Conceptualization.

Appendix. Final 14-Item Productive Energy Measure (Cole et al., 2012)

Affective dimension

- People in my work group feel excited in their job.
- People in my work group feel enthusiastic in their job.
- People in my work group feel energetic in their job.
- People in my work group feel inspired in their job.
- People in my work group feel ecstatic in their job.

Cognitive dimension

- My work group is ready to act at any given time.
- People in my work group are mentally alert.
- In my work group there is a collective desire to make something happen.
- People in my work group really care about the fate of this company.
- People in my work group are always on the lookout for new opportunities.

Behavioral dimension

- People in my work group go out of their way to ensure the company succeeds.
- People in my work group often work extremely long hours without complaining.
- There has been a great deal of activity in my work group.
- People in my work group are working at a very fast pace.

Employees were instructed: “Read the following set of statements and indicate the extent to which each describes the *current state of your direct work group*. A work group is defined as the team, group, or department one functions in.” Responses to the affect (5) items were on a five-point frequency scale (1 = *never*; 5 = *frequently, if not always*). Responses to the cognition (5) items and behavioral (4) items were on a five-point agreement continuum (1 = *strongly disagree*; 5 = *strongly agree*).

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