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Dynamic Capabilities Under Political Uncertainty: Analyzing the application of the Oxford Scenario Planning Approach (OSPA) in the Mining Sector of an Emerging Economy

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Abstract. Emerging economies have a key aspect in common: their inherent political uncertainty. Therefore, it is critical to understand how firms that operate in this type of economies understand their present environment, if they are to foresee future developments. The scenario planning approach can be used to develop dynamic capabilities to cope with political uncertainty. The purpose of this study is to validate the Oxford Scenario Planning Approach (OSPA) from an emerging economy perspective. To do so, in-depth interviews with members of key business leadership associations (local and foreign) were carried out to discover underlying perceptions that provide insights into future situations. Using ten in-depth interviews with opinion leaders and senior mining executives in Peru, the study shows that corporate planning in this emerging economy is still dominated by short-term, quantitative "forecast-centered" routines that leave firms reactive to shocks and vulnerable to a high-uncertainty trap. Participants recognized

that the OSPA could help them to identify and rehearse intangible threats—especially political risk and social conflict—while nurturing three dynamic capabilities: deeper multidimensional risk analysis, faster adaptability, and sharper environmental scanning.

Keywords: Scenario planning, foresight, political risk, dynamic capabilities, organizational adaptation, Latin America

Capacidades dinámicas bajo incertidumbre política: Análisis de la aplicación del Enfoque de Planificación de Escenarios de Oxford (OSPA) en el sector minero de una economía emergente

Resumen. Las economías emergentes comparten un aspecto clave: su inherente incertidumbre política. Por ello, resulta fundamental comprender cómo las empresas que operan en este tipo de economías interpretan su entorno presente, si desean anticipar desarrollos futuros. El enfoque de planificación de escenarios puede utilizarse para desarrollar capacidades dinámicas que permitan enfrentar la incertidumbre política. El propósito de este estudio es validar el Enfoque de Planificación de Escenarios de Oxford (OSPA) desde la perspectiva de una economía emergente. Para ello, se realizaron entrevistas en profundidad con miembros de asociaciones clave de liderazgo empresarial (locales y extranjeras), con el fin de identificar percepciones subyacentes que aporten información sobre posibles escenarios futuros. A partir de diez entrevistas en profundidad con líderes de opinión y altos ejecutivos del sector minero en el Perú, el estudio muestra que la planificación corporativa en esta economía emergente sigue estando dominada por rutinas cuantitativas de corto plazo, centradas en la proyección ("forecast-centered"), que dejan a las empresas en una posición reactiva frente a los shocks y vulnerables a una trampa de alta incertidumbre. Los participantes reconocen que el OSPA podría ayudarles a identificar y ensayar amenazas intangibles —especialmente el riesgo político y el conflicto social—, al mismo tiempo que fomenta tres capacidades dinámicas: un análisis de riesgos multidimensional más profundo, una mayor rapidez de adaptación y una exploración más aguda del entorno.

Palabras clave: planificación de escenarios, prospectiva, riesgo político, capacidades dinámicas, adaptación organizacional, América Latina.

Introduction

Emerging economies are characterized as turbulent and uncertain. How firms operating in these types of environments plan ahead is therefore an intriguing question. In theory, firms can develop capabilities that enable them to respond and adapt to environmental changes faster than their competitors (Ramirez et al., 2013). A methodology known to foster dynamic capabilities and engage firms in collective forward thinking is scenario planning: a foresight-centered approach that crafts several plausible, internally consistent stories about how the future could unfold, enabling organizations to challenge assumptions, rehearse responses, and build strategies to stay resilient amid turbulence and uncertainty. This method is based in the human and organizational capacity to create, explore, and assess alternative scenarios that provide a plausible understanding of present decisions and new plans for long term action. With its origins in military applications and institutionalized in business practice from the 1960s onward (Bradfield et al., 2005), scenario planning allows participants to rehearse divergent future scenarios that challenge existing organizational mindsets, draw out unexamined assumptions, and stress test decision logics in environment marked by uncertainty (Oliver, 2023).

Within organizations, scenario planning functions as both a strategic and a social process. It creates learning environments that enhance decision-making capabilities, challenge prevailing mindsets, and promote shared knowledge among participants (Bergman et al., 2004; Bood & Postma, 1997; De Geus, 1988; Cordova-Pozo & Rouwette, 2023). Likewise, through the social creation of multiple plausible futures, scenario planning generates knowledge that challenges current thought (Ramirez & Wilkinson, 2016) while cultivating strategic thinking and the capacity to reimagine actionable options under uncertainty (Chermack et al., 2001; Cordova-Pozo & Rouwette, 2023). In this sense, we follow Shaw's (1999) notion of subjective epistemology, which states that the researcher should be immersed in the social phenomenon under analysis in order to gain a better understanding. In emerging economies, where turbulent environments are not only volatile but also shaped by institutional voids and exogenous shocks, scenario planning could offer useful insights by allowing firms to minimize uncertainty and to recognize, interrogate, and integrate it into strategy formulation (Côté & Hu, 2025; Cordova-Pozo & Rouwette, 2023; Oliver, 2023) Along this line of thought, we develop a case study (Yin, 1989) of Peru, an emerging economy in Latin America.

The purpose of this study is to validate the Oxford Scenario Planning Approach (OSPA) from an emerging economy perspective, using the

concepts of turbulence, uncertainty, novelty and ambiguity (TUNA). This research presents an empirical validation of the OSPA in an emerging-economy setting characterized by acute political uncertainty, thereby extending scenario-planning scholarship beyond its traditional OECD focus. It integrates the OSPA's reframing/re-perception cycle with the dynamic-capabilities lens, demonstrating how scenario work can purposefully build higher-order routines for sensing, seizing, and reconfiguring amid institutional voids. By unpacking how Peruvian mining firms understand—and fail to understand—the TUNA conditions, the study refines the framework itself and highlights where additional conceptual development (novelty, ambiguity) is required. Finally, it bridges outside-in (context scanning) and inside-out (capability development) perspectives in strategic management, offering a practical roadmap for firms that must translate macro-level political risk into firm-level learning and resilience.

It is important to clarify that in this study the term "validation" is not understood as a statistical or experimental verification of the OSPA but rather as an empirical exploration of its applicability and interpretive adequacy in a turbulent emerging economy context. Following Ramirez and Wilkinson (2016) and Oliver (2023), the validation undertaken here examines whether the OSPA's reframing–reperception cycle can meaningfully capture and structure managerial sense-making under TUNA conditions. Thus, the case of Peru functions as a contextual test of the approach's conceptual transferability rather than as a performance evaluation that measures quantitative effectiveness or impact.

Turbulence and Firms in the Context of an Emerging Society

Over the past three decades, emerging economies have been the focus of an ongoing discussion. Although the term itself is fairly recent (Arnold & Quelch, 1998; Hoskisson et al., 2000), prior classifications have been applied. However, as Xu & Meyer (2013) stated, there been no consistent definition in the literature about what exactly is meant, or what scholars understand, by "emerging." This paper draws on Nederveen Pieterse's (2009) idea of emerging societies as those in which levels of development rise and gradual influence occurs, because it makes explicit the three aspects of social sciences: state, market, and society. Therefore, it offers a wider scope of analysis than conventional classifications as well as an internal view (Nederveen Pieterse, 2009). Along these lines, authors such as Li Xing have noted the importance of emerging societies as a holistic concept in which markets, state structures, and civic actors interact and nurture themselves and explain how development strategies evolve and reshape society (Xing, 2017).

Emery and Trist (1965) introduced a taxonomy, known as causal textures theory (CTT), to describe the environments in which firms operate. CTT relates to how systems (firms) achieve survival and maximization of benefits in their respective environments (fields) in a sustainable way (Emery & Trist, 1965). The way this particular field behaves is known as the "causal texture" (Ramirez et al., 2010), which conditions and governs how the environment transacts (Selsky et al., 2007). The taxonomy is comprised of four types of causal textures: placid random (I), placid clustered (II), disturbed reactive (III), and turbulent (IV).

In the present study, given that emerging economies frequently have rapidly changing environments, the fourth type of causal texture is most relevant. Environments characterized as turbulent exhibit certain conditions and behaviors (Emery & Trist, 1965):

- A growing interdependence between economic organizations and the other facets of society
- A gross increase in uncertainty; the effects of future actions become extremely unpredictable
- Individual organizations, however large, cannot adapt successfully alone
- Social values are used as a coping mechanism to deal with uncertainty

In this type of scenario, where "the ground is in motion," a forecast-centered and quantitative approach to future decision-making presents limitations (Bood & Postma, 1997) and can cause firms to experience significant exogenous shocks. This is where uncertainty is felt the most, so an analytical approach that seeks to understand uncertainty —rather than evade it—is useful. In a turbulent field, in which the TUNA conditions (Ramirez & Wilkinson, 2016) are prevalent, firms' adaptive capabilities are put to the test and strategy is subjected to a "wind tunnel" in which the most successful firms are those that learn to understand the TUNA conditions and adapt accordingly.

In TUNA environments, turbulence refers to the speed and depth of environmental change; uncertainty denotes the unpredictability of outcomes; novelty describes situations never faced before that pressure organizations to develop innovative responses; and ambiguity reflects the difficulty of interpreting signals or conditions." (Kisiołek & Gurtatowski, 2023). These conditions are outlined in Table 1:

Table 1
Turbulence, Uncertainty, Novelty and Ambiguity Conditions

TUNA Conditions	In the OSPA	Applied to emerging societies
Turbulence	Conditions in the contextual environment overcome the transactional environment and prevailing ground rules governing interactions among actors no longer apply or are questioned deeply.	Perception of emerging societies Increasing competitiveness from emerging societies Political power of emerging societies
Uncertainty	Uncertainty, unlike risk, is not measurable. It cannot be calculated. It is unpredictable, but uncertain events and states of a system can be imagined.	Emerging societies are always prospects of the future While increasing in importance, they still lack key aspects of a developed country, which generates a constant state of uncertainty
Novelty	The imaginable—but not yet experienced—future contexts. It can refer to emerging issues, new concepts, and new terminologies.	Innovation from emerging societies a multipolar world order entrepreneurial theories emerging societies becoming developed countries
Ambiguity	Different interpretations of the same event or phenomenon. Sources of ambiguity: purpose, power, experience, success	The future of emerging societies Power of emerging societies risk assessment and management

Source: Ramirez & Wilkinson (2016)

In emerging economies, the four TUNA conditions do not simply describe external volatility—they represent the structural characteristics of development processes in which institutions, markets, and political systems evolve unevenly. Turbulence emerges from the constant redefinition of rules of the game as institutional voids, policy swings, and social contestation reshape the economic landscape. Unlike in advanced economies, where turbulence may arise from technological disruption or market saturation, in emerging economies it stems from weak governance architectures and unstable political settlements that alter the predictability of business conditions. Therefore, uncertainty in these contexts is deeply endogenous: It is not merely a lack of information but a by-product of inconsistent enforcement of laws, shifting regulatory regimes, and informal networks that mediate state–business relations. Firms cannot calculate probabilities in such environments; rather, they must rely on interpretive processes to sense the "known unknowns." Within the OSPA, uncertainty thus becomes a learning condition—a prompt for managers to engage in sense-making rather than forecasting.

In emerging economies, novelty is often reactive rather than anticipatory. It arises from sudden socio-political events—such as community protests, policy reversals, or global commodity shocks—that force firms to reconsider established strategies. Whereas in developed markets novelty is typically associated with technological innovation, in emerging markets it reflects the capacity to reinterpret new realities and institutional experiments. The OSPA's reframing–re-perception cycle provides a pathway for transforming these episodic novelties into sustained adaptive learning, encouraging firms to imagine future configurations of the political and social context rather than merely respond to them. Finally, ambiguity in emerging economies reflects the coexistence of multiple and often conflicting interpretations of rules, legitimacy, and priorities. The case of extractive industries, for instance, entails power asymmetries between the state, local communities, and firms that lead to blurred expectations about what constitutes "responsible" or "sustainable" behavior. Within the OSPA logic, ambiguity becomes a productive space where competing frames can be surfaced, debated, and reconciled through strategic conversation. By acknowledging ambiguity as intrinsic rather than accidental, scenario planning helps decision-makers to articulate coherent strategies even when causal linkages remain opaque—an essential capability for firms navigating institutional dualities.

Past research has only understood turbulence as a general concept; its components have not been broken down. Ramirez and Wilkinson (2016) provided a better understanding of change factors by introducing the TUNA taxonomy for the environment in which firms behave. This type of approach contributes to refocusing the notion of risk analysis as more than a quantitative tool by resetting and introducing observational elements within the subject of analysis. Emerging societies still pose considerable uncertainty for any business endeavor; firms in an emerging society are prone to experiencing turbulence, especially amid inherent political uncertainty (Thomas, 2010). Even though forecasting, through quantitative modeling, has attempted to produce calculated scenarios, limitations arise under turbulent conditions. On the other hand, scenario planning has proven a valuable tool to assess, contemplate, and understand how environments may plausibly unfold in the future and how such developments will affect the firm's strategy.

In emerging societies political risk is a strong variable to consider within firms' operations. This can have severe consequences for businesses, including contract repudiation, currency inconvertibility, discriminatory taxation, embargoes, expropriation of property, confiscation, and nationalization (Howell, 2014). Political risk has been defined by Bekaert and his colleagues as "[…] the risk that the country's government actions or imperfections of

the country's executive, legislative, or judicial institutions adversely affect the value of an investment by a foreign firm in that country." (Bekaert et al., 2016). In turn, Kobrin (1982) attributed political risk to government interference, in the form of political acts or constraints, with business operations. Jakobsen (2010) proposed four sources of political risk: obsolescent bargain mechanisms, sociopolitical instability and grievances, political institutions, and preferences and attitudes.

There debate about the relationship between democracy and economic performance is still ongoing. Plumper and Martin (2003) have observed a u-shaped relationship between levels of democracy and economic growth, where countries with intermediate levels of democracy had the fastest-growing economies. Much earlier, Friedman (1962) divided democratic freedoms into two dimensions: political and economic. The former has an indirect impact on growth (Baum & Lake, 2003), while the latter directly impacts growth (Doucouliagos & Ulubasoglu, 2006), mainly by reducing transaction costs and encouraging investment (Fabro & Aixala, 2009).

Political risk creates uncertainty and promotes unproductive activities, such as corruption (Alesina & Perotti, 1994). Political stability is a highly significant determinant of foreign investment flows (Bruckner & Gradstein, 2015; Busse & Hefeker, 2007), whereas political uncertainty, or risk, contributes to financial volatility (Chau, Deesomsak, & Wang, 2014) and greater sovereign debt yields (Hansen & Zegarra, 2016). The effect can be seen on the premiums paid for political risk insurance (Jensen, 2008). However, internal organizational capabilities allow certain firms to respond to political risk differently (Holburn & Zelner, 2010). Jimenez (2010) called these "political capabilities," which affect the firm's strategy and assessment of risk. Therefore, turbulence experienced due to political risk can be overcome using a firm's capabilities. As Stevens et al. (2016) put it, "firms can create or mitigate their own political risk."

Thus, there is a divergence in the literature based on the unit of analysis. At a financial market level, political risk generally deters investments. However, at the firm level, businesses incorporate and assess risk distinctively. A firm's environment operates according to the different mindset of strategic management. This type of thinking has two main approaches: the outside-in and the inside-out approach (Baden-Fuller, 1995). The former concerns a firm's competitive standing within industries and markets, while the latter corresponds to its internal resource management. The most influential outside-in theorist is Michael Porter (1980), who proposed determinants such as industry attractiveness, formulation of competitive strategy within the industry, and supply chain coordination and optimization.

In turn, the inside-out approach is based around the theory of the firm (Penrose, 1959) and the resource-based view of the firm's strategy, and focuses on the combination of heterogeneous resources and capabilities at the firm level to achieve a sustainable competitive advantage. Barney (1991), a resource-based view theorist, argued that properly organized firms with valuable, rare, inimitable, and non-substitutable resources and capabilities have the potential to generate a competitive advantage (Barney, 1991). Teece et al. (1997) drew from the inside-out approach in their seminal paper on dynamic capabilities, which are detailed in the next section.

The present paper adopts the inside-out approach to strategic management. A scenario planning is a user-centered approach to understanding the future and re-perceiving the present, iterative practices of well-executed scenario planning exercises lead to capability formation within the firm. Unique to the firm, These dynamic capabilities, and are a source of differentiation, that will ultimately affect the competitive strategy of firm. In addition, scenario planning allows firms to sustain present and future needs, thereby, by definition, fulfilling the overall strategic management objective.

Nonetheless, a scenario planning exercise will itself follow an outside-in approach in which the contextual and transactional environment are analyzed and understood, in the present and future, in the context of a certain market or industry. Thus, this paper incorporates both approaches—an uncommon approach in strategic management research, in which the two fields tend to be studied in isolation (Witcher & Chau, 2012).

Dynamic Capabilities

Dynamic capabilities have become a central pillar in strategic management theory, particularly when it comes to understanding how firms sustain competitive advantage amid rapid technological, market , or institutional change (Teece et al., 1997; Barreto, 2010). This approach extends the resource-based view (RBV) by focusing not only on what valuable resources firms possess but how they renew, adapt, and orchestrate these resources in response to environmental volatility (Ambrosini & Bowman, 2009; Cristofaro et al., 2025).

Nelson and Winter (1982) conceptualized models of dynamic competition as organizational capabilities that are a central feature of evolutionary economics. Teece et al. (1997:516; cited in Easterby-Smith, 2009) defined dynamic capabilities as "the firm´s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." For their part, Einsehardt and Martin (2000) defined them as processes that vary within the level of the market dynamism formulated as

simple rules. Teece (2007) proposed the concept of dynamic capabilities as a means by which firms can respond to change, while Eisnehardt and Martin (2000) noted that they can also be source of disruptive change. Zahra (2006: 918) described the concept as "abilities and ways to reconfigure a firm´s resources and routines in the manner envisioned and deemed appropriate by its principal decision-makers." Wang and Ahmed (2007: 35) presented dynamic capabilities as a behavioral orientation to recreate resources and capabilities so as to sustain competitive advantage amid a changing and challenging environment.

Zollo and Winter (2002) defined a dynamic capability as "a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness." Vu (2020) proposed that dynamic capabilities are higher-order organizational processes that enable firms to adapt, integrate, and reconfigure their resources and competencies in order to respond to uncertain environments. These capabilities allow organizations to not only survive but also thrive in the context of constant transformation by remaining agile, innovative, and strategically responsive (Vu, 2020).

Despite broad recognition of their importance, there is no widely accepted definition of dynamic capabilities (Barreto, 2010; Laaksonen & Peltoniemi, 2018; Vu, 2020). Nevertheless, consensus has grown around the analytical framework proposed by Teece, (2007), reinforced by Vu, (2020) and Côté & Hu, (2025). Yet despite their differences, these definitions all lead to a key point: rather than one-off, reactive problem-solving events, dynamic, systematic, higher-order organizational processes are required to transform a firm´s resource base (Vu, 2020; Zollo & Winter, 2002).

For the purpose of this research, dynamic capabilities are best conceptualized as part of an integrated, iterative process and can be disaggregated into three core dimensions: (i) sensing, which refers to the capacity to identify and assess opportunities and threats in the environment. This includes scanning, learning, and interpreting market and technological signals (Teece, 2007; Vu, 2020; Côté & Hu, 2025); (ii) seizing, which denotes the ability to mobilize resources to capture identified opportunities and address threats (Vu, 2020); and (iii) reconfiguring, or transforming, which is the capability to reconfigure and realign assets, structures, and capabilities to maintain strategic fit as conditions evolve (Teece, 2007; Vu, 2020; Zollo & Winter, 2002). These core dimensions are inderdependent: robust sensing is essential to properly direct seizing and reconfiguring efforts, while seizing and transforming actions may become misdirected or less effective in its absence (Vu, 2020).

Ambrosini and Bowman (2009) proposed four categories of dynamic capabilities: (i) basic, which refer to the performance of a firm's ordinary functional activities; ii) dynamic improvements, which are processes that renew or improve a firm's existing activities; (iii) strategic, which concern the ability to recognize the intrinsic value of other resources or to develop novel strategies before competitors; and (iv) meta-capabilities, or "learning how to learn," which corresponds to abilities that enable continued evolution and adaptation. These categories—especially meta-capabilities—are critical for adaptation and evolutionary learning (Ambrosini & Bowman, 2009; Zollo & Winter, 2002). Recent work (Côté & Hu, 2025; Cristofaro et al., 2025) has stressed that contextual variables, such as institutional voids and political uncertainty, significantly influence the development and effectiveness of dynamic capabilities. Côté & Hu, (2025) showed that these microfoundations, in the context of emerging economies, help firms turn institutional voids into unique strengths.

Despite these scholarly advances, dynamic capabilities remain a concept marked by ambiguity and debate. Easterby-Smith (2009) argued that there is a need for a more focused study of dynamic capabilities and that research should concentrate more on less obviously dynamic industries, even though the linkages between resource utilization and process implementation remain unclear. According to Arendt and Bromley (2009), a clear difficulty arises: How can a firm with dynamic capabilities be identified? This lack of clarity poses several critiques for the dynamic capabilities perspective: (i) A severe lack of theoretical foundations based on mixed assumptions; (ii) limited effects related to the possibility of weak ties between dynamic capabilities and successful change; (iii) A lack of definitional boundaries; (iv) A post hoc selection problem bigger than previously reported; and (v) logical inconsistencies: there is no need for a dynamic industry to value dynamic capabilities when they can generate change within that industry (2009).

As a summary of the main definitions explored above, the dynamic capabilities view (DCV) does not possess a set of underlying assumptions and nor is it a coherent theory. There is therefore a need for the DCV its to clarify its own terms, make non- trivial predictions supported by empirical studies, and provide guidance to firms in need regarding their choices about the management decisions, which decisions might be more effective based on the firm's situation, and to what extent newly created resources can be attributed to specific dynamic capabilities, exogenous changes, or even luck.

The competitive advantage of some firms stems from dynamic capabilities based on high-performance routines inside those firms and their processes, and conditioned by its history. According to Teece et al. (1997),

there are companies that appear to have followed a "resource-based" strategy of accumulating valuable technology assets guarded by an aggressive intellectual property stance that is often insufficient to support significant change. In order to be strategic, a capability must be honed to a user's need; meanwhile, any asset that can be bought and sold at an established price cannot be considered strategic at all.

This resource-based view, based on the strategic management perspective, contributes to understanding how firms can achieve and maintain a competitive advantage. It also assumes that firms can be seen as a system of resources that are unique to the firm and may translate into a competitive advantage. Given the data available, there is a consensus among strategic management scholars that suggest that firms build their dynamic capabilities largely upon existing processes. This is applicable mainly to competitive strategy because it provides insights into strategic issues and examines the link between the internal characteristics of a firm and firm performance (Barney, 1991, cited in Bowman & Ambrosini, 2003). The RBV provides an explanation of competitive heterogeneity based on the premise that close competitors have different resources and capabilities. The heterogeneity of those capabilities and resources are one of the main ideas underpinning the resource-based theory.

Finally, according to Bowman and Ambrosini (2003), the RBV could be extended to corporate-level strategy through the DCV. Arendt and Bromiley (2009) identified four major limitations to its potential contribution: (i) The lack of clarity regarding the value added to existing concepts; (ii) The lack of a coherent theoretical foundation; (iii) poor empirical support; and (iv) unclear practical implications. To sum up, the dynamic capabilities framework remains nascent, with many opportunities to deepen the model.

Scenario Planning

Scenario planning has emerged as a leading approach for organizations navigating environments marked by increasing uncertainty, complexity, and rapid change (Oliver, 2023; Cordova-Pozo & Rouwette, 2023). While traditional, forecast-centered approaches rely on quantitative data to predict the most probable future (Ramirez & Wilkinson, 2016), scenario planning adopts a fundamentally different, a foresight-centered approach focused on exploring multiple plausible futures.

As noted earlier, scenario planning was historically a military practice (Brown, 1968) but started to become a business practice during the 1960s, mainly in France and the United States (Bradfield et al., 2005). In this domain, scenarios are used to socially develop multiple and purposeful stories

of how the business environment could unfold in the future (Bergman et al., 2004; Van der Heijden et al., 2002). The continued importance of this approach lies in its ability to help organizations mentally rehearse divergent futures, strengthen preparedness, and make robust, flexible strategic choices (Oliver, 2023; Van der Heijden, 2005).

Unlike a forecast-centered approach, scenario planning does not aim to get the future correct; its intention is to tell coherent, challenging, and plausible stories of the future (Davis, 2002). Scenarios do not seek to eliminate uncertainty but rather to understand, embrace, and act within it (Cornelius, 2005; Oliver, 2023). These scenarios are not single-point projections; rather, they are internally consistent sets of stories that provide a framework to examine how different combinations of external drivers might interact, creating alternative environments for strategic action (Cordova-Pozo & Rouwette, 2023).

There are several methodologies for carrying out a scenario planning exercise, such as those proposed by Shoemaker (1995), Schwartz (1991), and Van der Heijden (2005). However, these methodologies are limited by a lack of theoretical underpinning (Goodwin & Wright, 2001; Cordova-Pozo & Rouwette, 2023).

Scenario planning has similar characteristics across all methodologies. The first is challenging mental models: Scenarios must challenge the microcosm of decision-makers (Chermack et al., 2001). The second is multiplicity: Scenarios must tell multiple stories instead of centering on a single outcome. This reflects the inherent uncertainty of the future and allows for a multi-disciplinary approach adapted to the irreducible uncertainty organizations face (Chermack et al., 2001; Spaniol & Rowland, 2019, cited in Cordova-Pozo & Rouwette, 2023). The third is plausibility: scenarios are broad-based, not point-in-time projections. This reflects multiple plausible future outcomes (Chermack et al., 2001). Fourth, integration of diverse knowledge: Scenarios must integrate seemingly unrelated forces (economic, technological, environmental, competitive, political, and societal) (Chermack et al., 2001) while combining hard data, expert judgment, creative insight, and stakeholder participation to capture the complexity of real-world systems (Cordova-Pozo & Rouwette, 2023). Fifth, strategic action: Scenarios require detailed knowledge from managers and are designed to restore "entrepreneurial" thinking (Chermack et al., 2001), encouraging organizations to imagine disruptive, nonlinear changes and thus prepare more flexible, robust strategies (Oliver, 2023).

Scenario planning is used widely across different sectors of business. However, ongoing debates persist regarding its methodology, reporting, and

evaluation of impact (Cordova-Pozo & Rouwette, 2023; Oliver, 2023). In short, the art of scenario planning can be described as follows:

> [It is] not a matter of memorizing Plan A and Plan B, because in the real world, A and B overlap and recombine in unexpected ways. It is a matter of training yourself to think through how things might happen that you might otherwise dismiss—to get to know the shape of unfolding reality. To have at hand the answer to the question: "What if?" (Schwartz, 1996, p.28)

The OSPA's Distinctive Perspective on Scenario Planning

The OSPA, which defines scenario planning as "a methodology that uses the inherent human capacity for imagining futures to better understand the present situation and to identify possibilities for new strategy" (Ramirez & Wilkinson, 2016), is an advanced scenario methodology designed to navigate conditions of high turbulence, uncertainty, and ambiguity. It is characterized by a procedurally agnostic design; rather than following a rigid sequence, it adapts to the purposes and capabilities of firms, public institutions, or learning communities, centering on co-creating plausible and context-relevant futures. (Mukherjee et al., 2020).

Scenario planning is becoming increasingly necessary amid the growing unpredictability of today's world (marked by events and phenomena such as 9/11, the 2008 financial crisis, Brexit, technological developments, and others), and it is precisely this mounting unpredictability that generates TUNA conditions. Against this backdrop, the OSPA shifts the perspective of scenario planning from predicting the future (forecasting) to a reframing approach, as outlined in Table 2. Its main purpose is to unfold a process of discovery, immersion, and invention that challenges status-quo thinking and makes explicit the key uncertainties of the future business environment. Otherwise put, the OSPA calls for an "explicit and flexible sense of future [that] can be enabled by contrasting plausible, alternative future contexts through an iterative process of reframing and reperception" (Ramirez & Wilkinson, 2016: 9).

Table 2
Forecasting Versus OSPA Scenario Planning

	Forecasting	OSPA Scenario Planning
Future as…	Distant from the present Continuity of the past Projection of today's trends Fact-based	Paradoxical; in the present, already here but has not taken place A conceptual space in the here and now, a fiction
Ontology and epistemology	Future as real and knowable in advance Measurable and calculable Predictable	Future is an aspect of the present but has not taken place Knowledge of the future is partial, ambiguous Plausibility is co-constructed
Emphasis on use/users	Is for "anyone" Can be produced by individuals Universally relevant Reproducible	Individual free will and intentions matter Has to be for someone (learner) and for some purpose
Functions and forms	Trend analysis and projections Baseline and sensitivity analyses Collaboration on basis of consensus	Pre-decision and post-decision Interpretive frames and reframing in TUNA conditions Supports collaboration without consensus Makes disagreement a constructive asset
Scenario Planning as…	Stores that are derivatives of models Uncertainties are "in" the model Models as truth machines: hard system thinking, formal models, trend analysis Context of model typically ignored	Reframing what is perceived in terms of "do–ability" and enabling new actionable possibilities Uncertainties are about the model and its assumptions Qualitative models can be illustrated using quantitative modeling

Source: Ramirez & Wilkinson (2016)

Furthermore, the OSPA emphasizes that scenario planning focus on a learner-centric experience: Scenario planning must be designed specifically for learners, their specific circumstances, and the purpose the intervention must serve. By opening up space for the unexpected, the OSPA helps social actors to detach from prior assumptions and engage in creative, bi-associative thinking with a view to redesigning their organizations toward challenging futures. (Finch et al., 2024). Finally, the OSPA reiterates that the intervention must be carried our through strategic conversations, and that it must spark debate while avoiding the pitfalls of groupthink (Janis & Mann, 1977) and fragmentation.

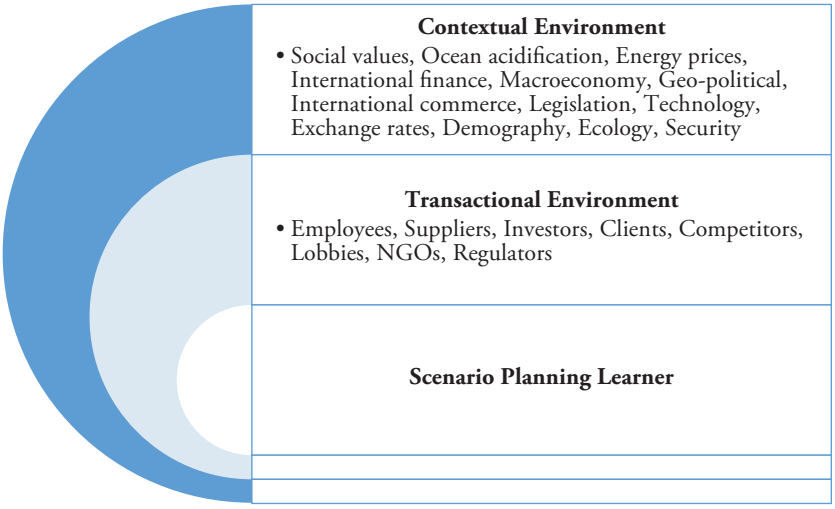
The Reframing–Reperception Cycle

The OSPA methodology is referred to as the "reframing–reperception cycle." Reframing is the process by which the scenario learner questions him or herself about the frame through which they have been making sense of the future. In other words, OSPA critically questions status-quo thinking; thus, one learns to understand present the contextual environment in order to look at the future. Unlike predictive methods, OSPA serves as an interpretive tool that expands participants' frames of reference, encouraging them to "unlearn and relearn" through iterative dialogue and critical reflection. (Mukherjee et al., 2020).

Reframing the present situation is "enabled by articulating plausible, often emerging stories, and supports the learners to reperceive their world and to bring forth new options for action" (Ramirez & Wilkinson, 2016:10). This process is more effective when there are strategic conversations (Van der Heijden, 2005) among the scenario learners involved, with the purpose of accommodating disagreement and making it a productive asset. In this way, a set of plausible and contrastable future contexts is built where the knowledge acquired—through knowledge exchange and new knowledge generation—enables the learner to examine the broader setting beyond the immediate business environment.

Firms operate within diverse environments: political, social, economic, environmental, and even the "unknowable" Figure 1 shows the difference between the forces of the transactional and the contextual environment. The latter is the broader environment that is beyond the direct and indirect influence of the firm, whereas a firm can influence the former environment, directly or indirectly, by interacting with other actors in it.

Figure 1
The Contextual and Transactional Environment



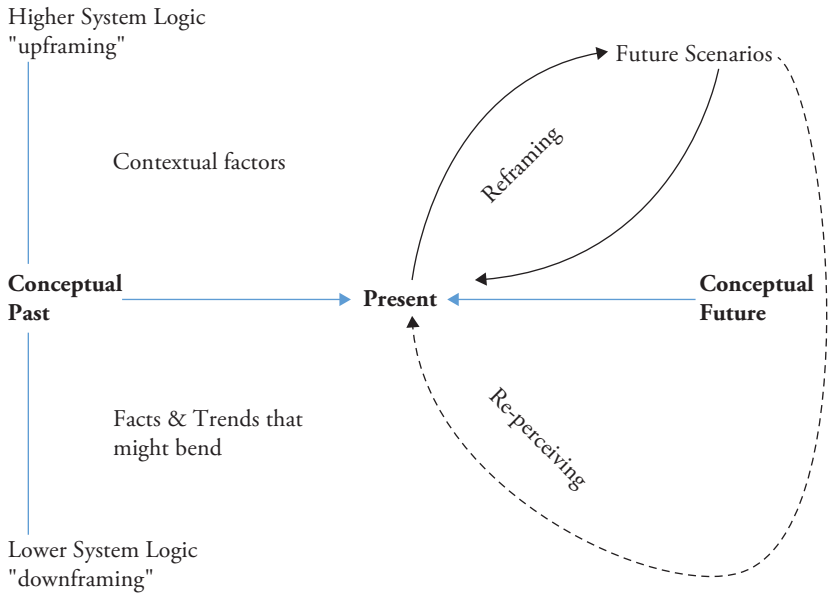
Source: Ramirez and Wilkinson (2016)

Reframing is the "upframing" process by which scenario learners broaden their perspective and look at the wider context (i.e. the contextual environment). Once scenario learners have carried out the reframing, the re-perception cycle begins. This cycle, which consists of letting the reframed scenarios "sink in," is the immersive stage in which understandings and implications of the scenarios are deepened. Options in these future scenarios should be carefully analyzed in the reperception cycle, and alternative futures should be simulated as well as rehearsed. Most importantly, perception of these future scenarios among scenario planning learners should be clarified. This process, also known as "downframing:"

Allows the scenario planners to immerse themselves in that possible future context to feel and work through existing and new courses of action, and to do so in detail with those who must work with the implications. With downframing, scenario learners rehearse the actions and reactions stakeholders might engage in under each plausible future context. These immersive experiences enable them to re-perceive their situation, reassess the strategic options, and provide a new space for enabling design and experience of new and better options." (Ramirez & Wilkinson, 2016: 13).

Figure 2 provides a figurative appreciation of the reframing–reperception cycle.

Figure 2
The Reframing-Reperception Cycle



Source: Ramirez and Wilkinson (2016)

The scenarios generated must meet three criteria—plausibility, relevance, and challenging current thought—that act as a prerequisite for proper strategic thinking thorough scenarios. In this way, the knowledge produced is embedded into plausible future contexts, which facilitates understanding of the present situation and, therefore, how the present context could unfold in different plausible, relevant, and challenging futures. In this vein, Wack (1985) recommended focusing on the key "uncertainties" of the future.

Finally, a key issue that arises in scenario planning is what to prioritize: the quantitative (probability) or qualitative (plausibility) aspects of the future. Ramirez and Selin (2014) stated that probability is not reliable. This is because probability eliminates the question-making and unveiling of uncertainties and so can undermine the scenario planning intervention in the reframing–reperception cycle. Moreover, plausibility opens up a space for a higher logical perspective since there is never an objective answer to the future. To unfold plausible outcomes of the future, the authors recommend viewing scenarios that are flexible descriptive models of the future context, paying special attention to plausibility while challenging current thought (2014).

Methodology

The objective of this paper is to validate the OSPA scenario planning methodology in the context of an emerging economy. It contributes to the theory (Eisenhart, 1989) by analyzing this practice in an unknown context characterized by turbulent fields. As scenario planning is a social process which engages mental models and current thought, it gives rise to a socially constructed reality (Shaw, 1999). Given the ontological and epistemological pillars of OSPA, a case study methodology would permit the discovery, interpretation, and comprehension of a participant's point of view.

A semi-structured interview guide, explicitly anchored in OSPA, was developed. The guide was organized around four pillars: (i) eliciting how respondents understand risk and uncertainty as inherent features of their operating context; (ii) documenting planning routines in the extractive sector; (iii) introducing the core OSPA concepts (reframing and re-perception) using a brief concept map to ensure common language; and (iv) probing how these concepts travel to an emerging-economy setting. The instrument was designed to encourage sense-making rather than forecasting, and it combined open prompts with targeted probes related to the TUNA dimensions. Interviews were conducted in Spanish, recorded, and anonymized. Although the fieldwork preceded the COVID-19 pandemic, the evidence is considered still to be valid because (a) the mining sector's long project horizons make strategic logics comparatively stable, and (b) the core phenomenon under study—political uncertainty as a structural condition—has persisted. The interview guide (Appendix 1) provides the full question set and the concept map used to align terminology across respondents.

Thus, this paper follows a single case study methodology (Yin, 1989), with ten interviews, as recommended by Eisenhardt (1989). These served the purpose of understanding how organizations are planning ahead in an emerging economy, and how they perceive their environment. Ultimately, this analysis seeks to explore the implications for how TUNA conditions are understood, how the contextual environment is assimilated, and what capabilities firms have to adapt and respond to exogenous shocks.

The ten interviews can be categorized into two groups. The first group consisted of institutional and opinion leaders, and served the purpose of exploring the planning and prospective narrative being developed in Peru. The five interviewees from this group all had past experience as planners, and their institutions are important players in the Peruvian business sector.

In the second group, we interviewed five top executives from the mining industry, so as to have the perspective of direct decision-makers. The mining industry was chosen due to its importance within the Peruvian economy,

representing roughly 58% of total Peruvian exports (SUNAT, 2016). Peru is considered a mining country, producing minerals such as iron, tin, copper, zinc, silver, lead, and gold (Dammert Lira & Molinelli Aristondo, 2007). Moreover, mining comprises several phases, such as searching and prospecting, exploration, construction and development, production, and closure (SNMPE, 2015). The life span of a mining project depends on the mine itself, but it could exceed 50 years in some cases. Thus, it is important to take into account a long-term perspective and analyze risks and impacts to assure an actionable framework (Saade Hazin, 2013).

Mining became an important activity in Peru during the liberalization period of the 1990s, which ushered in several privatization processes in the extractive industries. Between 1995 to 2004, while the economy grew by 3.5% on average, the mining sector expanded by an average of 7.2%, increasing its share of total GDP from 4.5% to 8.6%. The industry is also Peru's main generator of exchange (Glave, 2007). Currently, 17 of the country's 25 regions host mining activities. Mining represents nearly 21% of total foreign direct investment and 24% of total government revenue (SNMPE, 2015).

However, mining in Peru still remains highly contentious, especially with local communities. Glave (2007) noted that while mining is important to Peru's GDP, the poor have remained in poverty. Moreover, the state excludes them as citizens, their productive capacities have not improved, and they are forced to compete with the mining companies for scarce resources. Furthermore, according to Panfichi and Coronel (2014), in Peru, the neo-liberal democracies of 2001-2011 experienced the most conflict related to social or environmental issues. Thus, mining in Peru is very sensitive to the social dimension, and it must therefore be taken into consideration for any planning undertaken.

All of the interviewees were recorded and anonymised. They were semi-structured so as to facilitate conversation, allowing for the exploration of conceptions within their speech (Krippendorff, 2004). Their conceptions can be validated or compared with the theory. The interviews were conducted in Spanish, the mother tongue of the actors, to aid communication.

Likewise, while each of the participants were engaged in business that focused on Peru as an emerging market, they all had a stake in the international market—be it through foreign ownership or operations in other countries. The interviews focused on the perception of risk, which risks are most relevant, how risk is mitigated, how planning is approached, the OSPA approach, and, lastly, a reflection on TUNA conditions in Peru and its future as an emerging economy. In the OSPA section, we asked the interviewees if

they had heard of or practiced scenario planning, how they conceptualized the TUNA conditions, to give examples of any relevant situations, and to detail the' types of TUNA conditions have most affected their organization.

Sampling followed a purposive logic to capture both institutional and firm-level perspectives on strategic planning under political uncertainty. We interviewed two strata: (i) five senior mining executives (decision-makers across exploration, operations, and corporate planning); and (ii) five opinion leaders with prior planning experience and influence in Peru's business policy arena (identified through public rosters of trade associations and media rankings of influential figures). The former provided direct evidence of organizational routines; the latter illuminated the broader planning narrative and the policy-and-society interface that shapes firms' expectations. Transcripts were analyzed using a content-analysis procedure (Krippendorff, 2004): The first step was to sensitize constructs based on the OSPA and dynamic capabilities as an initial coding frame, conducting open coding to surface in-vivo categories and iterating toward axial links between TUNA elements and capability micro-processes (sensing, seizing, reconfiguring). Constant comparison across interviews and analytic memos were used to consolidate themes; Tables 4–5 reflect the final structure (definitions and perceived capability outcomes).

For the data analysis, each interview was transcribed individually. The data was analyzed using the content analysis methodology, so as to make key inferences and retrieve insights into the planning narrative under development in Peru (Krippendorff, 2004). This involves making inferences from texts, specific to context, which in turn leads to a better understanding of the social phenomena.

A description of the profile of the interviewees can be found in Table 3:

Table 3
Profile of the Interviewees

	1	2	3	4	5	6	7	8	9	10
Interview Code	A	B	C	D	E	F	G	H	I	J
Role	Institutional/ Opinion Leader	Institutional/ Opinion Leader	Institutional/ Opinion Leader	Institutional/ Opinion Leader	Institutional/ Opinion Leader	Top Executive	Top Executive	Top Executive	Top Executive	Top Executive
Sector	Trade Union	Trade Union	Consulting	Education	Consulting	Mining	Mining	Mining	Mining	Mining
Ownership	Local	Foreign	Local	Local	Local	Local	Local	Foreign	Local	Foreign

Source: Compiled by authors,

Results & Discussion

How Risk is Defined by Firms: Emerging Context

Based on the data collected from the interviews, risk was conceptualized with a negative connotation as an environmental force that challenges the survival of firms. This is in line with the theoretical conceptualization of risk as a factor or event that will have a negative impact on firms. Moreover, the interviewees mentioned that risk has always been present in their experience of operating in Peru. In line with their negative conceptualization, they aimed to minimize the risk to which they were exposed.

The mining industry classifies risks into two types: operational risk (OR) and strategic risk (SR). OR is related directly to the mining operations, and was mostly taken for granted because it was properly managed. In other words, it is not conceived of as something that jeopardizes future operations, and is something usually considered in the short term. Therefore, since the future is more certain the closer it is to the present, companies felt able to manage this risk effectively.

In turn, SR takes into account more intangible aspects and environmental factors. This type of risk affects firms in the long term and is capable of jeopardizing operations. Risk factors include the price of minerals, political, social conflict, international finance, among others. The definition of risk given by the mining actors interviewed was more related to SR, since it was not so certain nor tangible, and was harder to manage.

Political risk was cited by the opinion leaders as having the highest impact on firms, because the political dimension, and institutional quality, will determine – either directly or indirectly – the course of the economy. This is in line with the definition provided by Bekaert et al. (2016) of political risk as the risk that a government's actions affect the value of an investment. Participants mentioned that political uncertainty analysis in Peru was difficult given the lack of information transparency, the lack of human capital, and the impossibility or unreliability of using any quantitative methods.

Indeed, senior executives in the mining industry, despite stating that political risk was a key strategic risk, asserted that social risk was highly relevant. An example cited was the suspension of operations due to social conflict with local communities or anti-mining groups, or worker strikes. There have been numerous cases of social conflict in Peru from the 2000s onwards, with successive governments attempting to open up a space for communication.

Is Planning an Exercise in Emerging Societies?

One opinion leader noted that planning in Peru during the 1970s and 1980s was associated with government intervention in the economy. This made firms adverse to planning for the future. According to one actors:

> Strategic planning in Peru has a horizon problem. In this country, the national planning institute [CEPLAN] was founded under the government of Belaunde [1980–1985], and made the word "planning" equal to the state. Thus, planning becomes something equal to statism and state intervention. Throughout the process of liberalization of the economy and the formation of companies post-1990s, this idea of planning is maintained. I think it just started coming back in the 2000s and today there is greater acceptance in certain segments […] Planning became a "dirty word." The idea of planning was reborn in the government of Toledo [2001–2006]. Following the model of the Asian Tigers, Eastern Europe, Colombia or Chile, the idea of planning or looking ahead arises. (Institutional Leader E)

Other actors interviewed agreed with this perspective, arguing that Peruvian firms, in general, do not plan, or have a very short-term planning mindset, which inevitably means they are reactive to environmental shocks. One actor mentioned that there is an interest at present in planning for the option of achieving ISO certifications rather than looking ahead in itself. Through the interviews, a planning narrative was discerned. It was noted that managers' mindsets are prone to not planning but are starting to become more open to planning tools. A lack of planning inevitably leads firms to a reactive posture when facing turbulent conditions. This pattern is exacerbated by the high-uncertainty trap (Cordova-Pozo & Rouwette, 2023), as one opinion leader expressed about the Peruvian environment:

> Planning in our country is very short-term, precisely because uncertainty remains high. So why would I plan ten years ahead when in the third year all of my original scenarios have changed? The high uncertainty of the economy forces planning to take a short-term perspective. (Institutional Leader A)

In the mining sector, multinational companies experience the external influence of headquarter decisions and planning methods. On the other hand, local mining firms tend to follow a traditional mining industry standard of planning that is carried out by either the senior management team or a consulting firm. Thus, their short term was one to three years in budget planning; medium term was either three to five years; and long

term was five to ten years. To plan for the future the mining firms used solely quantitative methods, such as projections, trend analysis, or models.

Overall, in the Peruvian mining sector, the focus was short term, even though this presents a contradiction with the nature of extractive industries themselves. Interviewees mentioned that the mining industry forces firms to think in the long term, but in practice this does not happen. A firm can operate a mine for 10, 20m or even 50 years, and the time between conducting exploratory studies, obtaining government operating concessions to operate, and decommissioning forces the firm to be long-term oriented. Regardless, their focus of analysis was on the short term.

Scenario Planning and its Feasibility in Emerging Contexts

Despite the theorical recognition of scenario planning as a best practice amid profound uncertainty (Oliver, 2023; Cordova-Pozo & Rouwette, 2023), this approach is largely absent from real-world practice in the Peruvian mining industry. Of all interviewees, only one opinion leader and senior top mining executive applied scenario planning to their organizations. The rest had heard of the approach but never applied it, mainly because of a lack of a long-term planning horizon. Instead, there was preliminary scenario formation based on the standard high, medium, and low likelihood situations that could arise from two factors: the price of metals and the social dimension.

Of the ten interviewees, seven had a quantitative and fixed future mindset where planning was very detailed within the short term. This mindset made them more inclined towards quantitative and forecast-centered methods, justified by the uncertainty of the extractive industry where firms are price takers whose income depends heavily on exogenous forces that are outside their zone of influence. Therefore, scenarios are built around estimated prices of minerals in order to test the firm's strategy in these possible scenarios.

While this type of planning has given firms sustainability over time, mining firms have failed with regard to intangible aspects. As mentioned before, mining firms are aware of the social risks in their operations, yet possible scenarios of social conflict were only explored by one of the firms represented. Qualitatively, no scenarios were devised for the case of turbulent fields or environmental shocks. Overall, internally, firms had incorporated different price scenarios, but externally the changes that could occur within their field were not taken into consideration.

Thus, firms in the mining industry firms did apply scenarios, but not scenario planning, since the exercise was only based on two variables without taking into consideration critical uncertainties. This was at odds with the proposals of Cordova-Pozo and Rouwette, (2023), who embraced a diversity

of drivers and uncertainties and recommended the internal management of up to 20 different scenarios based mainly on the price of minerals, even though the mining industry tends to favor four scenarios at most (Van der Heijden 2. , 2005).

The mindset to apply Oxford Scenario Planning Approach

The results above did not show the space to nurture new mindsets, although interviewees were asked how they defined, or conceptualized, turbulence, uncertainty, novelty and ambiguity for their experience of operating in Peru. The conceptualization of the TUNA conditions can be found in the following table:

Table 4
Conceptualization of TUNA Conditions

Concept	In the OSPA	Opinion Leaders		Top Executives of the Mining Industry	
		Conceptualization		Conceptualization	
Turbulence	Conditions in the contextual environment overcome the transactional environment and prevailing ground rules governing interactions among actors no longer apply or are questioned deeply	Changes in the rules of the game, variability of events, unpredictability	Environmental situations or events that generate "noise", which require a firm's action to respond	Variability of events, unpredictability or rapid change of events	A de facto exogenous condition of the mining industry
Uncertainty	Uncertainty, unlike risk, is not measurable; it cannot be calculated. It is unpredictable, but uncertain events and states of a system can be imagined	Not knowing how the future will unfold; lack of predictability of the future	Rapid changes in the rules of the game	Interrelation between events that seem disconnected; change in the price of minerals; the worst enemy of investments	Not knowing how the future will unfold
Novelty	The imaginable—but not yet experienced—future contexts. These can be emerging issues, new concepts, and new terminologies	Something new that will have an impact on the firm	Environmental situations or events that affect the performance of a firm	When new events or variables appear that were not taken into account initially	Technological changes or development
Ambiguity	Different Interpretations of the same event or phenomenon. Sources of ambiguity: purpose, power, experience, success	The state of being between two or more variables and not being able to decide	A variable or event that is not clear	A variable or event that is hard to predict; not knowing how the business environment will affect the firm	A more internal variable, due to lack of rigor in studies

Source: Compiled by authors.

For the turbulence variable, opinion leaders and senior mining executives correctly identified the contextual environment as causing change or unpredictability. The second conceptualization of the mining executives was that turbulence is a de facto condition in the industry, given that their contextual environment is so vast and they cannot control it. One executive said the following with regard to turbulence in the environment: "When 9/11 occurred, the price of gold started to rise, and it was something that no one had even imagined. It rose up until about the crisis of 2008." (Senior Executive E)

Thus, events anywhere in the world have a direct effect on extractive operations in Peru. Uncertainty, in turn, was found to be related to the lack of predictability of future events; different courses of events can be imagined but no single occurrence can be anticipated with full certainty. The mining executives related uncertainty more with investments and price of minerals, and cited it as a common factor in operating in an emerging economy. As one noted: "In the case of Peru, uncertainty has almost been a permanent situation. Moreover, if one looks back at the past forty years in Peru, stability has always been the biggest challenge." (Institutional Leader C)

Thus, uncertainty was a recurrent theme for the interviewees, so they took this condition as de facto condition and conceptualized it appropriately.

Novelty was mostly conceived as new events that were not taken into account initially but which would prove to have an impact on their firm. The mining executives associated novelty more with technological developments, but other conceptualizations centered on emerging issues; for example, the issues that arise during anti-mining protests or strikes. Three mining executives offered different points of view regarding this condition:

> Novelty is mostly related to technology, but it is not always necessary. In mining, what controls novelty is the cost of production. (Senior Executive E)

> In mining, talking about novelty is not much. One can talk about technological change, but this is not necessarily a novelty in itself. In fact, novelty must always respond to a rigorous analysis of the environment, based on meteorological conditions and costs. (Senior Executive H)

> Novelty is when new events arise. It is very common in anti-mining protests; new issues arise during them that where not considered before. For example, a few years ago the protests were about contamination; nowadays, it is about fundamental rights. (Senior Executive J)

Thus, for the novelty dimension, only the emerging issues or new concepts were taken into consideration. However, 60% of the senior executives related this mostly to technology, and as a limitation to internal company aspects. Furthermore, novelty was conceived of as new issues or events arising in the present. There was no conceptualization of imaginable future contexts but rather a reactive conceptualization of new issues in the present. Thus, the forward-looking and imaginative aspect of novelty was not a feature of the interviews.

The final condition, ambiguity, was conceptualized as a state of indecision due to a lack of predictability or clarity in the variables. It was taken more as an internal variable, related to firm indecision about how the environment will unfold. The general conceptualization of ambiguity was not analogous to the definition utilized in OSPA; This may be because the mining actors are forecast-centered so are inclined to view ambiguity as a lack of certainty in projecting the future. The most similar definition to that provided in OSPA was the following: "Ambiguity is something that is not clear. If you do A, someone can interpret it as B. So for the executive it is important to have a long-term planning horizon, so that he or she can adapt to the events and continue." (Institutional Leader B)

In sum, turbulence and uncertainty were clearly and consensually defined by the interviewees. Novelty, however, brought various definitions and a conceptualization that was only partial; for seven of the ten interviewees, the condition was not well understood. Similarly, for ambiguity, the definition was clear and was related more to the unpredictability of events. Ultimately, the understanding of uncertainty was grounded in the TUNA conditions, indicating that the interviewees grasp this notion. Thus, while only one actor performed scenario planning, the right conceptualization indicates the feasibility of applying scenario planning exercise in Peru.

Dynamic Capabilities: Window to Risk or Door to Uncertainty?

Scenario planning is known to develop dynamic capabilities within the firm. Thus, after the scenario planning methodology was explained to the actors, the next step was to inquire further into their perception of carrying out this exercise for their firm. The results can be observed in Table 5.

Table 5
Potential Dynamic Capabilities Identified from a Scenario Planning Exercise

Utility	Dynamic Capability	Frequency
Redefine risk and conceptualize it in new dimensions; manage qualitative variables better	Risk analysis and management	5
Thinking about future possibilities and living with uncertainty; obliging companies to think about future actions or decisions, which reduces the response time	Adaptability and proactivity	4
Scenarios help to identify the drivers of change in the environment	Environmental analysis	1
Total Interviewees		10

As the table shows, three dynamic capabilities were identified from the responses: risk analysis and management, adaptability, and environmental analysis. First, half of all the interviewees referred mostly to risk analysis, stating that the reframing–reperception cycle helped in understanding risk better. As one actor stated: "It helps to deepen risk analysis, because it offers a multidimensional approach. It helps in being prepared and being able to respond to future circumstances, due to better management of risk." (Institutional Leader C)

Second, actors identified adaptability as an important dynamic capability that a scenario planning exercise could produce. This is so because scenario planning forces actors to think about the future, and how their firm strategy could survive any adverse scenario—in other words, what actions or decisions will be made. According to the executives interviewed, scenario planning aids in thinking about the future and understanding TUNA conditions in order to be more proactive and reduce response times when faced with adverse conditions. For another dimension, a proper scenario planning exercise was found to be useful because it situates managers in the future, facilitating evaluation of the present situation improving adaptability, and promoting informed decision-making in the future.

Third, scenario planning was found to be useful for taking mitigating actions in the future, and thus assuring the sustainability of the firm. Finally, a scenario planning exercise was perceived to be important in order to identify future and present drivers of change. Therefore, it assures better environmental analysis.

Overall, this study identified key dynamic capabilities that were consistent with the literature. Moreover, no actor considered scenario planning to support their forecasting approach, instead perceiving it as something revolutionary in relation to their traditional planning. Furthermore, it was

not perceived as a methodology to reduce or minimize risk but as a methodology to understand and cope with uncertainty.

Conclusion

This research explored the concept of turbulence, uncertainty, novelty and ambiguity (TUNA conditions) from an emerging economy perspective, and sought to validate the OSPA methodology. Following a case study methodology, the relationship between political uncertainty in emerging economies was studied, along with the formation of dynamic capabilities through a scenario planning exercise.

Focusing on the specific context of Peru as an emerging economy, the idea of planning is limited by a political narrative. In the 1960s and 1970s, planning was associated with statism, which distorted the concept and limited its application. The misunderstanding of the concept has led to a misunderstanding of scenarios. According to the interviewees, planning as a business practice was reintroduced during the neoliberal period. Further research is needed to understand the planning narrative, the logic behind it, and the relations between the state and the private sector.

For the mining industry, scenario planning was perceived by interviewees as a viable tool, especially regarding the interplay of intangible risks that firms face, and which are mainly attributed to social conflict. Mining represents 58% of total Peruvian exports and has a long-term perspective given the life span of mining projects. Still, for the case of Peru, mining remains a highly conflictive activity, especially in stakeholder management.

Although only one mining executive applied a scenario planning methodology, the other actors applied scenarios based on two variables: price of minerals and social conflict. This is still an early-stage application of a proper scenario planning methodology, but the actors were willing to understand the idea behind the scenario planning and found value in applying it. OSPA was regarded as most useful when the contextual environment has significant weight in the industry. This is the case for mining, where prices are determined by the market, and is sensitive to multiple variables. The contextual environment requires greater analysis than just short-term impact. However, the senior executives interviewed focused on short-term planning horizons and applied more forecast-centered methodologies. Thus, there is a contradiction between the contextual environment in which the firm is immersed and the managerial capabilities that are applied.

Based on the data analysis, the concept of TUNA was found to be incomplete for the case studied. The executives interviewed found that the concept of risk is underpinned by turbulence and uncertainty, based on

their experience, as well as the forecast-centered methodologies that they applied. Likewise, turbulence and uncertainty are exogenous to the firm, and the mining industry is very sensitive to the contextual environment. Thus, these two concepts were clearly defined and understood. However, the actors did not apply a clear definition of the concepts of novelty and ambiguity. Thus, while turbulence and uncertainty are understood, they need to be complemented with a clear grasp of novelty and ambiguity if the TUNA conditions are to be understood as a whole.

Furthermore, all TUNA conditions were conceptualized as actions or factors occurring in the present that will either require action or have on effect on the firm. Application of higher order logic and the abstract are required to conceive of TUNA conditions in the future, and to take action in the present. When facing TUNA environments, organizations are encouraged to adopt strategies that privilege flexibility, continuous learning, and open collaboration as drivers of resilience and adaptive capacity (Salun & Zaslavska, 2024).

The challenges for firms to develop in emerging markets are relevant in a post-COVID-19 scenario. This type of exogenous shock should have been catalyst for firm's environment to adopt new scope of analysis. The pandemic effects have shown the weakness of risk analysis under short-long terms paradigms. These difficulties should be embraced by modern industries such as the mining one (which works in a long-term scope). If new methodologies or approaches are not welcomed by key managers, strategic planning will be a limited tool with no capacity to produce decision making. This will invite to the review emerging societies and its resilience capacity.

Finally, while this paper refers to "validation" of the OSPA, the results are most accurately understood as a contextual evaluation of its relevance, adaptability, and conceptual resonance in an emerging economy setting. The findings show that the OSPA's logic of reframing and reperception aligns with the mental models and challenges faced by Peruvian executives operating under conditions of high political uncertainty. A full empirical validation, understood as demonstrating causal effectiveness or measurable organizational outcomes, remains an avenue for future longitudinal and comparative research. Nonetheless, the present findings advances the theoretical dialogue by grounding OSPA within the empirical realities of an emerging economy, thereby extending the epistemological and methodological reach.

Limitations and Recommendations for Future Research

The scenario planning approach is in its infancy, which constitutes a barrier in itself considering that one of the main aspects is to use long-term events as the main input to validate the utility of applying the methodology among the interviewees. In addition, this research presents another three key limitations that also offer suggestions for future research on scenario planning.

First, the structure of the companies, and whether they are locally or foreign owned, greatly influences how planning is carried out. Some are still run as family business or under the control of a closed circle, which leaves them exposed to how structural networks can influence future dynamics. This also opens up an opportunity for generational analysis, especially in emerging markets where capital markets are underdeveloped and close networks of management are a prime variable.

Second, the paper focused on just one sector: that which is most sensitive to its contextual environment and is the most important for the Peruvian economy. Further research is needed for applicability to other sectors and other emerging economies. Moreover, data constraints regarding the unit of analysis employed here preclude measurement of the effect of using scenario planning. Future research should therefore continue the experiment in the same sector to acquire a clear correlations effects and robust results for future development. At this juncture, comparative analysis of other economic sectors is not recommended, as the dynamics of the chosen sector present very particular modes of interactions among the actors involved.

Third, data constraints precluded the capture of the effect of specific types of knowledge at the individual level, and the data collected should also focus on the innovation performance of the entire company. Future research should examine whether management contributes to the dissemination of advanced knowledge, R&D, and innovation capabilities across other units within the sector and thus enhance the innovation performance of the entire industry.

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Appendix 1: Interview Guide

Risk/ Uncertainty

1. *What do you consider as risk?*
   - 1.1 *According to Kobrin (1982), political risk, among other things, is conceived of in terms of governmental interference with entrepreneurial activities. What is your opinion about this conceptualization?*
   - 1.2 *Of the following dimensions of political risk—quality of institutions, conflict, democratic tendencies, and governmental actions—which do you consider most relevant for firms in your industry?*
2. *Of the following uncertainties—political, governmental policies, macroeconomic, social and/or natural—which, based on your experience, would you say is most important?*
   - 2.1 *Do you believe there is a way to administer these uncertainties?*
   - 2.2 *Would you invest in an economy in which these uncertainties were present? Why or why not?*
3. *According to Holburn and Zelner (2010), firms differ in their organizational capabilities to evaluate and manage risk and uncertainties. Do you agree with this statement? Why or why not?*
   - 3.1 *Do you consider this to be a competitive advantage?*

Planning

4. *Operating in an extractive industry, such as mining, would you say that the nature of the industry forces firms to plan in the long term?*
5. *How do you plan for the future?*
6. *Are there differences between using quantitative or qualitative variables to plan for the future?*
   - 6.1 *Which would you say has the most weight?*
7. *Do you think there is only one future or multiple futures?*
8. *Do you work with scenarios in your firm? Have you ever heard of scenario planning?*
9. *Comparing your firm during the 1970s or 1980s with nowadays, would you say that the focus on planning has been consistent? Or have neoliberal policies in the 1990s, and globalization in general, changed this focus?*

Scenario Planning/ OSPA1

10. *What do you consider as turbulence?*
11. *What do you consider as uncertainty?*
12. *What do you consider as novelty?*
13. *What do you consider as ambiguity?*
14. *Which of the TUNA conditions would you say you have experienced the most when operating in Peru?*
15. *Do you consider these conditions to be interrelated?*

Emerging Economies

16. *What are the main obstacles in emerging economies? Could you provide three examples for the case of Peru?*
    16.1 *Do you think Peru is on the right track for development? Why or why not?*
17. *Do you think that scenario planning, or the OSPA methodology, contributes to redefining risk in emerging economies?*
18. *Do you think that scenario planning, or the OSPA methodology, contributes to organizational adaptability and development of dynamic capabilities? How? Which types of capabilities?*

1 In this section, the concept provided by the Ramirez & Wilkinson (2016) was given after they defined it themselves.