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DISRUPTION MANAGEMENT AND THE ORCHESTRATION OF DYNAMIC CAPABILITIES: SEEKING DYNAMIC SMART DISRUPTOR PROFILE

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Abstract. The purpose of the study is to investigate and elaborate the dynamic capabilities needed to manage disruptive business. This paper is a conceptual paper. Firstly, authors present key concept of technological disruption, which is highly relevant for modern corporate foresight. Nowadays, in the market conditions of corporate foresight, VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) approach has a significant role. Secondly, the rigor of this paper is to combine scientific discussion of technological disruption with the VUCA approach and dynamic capabilities of smart disruptor. The special focus of this article is the challenges of orchestration of dynamic capabilities in the special conditions of VUCA business environment and disruptive competition. The method/design of this study is a conceptual paper. The results: We evaluate the role of competence gaps identification inside a firm: The technology gaps, market gaps and business model gaps in modern business leadership. Our principal conclusion is to present tools to manage the dynamic capabilities in the VUCA and in the disruptive business environment. Further, we will present the pleminary definition of the smart disruptor.

Keywords: VUCA conditions, disruption management, dynamic capabilities, smart disruptor profile, technological disruptions, business leadership, disruptor.

JEL Classification: O30, O31, O32, O33.

1. Introduction

Under current market conditions of corporate foresight, turbulence is a key element of the business landscape globally. Turbulence can be summarised using the trendy managerial acronym VUCA (Volatility, Uncertainty, Complexity, and Ambiguity).

Firstly, authors define key concepts of technological disruption and disruptive innovation. Both these concepts are important to foresight.

Secondly, we present technological transformation and summarise it to create a bigger picture.

Thirdly, authors link this discussion to the VUCA approach. Authors present the new corporate foresight framework and management tool based on foresight, and manage volatility, uncertainty, complexity and ambiguity in field of technological disruption globally.

Fourthly, authors present the new corporate foresight framework, which is highly relevant for corporations and takes current technological transformation more seriously than previous proposals, which expect more stable business and a technological landscape.

Key issues in modern VUCA management are agility (response to volatility), information and knowledge management (response to uncertainty), restructuring (response to complexity) and experimentation (response to ambiguity). Useful foresight tools are challenging tools, decision making tools, aligning tools, learning tools and the ability to combine these management tools in the practices of corporate foresight and management systems. The VUCA approach is a key solution concept to technological disruption.

This article identifies the disruptive digital business that is emerging from the impact of these technologies on the markets and explores the concepts of skills needed by the managers to manage this kind of business.

The article ends with the research findings and the model proposed for skills development for disruptive business managers. Dynamic capabilities include the sensing, seizing, and transforming needed to design and implement a business model (Teece, 2018).

In this article, the focus will be on the identification the skills needed to manage disruptive business. Many corporate leaders and managers need an updated understanding of these management issues. A global mindset, a virtual mindset, an innovative mindset and a collaborative mindset are all key issues in the disruptive

business environment. Ultimately, the results are the proposal a model to develop important management skills: innovation, leadership, and management.

Finally, to sum up the profile of smart disruptor, authors will present four critical elements of smart disruptor profile organizations based on previous discussion.

2. The disruptive innovation theory and dynamic capabilities concept

In this chapter, we introduce the concepts of 1) Disruptive innovation theory, 2) Dynamic Capabilities, 3) Business Models in dynamic capabilities framework, 4) Business model-dynamic capability interactions, 5) Developing dynamic capabilities in a disruptive strategic process, 6) Meeting disruptions: Modern foresight and scenario thinking today

The disruptive innovation theory focuses on key issues like market characteristics, new markets, and low-end innovations (Christensen, 1997). Disruptive innovations might be innovative services and products available to a new group of consumers.

The significance of new technologies implementation: those generate growth and well-being (see, e.g., Jones, 2005). A technology might disrupt organisations and enterprises. Christensen (1997) proposed the disruptive innovation concept. Bower and Christensen (1995) described the notion that new technologies can create new markets or radically change, or disrupt, the status quo in existing markets (Bower & Christensen, 1995; Nagy, Schuessler, & Dublinsky, 2016).

We have known for a while that disruptive technologies fundamentally change the businesses and affect the global economy (Bower & Christensen, 1995; McKinsey Global Institute, 2013).

One definition of a disruptive innovation focuses on the functional quality and cost of an innovation. This definition defines disruptive innovations as an innovation with a "good enough" functionality that has a low cost (Christensen, Baumann, Ruggles, & Sadtler, 2006; Christensen, Bohmer, & Kenagy, 2000; Christensen, Horn, & Johnson, 2008; Paap & Katz, 2004; Thomond & Lettice, 2002; Nagy et al., 2016).

The other definition of disruptive innovations focuses market characteristics. Innovation adoption theory consists of three ground disruptive innovations in a technology: technical standard, functionality, and ownership (Nagy et al., 2016).

The Definitions are different:

- *Disruptive technology* does not restrict market entrants to first target, low-end markets and then move from the bottom end towards the 'upmarket' end.
- *Disruptive innovation* moves up the market and displaces established competitors (Koski et al., 2016).

Important technologies have four characteristics: (1) High technological change, (2) wide potential scope of impact, (3) grand economic value (4) potential for disruptive economic impact (see McKinsey Global Institute, 2013).

To be economically disruptive, a technology must have broad reach – affecting companies and industries and affecting a wide range of machines, products, or services. The technology is rapidly advancing or experiencing breakthroughs. Disruptive technologies change price/ performance relative to substitutes and alternative approaches, or they experience breakthroughs and improvements (McKinsey Global Institute, 2013).

2.1. Dynamic capabilities

Dynamic capabilities include the sensing, seizing, and transforming needed to design and implement a business model (Teece, 2018). Dynamic capabilities can enable company to upgrade and direct its ordinary capabilities to high-payoff characters (Teece, 2018). It requires developing, coordinating, and orchestrating resources to the market, or the business field (Teece, 2018).

2.2. Business models in the dynamic capabilities framework

The strength of dynamic capabilities helps shape its proficiency at business model design (Teece, 2018). Dynamic capabilities effect on organization design and a business model influences the company´s dynamic capabilities and strategies (Teece, 2018).

This study will distinguish between business models, dynamic capabilities, strategy, and investment decisions.

According to Rumelt 2011 and Teece 2018, a strategy can be defined as "a coherent set of analyses, concepts, policies, arguments, and actions that respond to highs takes challenge" (Rumelt, 2011, p. 6; Teese, 2018).

Strategic analysis leads to the selection of a particular business model, market segments, and a go-to-market approach over others. Nowadays, the advantage begins with the business model. The unique capabilities are the primary building block of firm-level competitiveness.

The framework of dynamic capabilities, feedback channels, organization design and dynamic capabilities are shown in Figure 1.

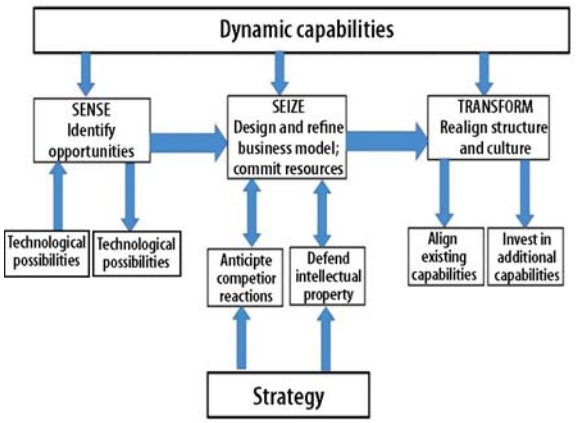

Figure 1. Framework of dynamic capabilities, business models and strategy (Teese, 2018)

2.3. Business model-dynamic capability interactions

There are many definitions of a business model: Many investigations have listed business model component (Zott, Amit, & Massa, 2011; Birkinshaw & Ansari, 2015).

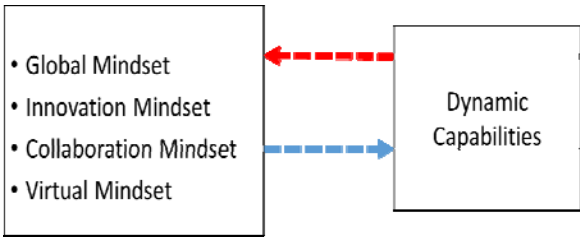

Figure 2. Critical mindsets and dynamic capabilities

Businesses models are enabled by dynamic capabilities in the sense that a dynamically capable organization will be able to rapidly implement, test, and refine new and revised business models. The main dynamic capabilities includes: Management's architectural design, asset orchestration, and learning functions.

2.4. Developing dynamic capabilities in a disruptive strategic process

In Table 1, we have presented sensing and seizing opportunities. Sensing opportunities are directly linked to futures-oriented thinking. Seizing opportunities are indirectly linked to futures oriented thinking. Seizing opportunities requires resource acquisition and resource reconfiguration.

Table 1. Foresight, sensing and seizing processes (Kaivo-oja & Lauraeus, 2018)

Sensing opportunities	Seizing opportunities	
Opportunity search	Resource acquisition	Resource reconfiguration
Utilization of forecasting and foresight tools	Integration of foresight analyses with resource mobilization process	Integration of foresight analyses with market understanding processes

Table 2. Developing dynamic capabilities in a disruptive strategic process (Teece, 2007; Kaivo-oja & Santonen, 2016; Kaivo-oja & Lauraeus, 2018)

Opportunity search	Resource acquisition	Resource reconfiguration
• Continuous search of new radical development ideas • Continuous collection of promising niche market information (new markets) • Continuous WE-WI (weak signals and Wild Card opportunities) review of business environment changes and their possible effects • Global Value Network Analysis • Visionary and strategic leadership • Crowdsourcing tools	• Investments in new Man-Machine learning resources (including digital learning) • HR/Recruitments • The use of Knowledge Management tools • Investments in new breakthrought technologies • Increase in R&D financing • Novel resource combinations and collaboration strategies	• Launch of new smarter products and services (novelties programs) • Smarter and more specialized offerings • Radical product improvements and modifications • Radical process improvements • Active and smart disruption programs • New strategic partnerships • Smart specialization with better comparative advantages and better business resilience options

In Table 2 we have outlined a detailed definitions of futures oriented tasks of opoportunity search, resource acquistion and resource reconfigurations. Here our approach underlines the idea that in real business organizations the development of dynamic capabilities requires maturity in the use of foresight tools in opportunity search, resource acuistion and

resource reconfiguration. In many theoretical and empirical studies, this approach have not been adopted. If we want to develop disruptive business models, this aspect is very important.

2.5. Meeting disruptions: Modern foresight and scenario thinking today

Alternative options of changing capability portfolios must be evaluated and analyzed with many hybrid foresight and management tools. Scenario approach is more and more linked to complexity management and complex system analysis.

Scenario learning includes now and in the future: (1) Man-to-Man, (2) Man-to-Machine, (3) Machine-to-Man and (4) Machine-to-Machine learning processes. These four learning approaches will be linked to dynamic capability analysis. Dynamic capabilities cannot be developed without four domain digital learning approaches. Not only forecasting scenarios, but also back casting scenarios are needed because of "knighting uncertainty" thinking (risk that is immeasurable and not possible to calculate).

In the long-range strategic and visionary analyses, the definition of Global Value Network Analysis (GVNA) requires back casting scenario approach combined to weak signal and wild card analyses (WI-WE-analysis) because of "knighting uncertainty" thinking (risk that is immeasurable and not possible to calculate).

"Playing with probabilities" will be a very interesting field of scenario analyses, especially when we compare forecasting and back casting scenarios. There are interesting possibilities to combine expert evaluations and crowdsourcing assessments. For example, in the business applications of Crowdsourcing Delphi Methodology, this is possible (Kaivo-oja & Santonen, 2016).

3. The key elements of the competitive landscape, which are relevant for the VUCA environment

In Figure 3, we have figured out key elements of the competitive landscape, which are relevant for the VUCA environment. Globalisation, hyperactive competition and rapid technical change create key pre-conditions for the VUCA environment. The key challenge for leaders is to change the threats of competitive landscape into opportunities. The role of human mindsets is very important in this respect. As we know, the mind matters (Lahiri, PerezNordtvedt, & Renn, 2008).

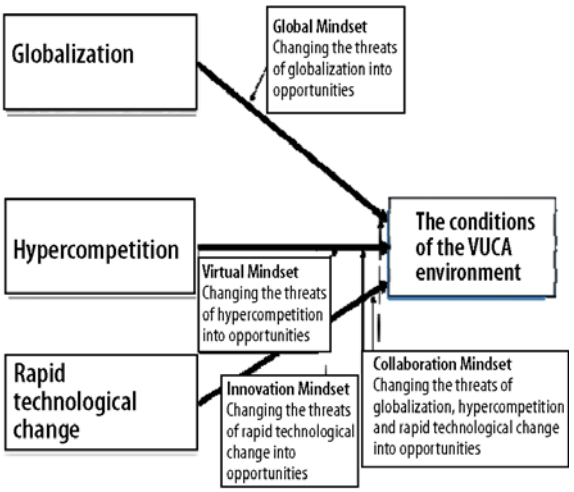

Figure 3. Framework showing relationships are VUCA environment (Modification of Lahiri et al., 2008, p. 313)

3.1. The VUCA challenges for corporate leadership and management

Leadership agility and adaptability are now required skills if organisations are to succeed in this VUCA world. The volatility, uncertainty, complexity, and ambiguity inherent in today's business world. Nowadays, strategic, complex critical-thinking skills are required of business leaders. They need to understand the VUCA leadership and apply the VUCA approach to the Customer Service Leadership 'tool-kit' in a rapidly changing world (Hyken, 2016).

To address VUCA, the 'solution strategy' is to change the words and address the problems. The companies and leaders need to change and meet the new innovative challenges (Hyken, 2016).

From Volatility –to–Vision (Hyken, 2016)**:**

- Companies need to be able to communicate effectively, and this involves targeted communication, communicating a sense of purpose and leading people towards a vision. They need to be focused and ensure the team's efforts are aligned and focused on the right goal. They need to provide the direction and articulate the endgame so that it is clear to all.

From Uncertainty –to–Understanding (Hyken, 2016)**:**

- The companies must not be afraid to ask questions (clarify), both of their team and customers. The leaders need to understand their team/customers' motives, their hopes, fears and desires. Compa-

nies need to develop an open mind, within both corporate leaders and their team to explore new ideas. Thus, always seek feedback to review and reflect on actions.

From Complexity–to–Clarity (Hyken, 2016)**:**

- Leaders need to keep things simple, cut through complexity and deal with core issues. They need to rely more on intuition, to trust gut instinct and experience in order to cancel out anything unnecessary. Leaders need to communicate succinctly, with structure and with reason.

From Ambiguity–to–Agility (Hyken, 2016)**:**

- Company leaders need to be decisive, adapt quickly to changing circumstances and make decisions with confidence. They need to adapt, innovate, learn from mistakes and continuously seek new ways to get better. The leaders need to empower their workers, cut out unnecessary bureaucratic processes, develop clear communication channels and utilise collaboration and give teams possibilities to do a great work.

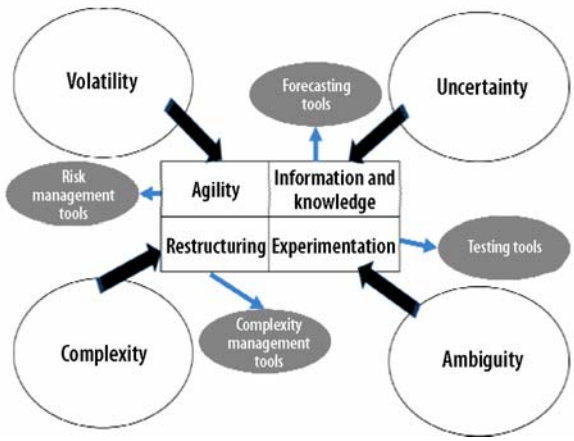

Figure 4. The VUCA challenges and key solution concepts and tools

In Figure 4. we present a synthesis about the VUCA management challenges and key solutions. The volatility of the environment requires agility with organisational culture (Kaivo-oja & Lauraeus, 2018). The uncertainty of the environment requires updated information and knowledge management (Kaivo-oja & Lauraeus, 2018). The complexity of the environment requires active restructuring of a corporate organisation (Kaivo-oja & Lauraeus, 2018). The ambiguity of the environment requires experimentation of management activities in corporations (Kaivo-oja & Lauraeus, 2018).

Table 3. Tools relevant to the VUCA environment, relevant foresight tools and the key functions of foresight tools in corporations (modification of Kaivo-oja & Lauraeus, 2017)

Tools relevant to the VUCA environment	Relevant foresight tools	The key functions inside corporations
Anticipating tools	Statistical forecasting tools, especially such ones which are based on probability analysis	Identify risks and emerging new markets
Interpreting tools	Statistical forecasting tools, risk analysis, especially which are based on probability analysis Expert and crowdsourcing methods (Delphi methodology and crowdsourcing techniques)	Analytical reflection of the results of anticipating tools Creation of "big picture" of markets and corporate stakeholders
Challenging tools	Weak signal and Wild Card analyses, creativity tools, the analyses of desirability and feasibility, reflective mirroring and benchmarking tools, technology roadmaps, trend and scenario analyses, competitor analyses	Identify alternatives and uncertainties in the environments Eliminate the conventional problems of group thinking Amplify weak and strong signals
Decision making tools	Priority setting tools, multi-objective decision-making tools and models Dr Z Methodology and analysis: 1. Don't Rock the Boat, 2. Joining Forces, 3. Go IT	Help decision-makers to be future oriented decision-makers Enable decision making with identifying options and comparing alternative options relevant for corporations

End of Table 3

Tools relevant to the VUCA environment	Relevant foresight tools	The key functions inside corporations
	Alone, 4. Look for a Friend and 5. Fight the Good Fight.	Pre-condition to the use decision-making tools is to link challenging tools to decision-making tools
Aligning tools	Stakeholder Analysis Tools Action planning Deep dialogue tools	Bridging differences and understanding stakeholders
Learning tools	Organization of simultaneous experiments Experimental fast learning tools ("valid experiments" and "robust experimental designs") Fast learning organization tools ("easy and quick experiment set-up" and "experimental data available quickly and automatically") Deep learning tools based on AI.	Create strong passions for experimentation and learning inside a corporation
Combination tools	Transcendent leadership tools	Transcendent leadership combines (1) leadership of self, (2) leadership of others and (3) leadership of organization

4. Foresight Tools relevant to the VUCA Environment

In recent management and leadership literature, Krupp and Schoemaker (2014) have presented a comprehensive answer, the Sig Discipline model to meet the VUCA challenge. In Table 3, we have reported the tools relevant to the VUCA environment, relevant foresight tools and the key functions of tools inside corporations.

Critical Tool package – Meeting disruptions with foresight/futures thinking tools in the VUCA environment. These methodologies are discussed widely in the fields of futures studies and foresight (Armstrong, 2006; Borch, Dingli, & Jörgensen, (2013); Krupp & Schoemaker, 2014, Kaivo-oja & Santonen, 2016; Kaivo-oja & Lauraeus, 2018). In particular, in Table 3. we have clarified the key foresight tools and the key functions of foresight tools in corporations.

5. Model for disruptive business skills development

5.1. Skills concept

Three decades ago, the concept of skills starts to have a great importance due to technological, organizational, and economic factors (Sousa & Rocha, 2018; Acemoglu & Autor, 2011). Skills are resource of individual and organizational nature, which would allow competitiveness and productivity advantages to companies.

Historically, the word skills have been used to refer individual characteristics. The concept has been studied by several authors as (Sousa & Rocha, 2018; Heckman & Kautz, 2012; Heckman, Stixrud, & Urzúa, 2006; Kuhn & Weinberger, 2005; Weinberger, 2014) and some decades ago by Norris (1991) and Ellström (1997).

The skills' development is very important for the competitiveness of the markets and is perceived as a strategic management tool to cope with the current business environment (Sousa & Rocha, 2018; Nyhan, 1998). The market has changed from a market of mass production to a market of customization where quality, price, and speed of delivery are stressed. According to Sousa and Rocha (2018), this change into new and emerging customer segments, cultural diversity in a global marketplace, market volatility, raised customer expectations about quality of products and services, and the impact of the internet on an organization's core business (Sousa & Rocha, 2018; Akerman, Gaarder, & Mogstad, 2015; Markowitsch et al., 2001). Nowadays, jobs require more flexibility and great problem-solving skills.

The globalization and accelerated rhythm of technological change demand managers with skills that help the organizations to overcome the appearing challenges (Sousa & Rocha, 2018; Vasconcelos, Kimble, & Rocha, 2016).

Next, we present the Sousa and Rocha's (2018). Model: development of skills (Table 4) in three dimensions: Innovation, Leadership, and Management.

Table 4. The model for the development of skills to manage disruptive business (Sousa & Rocha, 2018)

Skills categories
Innovation skills − Innovation and creativity
− New business opportunities − Project management − Risk management − Efficiency and efficacy − Networking
Leadership skills − High-performance teams management
− Talent management − Motivation and satisfaction − Communication − Careers management − Leadership of multi-cultural employees
Management skills − New models of work organization
− Emergent technologies − Decision making tools − Big Data analysis − Organizational change − Strategic management − Social and relational knowledge

The implementation of this model will present the needed skills to business development, which includes the strategy of the company, the products and/or services, and management systems (Kimble, de Vasconcelos, & Rocha, 2016). The management systems integrate knowledge about company´s potential strategies, capacity planning and the strategic decisions and various areas of expertise (Sousa & Rocha (2018). It will give the knowledge to analysis of the environment, competitive analysis, market analysis and the company itself. Management systems put into practice the company's processes: business management, marketing, human resources management, financial management and risk management.

6. Conclusions

This article contributes academically and practically to on-going discussion of disruptive technologies; academically, by redefining disruptive innovations, and defining the difference to disruptive innovations and disruptive technologies. Creating disruptive and radical innovations are different issues.

Meetings disruptions and developing disruptive business models in the future we must develop new innovative ways to search management excellency in companies and corporations. Complexity and disruptions are challenges in modern business administration. Disruption thinking must be integrated to Teece´s management platform model of (1) radical opportunity search, (2) future-oriented resource acquisition and (3) resource reconfiguration with tomorrow´s consumers' and end-users' demands. Real-life development of dynamic capabilities requires this kind of new approach. This *first criteria* for smart disruptor profile in business management.

The concept of "Knightian uncertainty" is a very relevant concept to think about and typical conclusions is: back casting scenarios with global emerging value creating and producing networks analyses are needed.

Managing complexity is a challenge for leaders, but the VUCA management toolset can be utilized in business administrations. There is a viable foresight and management tool package to work in the VUCA environment in all companies and corporations, but it requires advanced orchestration skills and deep smartness in the leadership. Reaching higher maturity level of business foresight need continuous efforts of leaders and business administration.

Reflective discussion with back casting scenarios about global value networks (GVNs) and WI-WE analysis and back casting scenarios will be one effective tool to manage disruptions in the global value creating/producing networks. This article underlines a new aspect for many leaders: Searching excellency includes also strong disruption management aspect. Under turbulent VUCA conditions, leaders and managers need a new more flexible arsenal of foresights and management tools and methods. We note that such flexible arsenals need to have so called KAR approach, which includes knighting real uncertainty approach. This is *second criteria* of smart disruptor profile. The smart analyses of forecasting and back casting scenarios with tailored strategies and business portfolios are key issues for smart distruptor. Limiting analyses to conventional risk analyses is not sufficient way to manage uncertainty.

This paper elaborates some key theoretical approaches and practical solutions to the corporations facing turbulent VUCA conditions. These

tools can be classified as (1) anticipation tools, (2) interpreting tools, (3) challenging tools, (4) decision-making tools, (4) aligning tools, (5) learning tools and (6) combination tools (Krupp & Schoemaker, 2014). Hight maturity of foresight is very important element in advanced business administration.

With the systematic application of these management tools and methods, corporate leaders and managers can face the VUCA tests of surviving in the global markets, where globalisation, hyper-competition and fast, turbulent technological changes test corporations and create increasing volatility, along with uncertainty, complexity and ambiguity. Already ad hoc knowledge and awareness of the VUCA conditions and possible management tools are important strategic assets for modern management and leadership. We can claim that the high maturity in the utilization of these management tools is *third critical element* of the smart distrutor profile of business organization.

Many corporate leaders and managers need an updated understanding of these management issues. A global mindset, a virtual mindset, an innovative mindset and a collaborative mindset are all key issues in the VUCA environment. Cognitive skills and mindsets of global leaders are an important part of new management thinking. We can note that awareness of mindsets and cognitive models is *fourth element* of the smart disruptor of business organizations. This article helps corporation leaders and managers to understand key issues, which are highly relevant for these mindsets, especially for an innovative mindset. We propose that the theory of dynamic capabilities should include deeper understanding of cognitive skills and mindsets.

To sum up the profile of smart disruptor, there are four critical elements of smart disruptor profile organizations: (1) the professional management of Teece´s management platform model of dynamic capabilities with radical opportunity search, future-oriented resource acquisition and resource reconfiguration with tomorrow's consumers' and end-users', (2) the KAR approach with the combination of forecasting and back casting scenario analyses linked modern business portfolio planning, (3) high maturity in the use of the VUCA foresight management tools and methods and (4) awareness of needed diverse mindsets (a global mindset, a virtual mindset, an innovative mindset and a collaborative mindset) in business management. These four elements are critical issues for the smart disruptor business organization. All these elements include many ethical aspects, which were not discussed in this article. There is need to discuss more about these business ethics issues in other forums.

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