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Disruptive innovation in media industry ecosystem and need for improving managerial cognitive capabilities in polymediation era

Masoud Gholampour Rad^{1*}

Abstract: Media industry ecosystem has undergone major transformations due to emergence of disruptive innovations. When industry ecosystem incumbents have dynamic organizational capability and make necessary strategic changes, they could exploit disruptive innovations. Managers' cognitive capabilities, dynamic organizational capabilities, and strategic changes are three variables that have key relationships; therefore, this research focuses on this relation. Since dominant logic reflects the internal relation of managers' cognitive capabilities, dynamic organizational capabilities and strategic changes, in this research the relationship between two variables of disruptive innovation (DI) and dominant logic (DI) has been evaluated. IRIB organization top managers replied to questionnaire. Both types of causal and correlation relations of two variables were evaluated by PLS technique. Research findings reveal 3 indexes and 10 attributes related to DI variable and three indicators and eight attributes related to DI. This model has good fitness and reveals the necessity of improving managers' recognition of digitalization phenomenon as disruptive innovation and undertaking new dominant logic and related strategic actions. Organizations lack the power of exploiting disruptive innovation if they don't improve managers' recognition of digitalization phenomenon, not create dynamic organizational capabilities and not welcome strategic changes.

ABOUT THE AUTHOR

Masoud Golampour Rad is an adjunct professor at management faculty of Tehran University. He earned his PhD in Media Management. One of his favorite research areas is investigation of disruptive innovation impacts on industry ecosystem and relations between disruptive innovation, dynamic organizational capabilities and strategic changes in industry incumbents. He studied these concepts in the area of media industry and financial services industry. He released articles on disruptive innovation in media industry with focus on media digitalization phenomenon.

PUBLIC INTEREST STATEMENT

With emergence of disruptive innovation, every industry ecosystem undergoes major transformations. Media industry ecosystem incumbents could exploit these innovations only when they create necessary dynamic organizational capabilities. The basis of creating these dynamic capabilities lies in development of managerial cognitive capabilities. Therefore, it is important for organizations to understand that development of managers' cognitive capabilities on the one hand helps the better understanding of disruptive innovations and it is the basis of dynamic organizational capabilities and strategic changes on the other hand. PSBs should consider improving the cognitive capabilities of managers to exploit disruptive innovation. Improvement of cognitive capabilities is the basis of strategic activities in every organization. Exploiting disruptive innovation does not occur without reconfiguration of capabilities. Dynamic organizational capabilities are a means to achieve strategic objectives.

Subjects: Strategic Management; Leadership; Organizational Studies; Broadcast Media; Media & Communications

Keywords: disruption; media industry ecosystem; strategic change; dynamic capabilities; managerial cognitive capabilities; polymediation

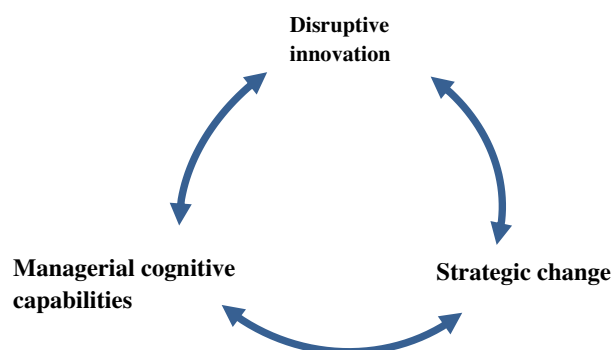
1. Introduction

Media industry ecosystem has undergone fundamental changes due to emergence of disruptive innovations. These disruptive innovations construed as polymediation and media digitalization have transformed the rules dominating media industry (Bennett & Segerberg, 2012; Cacciatore & Iyengar, 2016; Herbig, Herrmann, & Tyma, 2015). Dominance of new rules has considerable impacts on incumbents in industry ecosystem. Recognition of media industry ecosystem dynamics helps media managers to set the priorities of strategic changes in order to preserve value-creation ability and to improve organization competitive position in that ecosystem. That is to say, for media managers, cognitive capabilities are vital in terms of understanding ecosystem dynamics and triggering strategic changes. The Figure 1 illustrates the relations among disruptive innovation, managerial cognitive capabilities, and strategic change.

As the figure shows, disruptive innovation, managerial cognitive capabilities and strategic change are mutually interrelated. The emergence of disruptive innovations creates its own winners and losers. Winners are firms that have required capabilities to take advantage of innovation. The benefits of an innovation in industry are distributed between different groups such as innovators, customers, suppliers, imitators, and other followers. Therefore, distribution of innovation-related benefits is based on three fundamental building blocks: the appropriability regime, dominant design paradigm and complementary assets (Teece, 1986, p. 286).

A regime of appropriability refers to the environmental factors, excluding firm and market structure, that govern an innovator's ability to capture the profits generated by an innovation. The most important dimensions of such a regime are the nature of the technology, and the efficacy of legal mechanisms of protection (Teece, 1986, p. 287). The emergence of dominant design paradigm imposes new rules and standards in industry. Once a dominant design emerges, competition shifts to price and away from design. Competitive success then shifts to a whole new set of variables. Scale and learning become much more important, and specialized capital gets deployed as incumbent's seek to lower unit costs through exploiting economies of scale and learning. Reduced uncertainty over product design provides an opportunity to amortize specialized long-lived investments (Teece, 1986, p. 288). Complementary assets are a set of capabilities that firms need them to take advantage of innovations. Whether origin of innovation is inside the company (which means the company is innovator) or in institutional context, these complementary assets or capabilities are needed in order to take advantage of innovation. In almost all cases, the successful commercialization of innovation requires that the know-how in question be utilized in conjunction with other capabilities or assets. Services such as marketing, competitive manufacturing, and after-sales support are almost always needed. These services are often obtained from complementary assets which are

Figure 1. Relations between disruptive innovation, managerial cognitive capabilities and strategic change.



specialized. In some cases, as when the innovation is systemic, the complementary assets may be other parts of a system. Even when an innovation is autonomous, as with plug compatible components, certain complementary capabilities or assets will be needed for successful commercialization (Teece, 1986, p. 288). Firms need strategic changes in order to obtain these capabilities and complementary assets (Helfat et al., 2007; Wall, Zimmermann, Klingebiel, & Lange, 2010).

Based on the relations among disruptive innovations, organizational dynamic capabilities and strategic changes, the following questions are raised: What impacts media polymediation and media digitalization as disruptive innovations have on public service media? What strategic changes are needed in media organization due to effects of disruptive innovation? What roles managerial cognitive capabilities play as the micro foundations of organizational dynamic capabilities in recognition of disruptive innovation and introducing strategic changes? To answer these questions, first a review of key theoretical frameworks is made.

2. Disruption in industry ecosystem and need to organizational dynamic capabilities

Some firms are not able to understand the dynamics of institutional context which threaten their survival seriously. In these firms, the competitive strength decrease and the *self-reinforcing process* stops. These firms will face with evolutionary constraint and gradual inertia; they will also lose their evolvability (Barnett & Hansen, 1996). An important reason for this lack of institutional longevity is that most of the time companies operate in a stable industry structure and develop a strategy-making process geared toward coping with linear strategic dynamics, which are relatively easy to understand and predict; but at some times in their evolution they face *nonlinear* strategic dynamics that overwhelm their capacity for strategy-making (Burgelman & Grove, 2007, pp. 965). Nonlinear strategic dynamics come about as industry participants—sometimes incumbents, but probably more frequently new entrants—change the “rules of the game”.

The change of the game rules causes both disruptive innovation and sustaining innovation. Successful companies are pretty good at responding to evolutionary changes in their markets (sustaining innovation). Where they run into trouble is in handling or initiating revolutionary changes in their markets, or dealing with disruptive innovation. Sustaining technologies are innovations that make a product or service perform better in ways that customers in the mainstream market already value (Christensen & Overdorf, 2000, p. 5). Those were breakthrough innovations that sustained the best customers of these companies by providing something better than had previously been available. Disruptive innovations create an entirely new market through the introduction of a new kind of product or service, one that’s actually worse, initially, as judged by the performance metrics that mainstream customers’ value (Christensen & Overdorf, 2000, p. 5).

These innovations were disruptive in that they didn’t address the next-generation needs of leading customers in existing markets. They had other attributes, of course, that enabled new market applications to emerge—and the disruptive innovations improved so rapidly that they ultimately could address the needs of customers in the mainstream of the market as well. Sustaining innovations are nearly always developed and introduced by established industry leaders. But those same companies never introduce—or cope well with—disruptive innovations (Christensen & Overdorf, 2000, p. 5).

Many disruptive innovations are based on new and disruptive technologies. Disruptive technologies are technologies that introduce a different performance package from mainstream technologies and are inferior to mainstream technologies along the dimensions of performance that are most important to mainstream customers. As such, in their early development they only serve niche segments that value their nonstandard performance attributes. Subsequently, further development raises the disruptive technology’s performance on the focal mainstream attributes to a level sufficient to satisfy mainstream customers. While improved, the performance of the disruptive technology remains inferior to the performance offered by the established mainstream technology, which itself is improving as well. Technology disruption occurs when, despite its inferior performance on focal attributes, the new technology displaces the mainstream technology from the mainstream market (Adner, 2002, p. 668).

The dynamics of disruptive technologies are thus characterized by three aspects: incumbent technologies that are displaced from the mainstream market by technologies that underperform them on the performance dimensions that are most important to mainstream consumers; mainstream consumers who shift their purchases to products based in the invading technology, even though those products offer inferior performance on key performance dimensions; and incumbent firms that do not react to disruptive technologies in a timely manner (Adner, 2002, p. 669). A disruptive technology is a technology that changes the bases of competition by changing the performance metrics along which firms compete (Danneels, 2004, p. 249). Some of the characteristics of disruptive technology may be essential, whereas other characteristics may be industry-specific (Danneels, 2004, p. 250).

Disruptive innovation does not necessarily involve cutting-edge new technology, as radical innovation does. Sometimes, it involves the application of a relatively new, but not cutting-edge, technology to a new product category (Govindarajan, Kopalle, & Danneels, 2011, p. 123). The increased focus on business models could be related to the large number of product and service innovations displaying disruptive characteristics, but where these disruptive features stem from different ways of performing business activities rather than from technological characteristics (Sandström, Berglund, & Magnusson, 2014, 474). Even though both are disruptive innovations, they nevertheless pose radically different challenges for established firms and have radically different implications for managers (Markides, 2006, 19). Different kinds of innovations have different competitive effects and produce different kinds of markets. They should be treated as distinct phenomena (Markides, 2006, p. 19).

Technology-driven disruptive innovation typically emerges from start-up firms that focus on upstream R&D exploration activities and unfolds through uncertainties, intermittent evolutionary and complex processes that involve multiple actors. A disruptive business model unfolds when a market emerges for the technology and downstream firms begin to exploit market opportunities (Habtay & Holmén, 2014, p. 292). In contrast, the source of market-driven disruptive business model innovation is the design of a business model that results from specializing and minimizing complexity in the old model, particularly from deconstruction of traditional downstream industry value chain systems. Existing market opportunities allow disruptive market-driven entrants to introduce value propositions that are close to a “good enough” point from the start. It frequently emerges in mature markets where competition through a new business model becomes critical. The key difference between the two types of disruption is that market-driven disruptive business model innovations do not involve major upstream technological product innovation (Habtay & Holmén, 2014, p. 292).

Business model disruptive innovations are made possible because they get started in two types of markets that incumbents overlook. *Low-end footholds* exist because incumbents typically try to provide their most profitable and demanding customers with ever-improving products and services, and they pay less attention to less-demanding customers. In fact, incumbents’ offerings often overshoot the performance requirements of the latter. This opens the door to a disrupter focused (at first) on providing those low-end customers with a “good enough” product. In the case of *new-market footholds*, disrupters create a market where none existed. Put simply, they find a way to turn nonconsumers into consumers. A disruptive innovation, by definition, starts from one of those two footholds. (Christensen, Raynor, & Mcdonal, 2015, p. 46).

Disruptive innovation challenges industry ecosystem and incumbents. Industry ecosystems are business networks of interconnected firms that depend on one another for their mutual effectiveness and survival. Constituting an industry’s ecosystem are producers (including suppliers, competitors, and complementors) from the supply side, distribution channels and consumers from the demand side, and regulators and other interested stakeholders from the institutional side. Each firm’s value network, encompassing its respective suppliers, complementors, rivals, and customers, overlap and become intertwined to generate multiple value propositions that may be complementary or substitutive. Such situations are especially likely in systemic industries forged around multi-sided platforms. Disruptive innovations disturb the business models of ecosystem incumbents who are likely to resist and countermobilize (Ansari, Garud, & Kumaraswamy, 2016, p. 1831).

Factors such as incumbent size, complementary assets, commercialization of the innovation, demand structure, government subsidies, management's cognitive models, transformative costs for the challenger, institutional environment, including stock market pressures and government policies, related markets' evolution, organizational linkages involving the new technology, and complementary assets and luck have all been shown to explain incumbent response in the face of radical innovations (Ansari & Krop, 2012, p. 1358).

Incumbent-challenger dynamics framework illustrates incumbent survival efforts in the face of radical innovations. This framework consists of three categories including industry setting, incumbent firm properties and the challenge. Assets also include incumbent configuration, complementary capabilities and boundary management. Complementary capabilities may provide the incumbent firm a competitive edge over challengers. Another incumbent advantage over challengers can come from either owning or having better access to complementary assets that buffer incumbents from competition and enable them to profit from the innovation. However, it is not just existing complementary capabilities that matter but also the ease of access to new capabilities required for leveraging the disruptive innovation. Thus, it is not only old competence destruction that matters but also new competence access. The more effectively an incumbent is able to build and leverage linkages between the innovation and the complementary capabilities needed to commercialize the innovation, the more difficult it is for new entrants to acquire and access such complementary capabilities, and the higher is the likelihood of incumbent survival (Ansari & Krop, 2012, p. 1365). Industry ecosystem incumbents both create and appropriate value from innovation, e.g. through focusing on asset appreciation, and pursuing a strategy aimed at obtaining architectural advantage (Jacobides, Knudsen, & Augier, 2006, p. 1200).

Industry ecosystem incumbents need creation of organizational capabilities so as to exploit disruptive innovation and create ensuing new values. But organizational capabilities are difficult to create and costly to adjust. Incremental innovation reinforces the capabilities of established organizations, while radical innovation forces them to ask a new set of questions, to draw on new technical and commercial skills, and to employ new problem-solving approaches (Henderson & Clark, 1990, p. 9). The nature of a challenge can be rooted in discovery, design, and development; in integrating external components into firms' internal designs; or in scaling up the production and delivery of the identified solution (Adner & Kapoor, 2010, p. 310).

Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competences (Teece & Pisano, 1994, p. 538). This source of competitive advantage is called "dynamic capabilities". The term "dynamic" refers to the shifting character of the environment; certain strategic responses are required when time-to-market and timing is critical, the pace of innovation is accelerating, and the nature of future competition and markets is difficult to determine. The term "capabilities" emphasizes the key role of strategic management in appropriately adapting, integrating, and re-configuring internal and external organizational skills, resources, and functional competences toward changing environment (Teece & Pisano, 1994, p. 538).

Indeed, what is distinctive about firms is that they are domains for organizing activity in a non-market-like fashion. Accordingly, as we discuss what is distinctive about firms, we stress competences/capabilities which are ways of organizing and getting things done which cannot be accomplished by using the price system to coordinate activity. The very essence of capabilities/competences is that they cannot be readily assembled through markets (Teece & Pisano, 1994, p. 540). Indeed, firm capabilities need to be understood not in terms of balance sheet items, but mainly in terms of the organizational structures and managerial processes which support productive activity (Teece & Pisano, 1994, p. 540).

Dynamic capabilities are the subset of the competences/capabilities which allow the firm to create new products and processes, and respond to changing market circumstances (Teece & Pisano, 1994, p. 541). Dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions (Teece, Pisano, & Shuen, 1997, p. 516).

3. Exploiting disruptive innovation by improving managerial cognitive capabilities

In rapidly changing environments, there is obviously value in the ability to sense the need to reconfigure the firm's asset structure, and to accomplish the necessary internal and external transformation (Teece & Pisano, 1994, p. 545). The enterprise will need sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied for it to build and maintain competitive advantage (Teece, 2007, p. 1341). But firms could not always sense and seize the opportunities ensuing from emergence of disruptive innovations due to problem of "organizational perception" (Langlois, 1997, p. 1). Besides, reconfiguring capabilities to exploit these disruptive innovations, firms encounter with cognitive gap (Lavie, 2006, pp. 167–168).

Hence, managerial insight and cognition that correspond to the incumbent's cognitive absorptive capacity are likely to affect the success of reconfiguration attempts by reducing the cognitive gap. (Lavie, 2006, pp. 167–168). Dynamic capabilities, by contrast, relate to high-level activities that link to management's ability to sense and then seize opportunities, navigate threats, and combine and reconfigure specialized and co-specialized assets to meet changing customer needs, and to sustain and amplify evolutionary fitness, thereby building long-run value for investors (Teece, 2007, p. 1344).

The individual leadership may well be a central element in dynamic capability (Rosenbloom, 2000, p. 1102). The concept of dynamic managerial capabilities could help to explain differences in managerial decisions. Dynamic managerial capabilities are the capabilities with which managers build, integrate, and reconfigure organizational resources and competences (Adner & Helfat, 2003, p. 1020). Dynamic managerial capabilities reflect three underlying factors: managerial human capital, managerial social capital, and managerial cognition (Adner & Helfat, 2003, p. 1020). This evidence points to the deep interrelationships between a manager's understanding of the world and the accumulation of organizational competencies (Tripsas & Gavetti, 2000, p. 1158).

Therefore, it could be concluded that dynamic managerial capabilities depend in part on managerial cognition (Helfat & Peteraf, 2015, p. 831). Cognition may help to explain why some top managers have more effective capabilities than others for anticipating, interpreting, and responding to the demands of an evolving environment (Helfat & Peteraf, 2015, p. 831). The concept of "managerial cognitive capability," which refers to the capacity of individual managers to perform mental activities (Helfat & Peteraf, 2015, p. 832). Managerial cognitive capability is the capacity of an individual manager to perform one or more of the mental activities that comprise cognition. This definition of cognitive capability directs attention to the activities or functions that cognition performs. The human brain performs many different mental activities, such as those involving attention, perception, and problem-solving. Although these mental activities interact with one another, they are separable; cognitive psychologists have documented that they perform different functions, and brain imaging studies have shown that different mental activities are associated with different parts of the brain (Helfat & Peteraf, 2015, p. 835).

Perception involves a range of mental functions, including those related to pattern recognition and interpretation of data (Helfat & Peteraf, 2015, p. 838). The cognitive capability of perception affects the sensing of opportunities in multiple ways. Recognizing emerging patterns in the environment, for example, is essential for sensing opportunities (Helfat & Peteraf, 2015, p. 838). Attention determines which stimuli are recognized and identified, through the act of focusing on particular information (Helfat & Peteraf, 2015, pp. 838–839). Sensing opportunities and threats in an uncertain, complex, and often fast-paced environment calls for acute cognitive capabilities with respect to attention. By focusing on relevant stimuli, attention can facilitate environmental scanning. In addition,

the alertness component of attention can facilitate the detection and creation of new opportunities, while the orienting capacity turns attention to relevant information. In these ways, the cognitive capability of attention provides an underpinning for dynamic managerial sensing capabilities (Helfat & Peteraf, 2015, p. 839).

A second arena in which cognitive capabilities provide a foundation for dynamic managerial capabilities is with respect to seizing opportunities and responding to emerging threats. This can entail making large and sometimes irreversible investments in tangible and intangible assets (Helfat & Peteraf, 2015, p. 840). In addition, seizing an opportunity may require design of a business model for a new venture. As we next explain, cognitive capabilities for problem-solving and reasoning are likely to underpin business model design as well as the capacity for making sound strategic investments (Helfat & Peteraf, 2015, p. 840). Managers with superior reasoning and problem solving capabilities are likely to have greater potential to design more effective business models, and to make more astute investment decisions (Helfat & Peteraf, 2015, p. 841). Sensing and seizing new opportunities, if successful, can lead to firm growth and profitability. The third leg of the dynamic capabilities triad involves sustaining that growth and profitability, by enhancing, combining, and reconfiguring the firm's organizational assets—its resources and capabilities (Helfat & Peteraf, 2015, p. 842).

Moreover, as strategic adaptation proceeds, top managers may need to play a role in overcoming organizational resistance to change. Resistance to change is a well-known management problem that can come from a variety of quarters, including rigid cognitive frames within the organization. Coordinated adaptation of assets and overcoming resistance to change can benefit from dynamic managerial capabilities for reconfiguration. These dynamic capabilities are likely to depend on managers' cognitive capabilities for language and communication, and on social cognitive capabilities (Helfat & Peteraf, 2015, p. 842). Firms need to sense seize and reconfigure capabilities in order to exploit disruptive innovations. The basis of these dynamic capabilities is managers' cognitive capabilities. Dynamic capabilities contrast with ordinary capabilities by being concerned with change (Winter, 2003, p. 992). Therefore, creation of dynamic capabilities is in connected to strategic changes. Based on existing logical relations, the improvement of managers' cognitive capabilities will lead to reconfiguration of capabilities, strategic changes and finally the firm evolutionary fitness. The dominant logic is one of the concepts to describe this relation.

4. Dominant logic: Reflection of managerial cognition on dynamic capabilities and strategic change

A dominant general management logic is defined as the way in which managers conceptualize the business and make critical resource allocation decisions—be it in technologies, product development, distribution, advertising, or in human resource management (Prahalad & Bettis, 1986, p. 490). The dominant logic is stored via schemas and hence can be thought of as a structure. However, some of what is stored is process knowledge (e.g. what kind of process should be used in a particular kind of resource alleviation decision or how new technologies should be evaluated). Hence, more broadly the dominant logic can be considered as both a knowledge structure and a set of elicited management processes (Prahalad & Bettis, 1986, p. 490). Dominant logic, as we have defined it here, is a mind set or a world view or conceptualization of the business and the administrative tools to accomplish goals and make decisions in that business. It is stored as a shared cognitive map (or set of schemas) among the dominant coalition. It is expressed as a learned, problem-solving behavior (Prahalad & Bettis, 1986, p. 491). Research on cognitive processes suggests that the mind set and repertoire of tools that constitute the dominant logic are likely to be inappropriately applied by managers confronted with a “different” business, and that there is significant “learning” that precedes change in those biases (Prahalad & Bettis, 1986, pp. 493–494). Also, as the argument so far suggests, the process of changing dominant logics is important to any firm that encounters rapid change in the structure of the industries in which it competes. These issues revolve around the ability of the firm or its dominant coalition to learn (Prahalad & Bettis, 1986, p. 497).

That strategic decisions depend upon the dominant logic present in the company (von Krogh, Erat, & Macus, 2000, p. 84). The implicit idea is that a basic strategy exist, which will be changed or adapted incrementally based on the data perceived through the filter of dominant logic. What is not dealt with is the question what role the dominant logic plays with respect to radically new strategies. Here, the creative and imaginative part of strategy making comes into play. It is the responsibility of the strategic decision-makers to formulate these new strategies in the face of uncertainty. Thus, in addition to the first function which is information filtering, the second function of dominant logic becomes relevant: dominant logic as a lens. Dominant logic not only filters data about the environment (which by definition have to base on events in the past), it also contains the data categories and interpretation patterns which enable strategists to make sense of the data and guide their imaginations about possible futures (von Krogh et al., 2000, p. 84). It is the categories of data which managers employ when conceptualizing their environment and which we assume surface when managers make informed statements about their environments. The categories also limit the range of imaginable future strategic actions. The categories conceptually tie the two functions of a dominant logic, the funnel (for perceptions about the environment and the success of past actions) and the lens (for imaginable futures) together (von Krogh et al., 2000, p. 84). When the top management team decides on which strategies to pursue in the future, the dominant logic functions as lens for viewing the future, thus restricting the range of imaginable options (von Krogh et al., 2000, pp. 84–85). The dominant logic consist of two domains (internal and external environment) and six categories (people, culture, product and brand, competitor, customers and consumer, and technology) (von Krogh et al., 2000, p. 86). The higher the bandwidth of a company's dominant logic, the more successful its reaction to substantial increases in the environment's variety will be (von Krogh et al., 2000, p. 87).

This logic represents management's view of the world, where the firm stands in its business environment, and what it ought to be doing. Dominant logic is an articulation of the fundamental strategic beliefs, assumptions, and intentions of the CEO and senior management. The three elements of managerial capabilities are foundational to the managers' dominant logic. Namely, managerial cognition which plays a key role in shaping managers' beliefs and assumptions about a particular firm. Managerial cognition involves schemas and mental models that include a system of theories and propositions that managers use to see their way through a bewildering flow of information to make decisions (Kor & Mesko, 2013, p. 235). The CEO's dynamic managerial capabilities in concerto with senior executive dynamic managerial capabilities will shape their collective ability to recognize the need for revitalization of the firm's dominant logic. Management teams with a strong team absorptive capacity will have a better rate of success in revising the dominant logic to achieve evolutionary fit (Kor & Mesko, 2013, p. 241). DL and innovation activities may not have a direct independent impact on business performance, but their interaction will have (Bergman, Jantunen, & Tarkiainen, 2015, p. 14).

In several studies, the relation between managerial cognition, organization performance and strategic change have been examined. One of these studies has been carried out by Helfat and Martin (2015). In this research, several conceptual and experimental studies have been investigated in order to identify the contribution of managers' dynamic capabilities in strategic change. This research shows that managerial recognition is one of the main elements of managerial dynamic capabilities. Managerial recognition includes Knowledge Structures (Mental Representations & Mental Models, Beliefs, Resource & Strategic Schemas); Mental Processes/Cognitive Capabilities (Attention, Perception, Interpretation, Reasoning) and Emotions (Emotion Regulation). The results of this research indicate that managers differ in their impact on strategic change and firm performance and that differences in managerial cognition, social capital, and human capital lead to different outcomes. In another research, Sihvonon, Hietanen, Salo and Koivisto (2010) concluded that improvement of manager's cognitive capabilities will lead to enhancement of firm capabilities and value creation for customers. Moreover, the study of Anderson and Evers (2015) shows that dynamic managerial capability will contribute to international opportunity identification for international firm growth.

Having examined the role of managerial cognition in development of dynamic organizational capabilities in the biggest firms worldwide, Corbett, Neck and Laverty (2011) have concluded that detailing a connection between successful capability development and a balanced mindset is needed for the cognitive alignment within organizations striving to develop dynamic capabilities. In another research conducted by Ellonen, Jantunen and Johansson (2015), it was indicated that dominant logic and dynamic capabilities co-evolve in a reciprocal relationship, and the interplay of cognition and capabilities seems to be most visible in the seizing and reconfiguring capabilities.

Therefore, the dominant logic on one hand reflects the improvement of manager's cognitive capabilities, on the other hand displays the receptiveness of firms for reconfiguration of capabilities and strategic changes. Although the above-mentioned researches have examined the relation between managerial cognition and dominant logic but the impact of disruptive innovation emergence on organizational dominant logic particularly in PSM industry has been neglected.

Before examining the impacts of improving manager's cognitive capabilities on dynamic organizational capabilities and strategic change, we introduce disruptive innovation in media industry which is polymediation or the so-called media digitalization phenomenon.

5. Polymediation and media digitalization as disruptive factor

Polymediation represents the condition that disruptive technologies stemming from other industries or emerging segments transform the rules dominating media industry ecosystem. Polymediation is a word that is meant to signify (read "filter") the idea that we now live in the ultimate co-created mediated reality. It is with us and all around us—always—already we exist in the media. We are continually weighing, measuring, filtering, balancing, discarding, and constructing our mediated reality (Herbig et al., 2015, p. 9). Polymediation is not just a product; it is an ongoing process (Herbig et al., 2015, p. 15).

We will explore some of the characteristics of polymediation that may shape our performances of identity: Ubiquity, shape-shifting authorship, the simultaneous fragmentation and merging of identity and division/communality (Herbig et al., 2015, p. 15). Ubiquity is a fundamental piece of the polymediation equation. In this context, I take the term ubiquity to refer to the widespread and often simultaneous accessibility and presence of media. This saturation of media platforms in our daily lives has altered how we seek information and how we connect with others and maintain relationships, while also providing some opportunities for distraction (Herbig et al., 2015, p. 15). is the shifting nature of content authorship and ownership. Messages are mediated by different authors in different contexts. Individual users have greater power to create and distribute content; we are not just consumers, but also producers (Herbig et al., 2015, p. 18). A third element of polymediation is the paradox of the fragmented/unified performance of identity. Our presences online are all a part of who we are, and are performed specifically for others. Not everyone sees all of these performances; they are intended for different audiences. Therefore, our self is decentered but interconnected. All of our performances, online and offline, constitute the self, which means the ways that in which technology fragments and merges identity performances (Herbig et al., 2015, pp. 21–22). More information, more media outlets, and more social networking can do as much to divide us as unite us (Herbig et al., 2015, p. 26). While polymediation has the potential to divide us, it also creates possibilities for communality and the creation of shared meanings (Herbig et al., 2015, p. 27).

Polymedia shift the emphasis from discrete technologies or platforms to media environments. Rather than focus on the properties or affordances of specific technologies, polymedia shift our attention to how users navigate media environments and choose platforms from a range of communicative opportunities (Madianou, 2016, p. 186). Polymedia is an emerging environment of communicative opportunities that functions as an "integrated structure" within which each individual medium is defined in relational terms in the context of all other media (Madianou & Miller, 2012, p. 170).

The emergence of digital media or the so-called digitization of media forms the foundation of polymediation. Digital media have led to domination of connective action logic on social life. Digital media networking can change the organizational game, given the right interplay of technology, personal action frames, and, when organizations get in the game, their willingness to relax collective identification requirements in favor of personalized social networking among followers. The logic of collective action that typifies the modern social order of hierarchical institutions and membership groups stresses the organizational dilemma of getting individuals to overcome resistance to joining actions where personal participation costs may outweigh marginal gains, particularly when people can ride on the efforts of others for free, and reap the benefits if those others win the day. In short, conventional collective action typically requires people to make more difficult choices and adopt more self-changing social identities than DNA based on personal action frames organized around social technologies. The spread of collective identifications typically requires more education, pressure, or socialization, which in turn makes higher demands on formal organization and resources such as money to pay rent for organization offices, to generate publicity, and to hire professional staff organizers. Digital media may help reduce some costs in these processes, but they do not fundamentally change the action dynamics (Bennett & Segerberg, 2012, p. 748). The logic of connective action foregrounds a different set of dynamics from the ones just outlined. At the core of this logic is the recognition of digital media as organizing agents (Bennett & Segerberg, 2012, p. 752). When these interpersonal networks are enabled by technology platforms of various designs that coordinate and scale the networks, the resulting actions can resemble collective action, yet without the same role played by formal organizations or transforming social identifications. In place of content that is distributed and relationships that are brokered by hierarchical organizations, social networking involves co-production and co-distribution, revealing a different economic and psychological logic: co-production and sharing based on personalized expression (Bennett & Segerberg, 2012, p. 752). Digital technologies have transformed the rules dominating many industries including media industry. Digital technologies in media industry are disruptive. These technologies are the origin of many disruptive innovations in media industry.

The media industry has already been transformed by several waves of digitalization. To thrive, media enterprises will have to keep technology at the heart of what they do, helping them create compelling content and reach new audiences (WEF, 2016). Digital has become so important that the boundary between the media and technology industries has broken down. This has implications for both traditional media companies and digitally native startups.

We have identified a number of digital initiatives that will be the building blocks media companies can use to transform their business. The initiatives are grouped into three themes—personalization and contextualization, content fragmentation, and partnerships and industrialization—which we believe will be of vital importance to the digital transformation of the media industry.

5.1. Personalization and contextualization

As ever more content is produced, marketers and content creators will need to produce personalized content and personalized advertising to engage consumers facing information overload. Both these developments will raise data privacy and security issues that firms will need to resolve ethically and transparently.

5.2. Content fragmentation

Content is being distributed across an increasing number of platforms, devices and media. For companies, this presents challenges (to keep their audiences engaged) and opportunities. Broadcasters will have chances to exploit the growing popularity of the “second screen” among TV viewers by creating integrated second screen services. Communities of content, which have sprung up on instant messaging and social platforms, will be fertile ground for advertisers, as long as their strategy is adapted to the group they are targeting.

5.3. Partnerships and industrialization

As the creation and distribution of content have become fragmented, partnerships in the media industry have become more important. Technology is enabling enterprises to partner with their audiences to fund or co-create innovative content. Companies will also need to harness technology effectively, setting it at the heart of a digital organization, balancing creativity in content creation with industrializing digital processes such as production and distribution (WEF, 2016, p. 4).

Digitalization as disruptive innovation has influenced different parts of media industry including PSM.

In different studies, the impacts and consequences of digitalization on PSMs have been investigated. In some of them, the general aspects of digitalization impacts on media industry have been described (Jakubowicz, 2007; Tambini, 2015). Some other researches have been devoted to digitalization impacts on PSMs. Mei-pochtler and von Meroy (2014) have explained the impact of non-linear media on public broadcast. Also Aggarwal et al. (2016) has addressed the issue of digital revolution in media industry. In another research, (Arthofer, Hardarson, Kon, Lee, & Rose, 2016) have investigated the impact of new technologies in future of television. Bamberger et al. (2016) has addressed the issue of strategic transformation and value-creation in media industry in another research.

In above-mentioned researches, different aspects of digitalization impact on PSM industry have not been studied and clarified in an integrated manner. Studies (Maijanen, 2015, p. 11) indicate that new technologies act as driving force in transformation of public service media's dominant logic.

6. Public service media (PSM) digitalization

A new wave of radical change sweeping the media industry—driven by digitization and changing consumer habits—presents an existential crisis for public service broadcasters to stay relevant, public broadcasters must become leading providers of high-quality content to their target audiences across all media channels while still fulfilling their public-service mandates (Mei-pochtler & von Meroy, 2014, p. 2). PSBs face an uphill battle as they attempt to make the transition to the “always on,” borderless and fast-paced digital world. Most PSBs have been slow to move beyond the “linear” world, in which their audiences can tune into TV and radio programs only at specified times on specified channels (Mei-pochtler & von Meroy, 2014, p. 2). PSBs by no means should exit the traditional business of delivering national and regional TV programming, which will continue to command large followings for at least the rest of this decade. Rather, they must strengthen their online activities integrated providers of content across all media and they must extend their reach across multiple channels in order to reach all age groups (Mei-pochtler & von Meroy, 2014, p. 3). Adapting to this new game will require an in-depth and sophisticated understanding of target audiences and the economics of successfully delivering different genres of cross-media content. Each PSBs should identify those programming genres in which it should strive to be a content leader as well as those in which it can afford to be a follower. Each PSB must also learn how to maximize its investments by understanding the cost and benefits of providing content. Decisions about investment in content should be based on a keen understanding of what marketers refer to as “customer journey” (Mei-pochtler & von Meroy, 2014, p. 4). Making transformation from organization with a linear concept of TV or radio to the nonlinear, digital, and multimedia world is not easy for commercial broadcasters—let alone corporations that operate under public oversight and must fulfill public mandates, but the pressure to do so will only intensify as online viewership of programming becomes the norm. The time for PSBs to act is now (Mei-pochtler & von Meroy, 2014, p. 5).

7. Methodology

The importance of accurate understanding of disruptive innovations by top managers and the impact of proper understanding of these innovations on strategic decision-making have been addressed in many researches. Therefore, there is a sound relationship between the extent of recognition of disruptive innovations by managers and the quality of strategic decisions. Media digitalization with multiple waves of disruptive innovations has widespread outcomes and consequences for every

type of media including public service broadcasting. Media managers including public service broadcasting (PSB) require proper understanding of media digitalization and its impacts on different aspects of business and organization actions. In this research, a number of questions have been studied to explain the impacts of media digitalization as a disruptive innovation on PSM: (a) *What aspects does media digitalization have as a disruptive innovation?* (b) *What aspects does the new dominant logic in PSM have* (c) *How the improvement of managerial cognition of disruptive innovation could affect PBS strategic actions?* Dealing with these questions gives us a clear insight of the relations among disruptive innovations, managerial cognitive capabilities, organization dynamic capabilities and strategic changes.

7.1. Measuring variables

To investigate the relations among disruptive innovations, managerial cognitive capabilities and strategic changes, we deal with some variables:

7.1.1. Variable a. Managerial cognition of disruptive innovation (DI)

Media digitalization as a disruptive innovation is caused by different drivers. Demographic factors, new consumer behaviors and expectations, ecosystem challenges and technology processes are four types of elements that act as disruptive innovation drivers. Media digitalization as disruptive innovation has influences on media. These impacts are articulated as three dimensions of *personalization and contextualization, content fragmentation, partnership and industrialization*. Understanding of disruptive innovation by managers is measurable based on their understanding of these dimensions. These dimensions are components of media digitalization for media organization. The dimensions and indicators of media digitalization as disruptive innovation are illustrated in Figure 2.

In order to measure IRIB managers understanding of media digitalization as disruptive innovation, 10 indicators have been mentioned in the third column of Figure 1. The questionnaire consists of 11 statements or questions which measure attitude of IRIB managers to the potential impact of disruptive innovation on organization. Measuring the impact of each dimension of digitalization from the viewpoint of IRIB managers illustrates the importance that managers attach to each dimension. Also, manager’s attitudes toward digitalization impact on their understanding of disruptive innovation.

7.1.2. Variable b. The measurement of new dominant logic (DL)

This variable reflects the key factors influencing on the success of organization and also necessary strategic activities to reach high performance. Therefore, the dominant logic of managers reveals the priorities of strategic changes. The dominant logic illustrates the prevailing recognition of organization managers. This logic shapes during the time and encompasses past, present, and future. Better recognition of disruptive innovations by managers will lead to a new dominant logic that pursues new strategic actions. In other words, new strategic actions are influenced by managerial recognition and envision of future.

Figure 2. Dimensions and indicators of media digitalization as disruptive innovation in media industry.

Variable	Dimension	Index
Media digitalization as disruptive innovation	Personalization and Contextualization	Personalized advertising
		Personalized content
		Phygital
		Data privacy and transparency reform
		Advicetising
	Context Fragmentation	Communities of content
		OTT and OTT2
		Content access and IP right
	Partnership and Industrialization	Engagement,Co-Creationan ,crowdsourcing
		Flexible, Predictive, Precise creation

Figure 3. Old and new dominant logic in PSM: categories and indicators.

Dominant Logic		New Dominant Logic	
Dimensions	Indicators	Dimensions	Indicators
Content portfolio and platform	-Mass relevant genres	Content portfolio and platform	- Cross Geners - Special Interest Geners
Channel and distribution	-Linear	Channel and distribution	- Non Linear - Dual Screening - User Interface - Personalization
Structure	-Siloed provider	Structure	- Integrated Provider
Audience	- Consumer - Traditional segmentation	Audience	- Co-creator - New Segmentation
Technology	-Electronic	Technology	- Digital

The dominant logic has internal and external dimensions (domains). The internal dimension includes categories of people, culture, product and brand. The external dimension also includes competitors, customer and consumer, and technology. Categories of internal domain are related to organization assets; categories of external domains are related to stakeholders. In this research by examining different research and scientific sources, categories of dominant logic for PSBs have been identified.

In spite of the fact that each organization has its own dominant logic based on historical features (past performance, cognitive attributes of current managers and prediction of future) but investigations indicate that a new dominant logic has been emerged among media companies that welcome digitalization. Therefore, in Figure 3 the categories of dominant logic along with their features in two types of current dominant logic and new dominant logic have been mentioned. Among these categories, three categories of content portfolio and platform, distribution channel and audience have been investigated (Figure 3).

The dominant logic reflects both managerial cognitive capabilities and strategic change priorities. The measurement of new dominant logic attributes shows the extent of organization willingness to digitalization as disruptive innovations. To do so, eight indicators and 16 statements or questions have been utilized to evaluate the dominant logic or the attitude of managers towards the necessity of strategic actions by organization in response to digitalization. In addition to the extent of new dominant logic dominance, the results of this evaluation illustrate the priority of digitalization in strategic plans of IRIB. Identifying the priorities of strategic actions in view of managers also illustrates priorities of strategic changes.

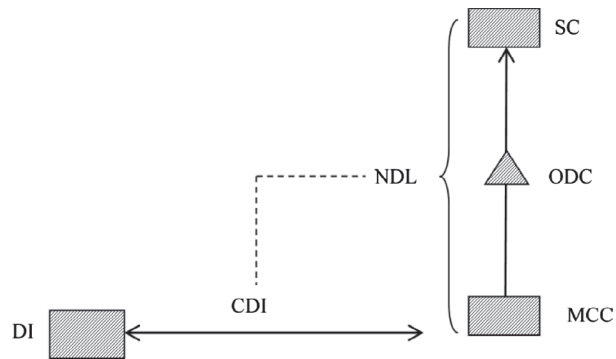
7.2. The relationship between managerial cognition of disruptive innovation and dominant logic

Changes in dominant logic and sovereignty of new dominant logic illustrate recognition of disruptive innovation by organization. Therefore, it could be expected that managers who have better recognition of media digitalization, give higher priority to strategic actions in this area. *The main assumption in this research is that there is a correlation between manager's cognition of disruptive innovation (CDI) and new dominant logic (NDL). According to this assumption, the managers who have more positive evaluation of digitalization impacts on media are more inclined towards new dominant logic.* The research framework and relevant hypotheses are given below (Figure 4):

H1: there is a significant relationship between cognition of disruptive innovation (CDI) and new dominant logic (NDL).

Figure 4. CDI and NDL hypothesized relations.

Notes: DI: dominant logic; MCC: managerial cognitive capabilities; ODC: organizational dynamic capabilities; SC: strategic change; CDI: cognition of disruptive innovation; NDL: new dominant logic.



DI: Dominant Logic **MCC:** Managerial Cognitive Capabilities **ODC:** Organizational Dynamic capabilities **SC:** Strategic Change **CDI:** Cognition of Disruptive Innovation **NDL:** New Dominant Logic

The above-mentioned assumption is observed in dotted line between DI and NDL in Figure 4. In cases of a causal relationship or a strong correlation between manager’s attitude towards disruptive innovation and new dominant logic, a reinforcing relation emerges between manager’s cognitive capabilities, dynamic organizational capabilities and strategic changes in firms.

8. Data gathering and analysis

8.1. Evaluation of constructs

The main purpose of this study is to examine the relation between managers’ cognitive capabilities, dynamic organizational capabilities and strategic change. To do so, managers’ recognition of media digitalization phenomenon as disruptive innovation and organizational dominant logic in IRIB has been measured. Having examined the relation between manager’s cognition of disruptive innovation and dominant logic, it is expected that the relation between mentioned variables will be clarified. IRIB top managers who have been analyzed are 77 people including staff managers, radio channels managers, and TV channels managers. Of the total number, 58 top managers replied to forwarded questionnaires.

This research has addressed three major questions. In reply to the first question which addresses aspects of digitalization, the result of research identifies 3 indicators and 11 attributes. Divergent validity is used to measure the construct indicators. In reply to the second question which addresses aspects of dominant logic, the results of research also identify indicators of new and current dominant logic in PSM. Three indicator of new and current dominant logic and 8 attributes of dominant logic in PSM and divergent validity are seen in (Table A1). The measurements indicate validity of indicators for both constructs. They show the ability of indicators in measurement of media digitalization and new dominant logic. The results of evaluation show divergent validity for two constructs. The data displays that factor loadings of each construct internal indicators have more value than external constructs indicators, which reveal the convergent validity between the constructs indicators.

To examine the variables collinearity effect, divergent validity is utilized. Divergent or discriminant validity complements convergent validity, discriminate indicators of a construct from other indicators of the construct in the same model. In PLS modeling, one good criterion for fitness of discriminatory validity is that the construct should have the most common variance with its indicators compared with indicators of other constructs in a specific model. To evaluate discriminatory validity, Fornell and Larcker (1981) suggest using AVE average variance extracted which is the average of common variance between construct and indicators. They recommend the amounts of 0.5 and more for AVE and it means that the construct explain 50 percent or more of indicators variance. The AVE

average variance extracted should be more than common variance of that construct and other constructs in the model. In correlation matrix, correlation between different constructs is displayed in the right non-diametrical elements of matrix, and square of AVE each construct is displayed along the diametrical line. In order to have proper discriminatory validity, diametrical elements should be meaningfully more than non-diametrical elements in columns and lines. As seen in (Table A2), the value of AVE square root for latent variables which is located in the main diameter of matrix is more than the value of correlation under and on the right side of main diameter. Therefore, in this study constructs (latent variables) have more interaction with its indicators than other constructs. Consequently, divergent validity of this model is right.

In addition, combined reliability and AVE (Table A2) show the internal compatibility of these constructs. The coefficients of combined reliability and Cronbach's alpha (α) are more than the critical level of 0.7 except for two indicators, as the coefficients of these two indicators are more than 0.6 and all AVE are more than 0.5. Therefore, measurement models are at acceptable level.

8.2. Hypothesis testing and Evaluation of model

The third research question which is based on the main hypothesis of research examines the relation between variable of managers' recognition of disruptive innovation and dominant logic. The research hypothesis lies in the relation between these two variables. Therefore, it is expected that improvement of managers' recognition of disruptive innovation will lead to new dominant logic. The dominant logic is a concept that reflects internal relations between managers' cognitive capabilities, dynamic organizational capabilities and strategic change. In order to examine and evaluate the hypothesis which posit the relation between managers' cognition of DI and NDL, two types of models have been tested and evaluated. Investigation of casual relation and correlation facilitates better analysis and more accurate explanation of this relation. Path analysis technique has been used in order to investigate the hypothesis which is based on casual relation. Table 1 illustrates the results of constructs path analysis.

As it is seen in Table 1, all relations between constructs are confirmed since $0.01 > p$. Besides, according to the research main hypothesis, the relation between dominant logic and managers' recognition of disruptive innovation was not confirmed (Figure A1). Structural equations model illustrates the relations between variables.

PLS structural pattern and research hypothesis is likely through examining the coefficients of β and R^2 . Chen introduced three values of 0.19, 0.33, and 0.67 as criteria variable for R^2 minimum, moderate and maximum value. Besides, the index of model fitness in PLS is index of GOF which could be used to examine the quality of PLS model as a whole. This index is between zero and one; the value equal to one indicates the proper quality of model. Wetzels et al. (2009) introduced three value of 0.1, 0.25, and 0.36 as minimum, moderate and maximum for GOF. Table 2 shows the indexes of model fitness.

Table 1. Constructs path analysis

p-value	(β)	Relations	H
$p < 0.01$	0.394	DI \leftarrow Di1	1
$p < 0.01$	0.411	DI \leftarrow Di2	2
$p < 0.01$	0.376	DI \leftarrow Di3	3
$p < 0.01$	0.357	DL \leftarrow DI1	4
$p < 0.01$	0.372	DL \leftarrow DI2	5
$p < 0.01$	0.321	DL \leftarrow DI3	6
$p = 0.49$	0.00	DL \leftarrow DI	7

Table 2. Model fitness indexes

p-value	Result	Acceptable value	The goodness of fit index (GFI)
$p < 0.001$	0.320	Good if $p < 0.05$	Average path coefficient (APC)
$p < 0.001$	1.003	Good if $p < 0.05$	Average R-squared (ARS)
$p < 0.001$	1.003	Good if $p < 0.05$	Average adjusted R-squared (AARS)
-	0.811	Small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36	GOF
-	3.383	Acceptable if ≤ 5 , ideally ≤ 3.3	Average block VIF (AVIF)

As it is seen in Table 2, the fitness indexes have proper value. The most important fitness index in working with PLS is GOF which is 0.811 that indicate the Goodness of Fit Index. Other indexes are also appropriate. For example, the index of APC and ARS has $p < 0.001$ which indicate Goodness of Fit Index.

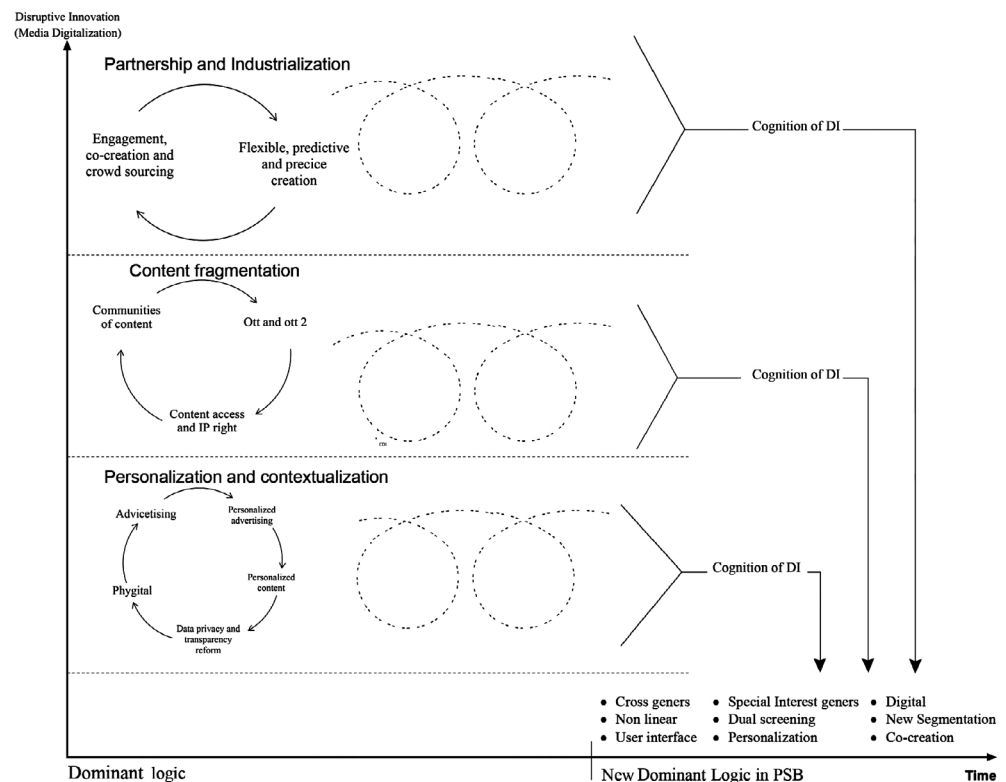
The second model which examines the relation between DI and NDL is based on the correlation between variables. Since research data had normal distribution to calculate the correlation between them, Pearson product moment correlation coefficient was utilized. This coefficient is used to determine the value, type and direction of relation between two interval or ratio variable. Correlation between these variables is sufficient and there is no necessity to have causal relation. In this study, two variables of DL and DI that have strong correlation (0.653) are seen in table (Table A4).

9. Discussion and conclusion

The focus of this study lies in the relation between managers' cognitive capabilities, dynamic organizational capabilities and strategic changes. This hypothesis with prediction of high correlation between the variables of managers' recognition of disruptive innovation (CDI) and organizational dominant logic (DL) seek to explain this relation. The analysis of collected data and evaluation of models showed the vital role of improving managers' cognitive capabilities in taking advantage of disruptive innovations. Managers' recognition of disruptive innovations is measured by three indicators (see Table A3). These indicators with square of AVE include personalization and contextualization (0.655), content fragmentation (0.741) and partnership and industrialization (0.849). All values of square of AVE are more than 0.5 which specify these three indicators are strong indices of digitalization phenomenon. Therefore, media digitalization phenomenon is emerging with different attributes including: Personalized advertising; Personalized content; Data privacy and transparency reform; Phygital; Advicetising; Communities of conten; OTT and OTT2; Content access and IP right; Engagement, co-creation and crowdsourcing; Flexible, predictive and precise creation. PSM managers need proper and accurate understanding of these attributes. These indicators and attributes reveal a big transformation in media industry ecosystem. For IRIB managers, it is so vital to understand the effect of this disruptive innovation on incumbents of industry ecosystem including IRIB itself. Understanding effects and consequences of disruption in ecosystem (according to research hypothesis) could lead to reconfiguration of organizational capabilities and strategic changes.

Dominant logic is another variable that reflects the effect of improving managers' recognition of disruptive innovation phenomenon and its effect on creation of organizational capabilities and strategic changes. On the one hand, dominant logic illustrates the prevailing thinking of organization in present and past, on the other hand it demonstrates trend of changes with look to future. Therefore, it reflects the effect of improving managers' recognition of disruptive innovation on strategic plans and actions. Five indicators have been identified for the dominant logic which corresponds a public service media. Out of five indicators, three indicators were studied due to accurate identification of attributes. These indicators and their value of square of AVE are: content portfolio and platform (0.775), channel and distribution (0.805) and audience (0.835). These indicators have the attributes a new dominant logic that introduces new strategic actions to IRIB organization. The attributes included in new dominant logic exhibit a deep gap between current dominant logic and new dominant logic ensuing from digitalization in PSM organizations. The attributes of new dominant logic

Figure 5. Relations between managerial cognition of disruptive innovation and new dominant logic in public service media.



including Cross genres, Special interest genres, Nonlinear, Dual screening, Co-creator, User interface, Personalization, Digital, and New segmentation have quite a long distance from current dominant logic. IRIB managers have evaluated a series of strategic activities in order to realize new dominant logic; these activities could be at the heart of strategic changes in organization. The gap between new and old dominant logic indicates that pioneer media in the world media industry are familiar with necessity of realizing digitalization strategy. The media that fail to create new capabilities and make necessary changes to adjust with digital requirements of strategic activities lack the power to exploit this innovation.

Based on the evaluation of indicators, this strong model has been prepared to describe disruptive innovation, new dominant logic and the relation between these two. All indexes of GOF, AARS, ARS, and APS suggest the model fitness.

Goodness-of-fit index (GOF) is 0.811 according to observations of Table 2. This value conveys the fitness between model components. As it is seen in Figure 5, the variable of disruptive innovation is comprised of three dimensions of *personalization and contextualization*, *content fragmentation*, and *partnership and industrialization*. These dimensions include 10 indices altogether. The high level of GOF shows that these indicators are strong descriptors of disruptive innovation variable (media digitalization). Besides, the value of GOF conveys the fitness of components constituting the new dominant logic. This variable consists of five dimensions including: *content portfolio and platform*, *channel and distribution*, *structure*, *audience and technology*. These dimensions are comprised of 10 indices altogether. The value of GOF shows that these indices describe new dominant logic strongly. According to the amount of GOF, the constituting components are fit.

Evaluating the relation between two variables based on causal and correlation models helps to understand the nature of relations. The path of DI to DL causal relation with (β) equals to zero and p -value equals to 0.49. These values emerge from lack of effective casual relation between managers' cognition of disruptive innovation and dominant logic. Lack of causal relation is usual, since it is

the basis of dynamic organizational capabilities and strategic changes and not the main determinant. However, there is a strong correlation according to this hypothesis. The value of evaluated correlation is 0.625 which indicates a strong relation between DI and DL.

Correlation coefficient emphasizes reinforcing role of CDI in connection with DL. It means that development of cognitive capabilities in relation to disruptive innovation helps to emerge a new dominant logic. Hence, IRIB organization and other PSBs should develop managers' cognition of media digitalization phenomenon. It is the basis of developing dynamic organizational capabilities and strategic changes. This approach resulting from evaluation of data based on the research hypothesis is seen in Figure 5. The findings of the research are seen in the figure.

Figure 5 is comprised of two vertical and horizontal axes. In vertical axis, three streams or waves of disruptive innovation are observed. These three streams include personalization and contextualization, content fragmentation, and partnership and industrialization. In any of these waves, there are dynamics that impact on industry ecosystem. We witness dominant logic during the time. As time passes, dominant logic undergoes some changes by ecosystem forces. As it is seen in the figure, dominant logic starts to change, as media digitalization forces in industry ecosystem are acting out, and a new dominant logic substitute the existing dominant logic gradually. This substitution in dominant logic and outbreak of new dominant logic will be highlighted gradually.

As it is evident, the waves of disruptive innovation have begun within media digitalization. These disturbances have influenced the incumbents of media industry ecosystem. This disruptive innovation has transformed the ecosystem dominant rules.

As it is seen in Figure 5, disruptive innovation waves influence arrangement of ecosystem players and their position. These swaying waves continue to shift. Therefore, the best strategy is welcoming disruptive innovation and exploiting it. PSBs should consider improving the cognitive capabilities of managers to exploit disruptive innovation. PSB managers should have proper recognition of disruptive innovation waves in relation to media digitalization in every domain of PSB including policy-making and planning, content production, technology, human resources, radio and TV channels or any other domains. Improvement of cognitive capabilities is the basis of strategic activities in every organization. The effect of disruptive innovation on media ecosystem and pioneer PSBs at global environment is to the extent that the current dominant logic is being replaced by new dominant logic. New dominant logic transforms the thinking of organization in relation to key issues such as content production system, content distribution channels, audience, structure, and technology. New dominant logic forms the basis of PSB organization and set new guidelines for strategic decision-making in organization. Exploiting disruptive innovation does not occur without reconfiguration of capabilities. Dynamic organizational capabilities are a means to achieve strategic objectives. Dynamic organizational capabilities whether in technology and structure or in human capital and other areas are the leading cause of competitive advantage, and this advantage is rooted in proper recognition of disruptive innovations by managers.

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Appendix 1

Table A1. Factor loadings of constructs indicators

	DI1	DI2	DI3	DI1	DI2	DI3	Type (as defined)	SE	p-value
A1	0.543	-4.318	-5.115	-12.021	-11.797	-11.928	Reflective	0.109	<0.001
A2	0.543	-5.011	-4.698	4.642	4.201	4.676	Reflective	0.105	<0.001
A3	0.543	-1.183	0.001	5.217	5.156	5.382	Reflective	0.107	<0.001
A4	0.543	3.829	3.684	4.764	5.212	4.327	Reflective	0.103	<0.001
A5	0.543	4.719	4.222	-3.738	-3.88	-3.571	Reflective	0.1	<0.001
A6	-1.041	0.736	-1.547	-0.436	1.371	0.237	Reflective	0.102	<0.001
A7	1.79	0.777	1.31	-0.496	-0.43	-0.21	Reflective	0.1	<0.001
A8	1.188	0.78	1.763	0.105	-0.598	-0.406	Reflective	0.1	<0.001
A9	-2.327	0.667	-1.881	0.937	-0.313	0.458	Reflective	0.104	<0.001
A10	0.881	0.674	0.848	2.683	3.018	2.951	Reflective	0.098	<0.001
A11	-0.881	-0.674	0.848	-2.683	-3.018	-2.951	Reflective	0.098	<0.001
Ch1	-0.6	-0.437	-0.735	0.723	4.666	4.459	Reflective	0.102	<0.001
Ch2	2.822	2.25	2.522	0.55	-5.197	-4.337	Reflective	0.109	<0.001
Ch3	0.355	0.838	0.556	0.836	0.052	0.415	Reflective	0.098	<0.001
Ch4	1.564	0.96	1.878	0.735	-2.715	-3.448	Reflective	0.102	<0.001
Ch5	-2.585	-2.321	-2.502	0.79	-2.705	-2.827	Reflective	0.1	<0.001
Ch6	0.306	0.264	-0.05	0.883	2.991	3.029	Reflective	0.096	<0.001
Ch7	-0.925	-0.847	-0.793	0.857	1.086	1.056	Reflective	0.097	<0.001
Ch8	0.738	0.526	0.864	4.964	0.777	4.289	Reflective	0.1	<0.001
Ch9	-1.32	-0.6	-0.914	-1.399	0.813	-1.804	Reflective	0.099	<0.001
Ch10	1.044	1.187	1.12	4.037	0.855	3.778	Reflective	0.097	<0.001
Ch11	-1.069	-1.026	-1.059	-7.168	0.791	-6.84	Reflective	0.1	<0.001
Ch12	-0.704	-0.559	-0.832	-5.29	0.76	-4.442	Reflective	0.101	<0.001
Ch13	1.188	0.362	0.702	4.235	0.831	4.441	Reflective	0.098	<0.001
Ch14	0.471	0.19	0.222	1.068	0.117	0.911	Reflective	0.095	<0.001
Ch15	1.784	1.501	2.012	2.967	3.617	0.83	Reflective	0.098	<0.001
Ch16	-2.527	-1.878	-2.477	-4.545	-4.112	0.756	Reflective	0.101	<0.001

Table A2. Divergent (discriminatory) validity of constructs

	Di1	Di2	Di3	DI1	DI2	DI3
Di1	0.655	0.643	0.624	0.507	0.566	0.537
Di2	0.643	0.741	0.591	0.616	0.700	0.653
Di3	0.424	0.591	0.848	0.294	0.418	0.496
DI1	0.507	0.616	0.294	0.775	0.888	0.817
DI2	0.566	0.700	0.418	0.888	0.805	0.842
DI3	0.537	0.653	0.496	0.817	0.842	0.835

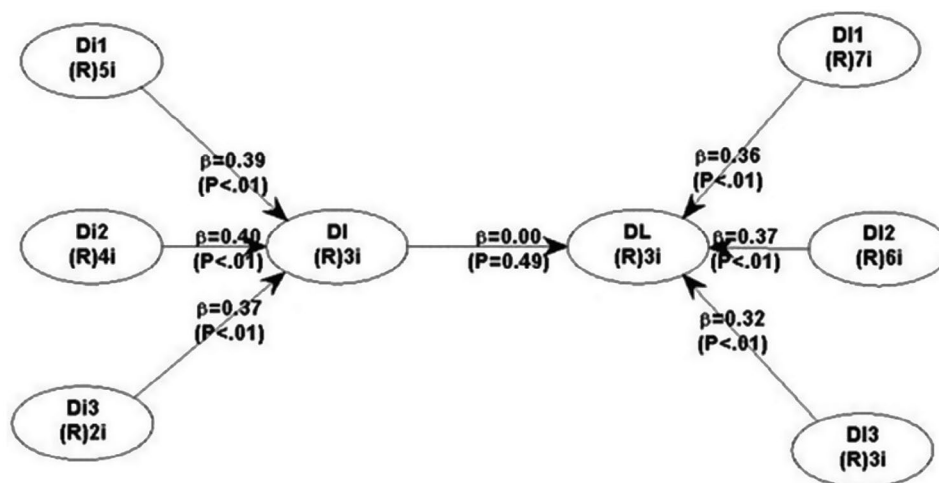
Table A3. The results related to combined validity, Cronbach’s alpha (α) and the average extracted variance

(AVE)	(CR)	(α)	Q	V
0.428	0.787	0.660	5	Di1
0.549	0.829	0.725	4	Di2
0.720	0.837	0.611	2	Di3
0.820	0.912	0.885	7	DI1
0.600	0.917	0.895	6	DI2
0.648	0.873	0.779	3	DI3
-	-	0.789	27	

Table A4. The Pearson correlation coefficient (PCC) between DI and DL

	DI	DL
DI	1	
DL	0.653	1

Figure A1. Structural equations model (WarpPLS software final output).





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