

INTERNATIONAL JOURNAL OF ORGANIZATIONAL LEADERSHIP

WWW.CIKD.CA

journal homepage: <https://www.ijol.cikd.ca>



Organizational Factors Leading to Innovation in Japan's Radio Industry

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ABSTRACT

Keywords:

Exploratory and exploitative innovation, Transformational and transactional leadership, Organizational unit coordination mechanisms, Senior management team, Environmental dynamism

Received

23 April 2024

Received in revised form

27 May 2024

Accepted

29 May 2024

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This paper aimed to identify factors that promote innovation in Japan's radio industry, where innovation has stagnated for many years. First, we examined previous studies on top management leadership characteristics, organizational unit coordination mechanisms, senior management teams, and environmental dynamism as key concepts for innovation creation. We also interviewed top managers in the Japanese radio industry to develop specific hypotheses. We tested our hypotheses by conducting a questionnaire survey with 157 middle managers of Japanese radio stations; we used multiple regression analysis to examine the effect of each variable on exploratory and exploitative innovation. Our main findings revealed that management, by exception of transactional leadership, formalization and connectedness of organizational unit coordination mechanisms, and perceived environmental dynamism, positively affect exploratory and exploitative innovation in the radio industry. In contrast, the inspirational motivation of transformational leadership and social integration of the senior team negatively affected exploratory innovation. This study's academic contribution is to identify the unique organizational factors that drive innovation in the Japanese radio industry by quantitatively testing the original hypothesis derived from the interview survey. Our results showed an urgent need to develop organizational human resources for senior management. Finally, the limitations of this study and future research were discussed.

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Due to rapid changes in the DX-enabled environment, the media industry has been forced to rethink its business models (Maijanen & Virta, 2017); however, innovation in the Japanese radio industry has stagnated. According to Japan's Ministry of Internal Affairs and Communications (MIC) (2016), radio advertising expenditures, which reflect the market size

of the radio industry, fell to 127.2 billion Japanese yen (JPY) (−39.80%) in 2016, down from 211.3 billion JPY in 1993. Furthermore, the average sales for AM and FM broadcasters decreased from 100 (base value) in 1993 to 46 and 71, respectively, in 2016. As stated, the Japanese radio industry has shrunk significantly, and all stations operate in a challenging business environment. Furthermore, 70 years have passed since commercial radio stations began broadcasting in 1951, and 50 years have passed since FM radio stations began broadcasting in 1969. The situation is approaching where significant capital investment is required due to the aging of transmission facilities (radio towers, etc.), which will significantly burden Japanese radio stations with a weak management base.

Radiko, an Internet protocol radio distribution service that transforms computers, smartphones, AI speakers, and other devices into radio receivers, is one of the few examples of exploratory innovation in the Japanese radio industry. It simultaneously distributes terrestrial radio broadcasts, including commercials, online in areas similar to the broadcast area. The service is well-established and has received recognition; however, the company's original goal of innovation creation has not been met, such as retaining and expanding radio listeners and rebuilding the radio market. The disparity in radio stations' awareness of innovation creation in Japan has hampered Radiko's initiative, and the business has plateaued.

According to Christensen (1997) in "The Innovation Dilemma," good companies frequently fail because the management practices that propelled them to industry leadership make it challenging to develop disruptive technologies, causing them to lose market share. This logic applies to many media companies, particularly in the television industry; however, it is difficult to believe that this is the sole reason for the radio industry's stagnation of innovation, given that it has produced no success stories in recent years. Furthermore, innovation in the radio industry has remained stagnant despite top management's efforts to exercise leadership to spark innovation. Therefore, in addition to leadership, we expect other organizational factors to influence innovation.

Several previous studies have examined how leadership and organizational factors affect innovation, revealing that transformational leadership promotes exploratory innovation, and transactional leadership promotes exploitative innovation (O'Reilly & Tushman, 2021). Additional studies have examined the impact of organizational factors, such as organizational coordination mechanisms (Jansen et al., 2006) and senior management team attributes (Jansen et al., 2008), on innovation.

Nonetheless, few prior studies have used such an approach in media management. In the media industry, DX-enabled innovation is fundamentally changing the business environment (Maijanen & Virta, 2017), and top management must properly control both exploratory and exploitative innovation. Media organizations are an appropriate case study for understanding ambidextrous management and innovation (Gibson & Birkinshaw, 2004); however, a theoretical understanding of innovation in media organizations is lacking (Maijanen & Virta, 2017).

Furthermore, given the peculiarities in the Japanese radio industry, the organizational factors affecting innovation may differ. The later sections discuss the interviews we conducted in this study, showing that the Japanese radio industry has several peculiarities and resultant organizational challenges. Specifically, a gap exists in awareness between the top management dispatched from the parent company and the frontline, an apprenticeship-like system based on

tacit knowledge, a lack of human resources in the senior team, and a conservative culture protected by the licensing system. Therefore, exploring the organizational factors that lead to innovation in the radio industry will provide new insights into the existing literature.

This study aims to clarify the factors that promote or impede innovation in the Japanese radio industry, focusing on top management leadership and organizational issues. Other radio industries have already innovated and revitalized their businesses using next-generation business models; however, innovation in Japan has remained stagnant for many years. The radio industry can be viewed as an example of the difficulties Japanese companies face regarding organizational coordination mechanisms. Unraveling the organizational factors behind the stagnation of innovation while considering the unique organizational structure of the Japanese radio industry may allow us to contribute to innovation in all Japanese firms.

Literature Review

Micro (individual) and macro (organizational) interactions lead to firm-level innovation. Palmié et al. (2023) build on this microfoundations research perspective by systematically reviewing innovation management, indicating the importance of examining organizational factors on innovation performance. Comprehensively, micro-level conditions of individual action and macro-level social (organizational) facts influence each other to realize innovation for competitive advantage. For example, in the latest research, leadership behavior is a core issue of individual action that affects innovation (De Silva et al., 2021; Mom et al., 2019). Furthermore, organizational fact comprises organizational and employee attributes (Palmié et al., 2023), and formal and informal organizational structure (e.g., centralization and autonomy in decision-making) is essential for innovation effectiveness (Mom et al., 2019; Pollok et al., 2019; Venugopal et al., 2020). Organizational facts also include senior team attributes (Jansen et al., 2008), which strongly affect organizational innovation for senior managers. Moreover, as an influence of broader sociocultural factors, the perception of environmental dynamism influences innovative behavior (Dai et al., 2016; Davis & Aggarwal, 2020).

Based on the above, this study comprehensively explores the factors guiding innovation in the Japanese radio industry. We focus on four key factors: leadership, organizational coordination mechanisms, senior team attributes, and environmental dynamism.

Leadership Characteristics

Ambidextrous management suggests that organizations can pursue both exploratory and exploitative innovation (O'Reilly & Tushman, 2021); however, combining both activities poses a significant challenge for top management due to conflicting goals. Therefore, the top management leadership is a major area of focus.

The central leadership theories in this regard include transformational leadership and transactional leadership (Bass, 1985; 1998). In transformational leadership, the leader-subordinate relationship is based on emotion, and the leader motivates subordinates by leveraging trust and confidence in their leader. This leadership style has fostered exploratory innovation, among other things (O'Reilly & Tushman, 2021). Transformational leaders achieve their goals through idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. Idealized influence is using subordinates' trust and confidence to motivate behavior. Inspirational motivation refers to leaders' efforts to spread their beliefs and

influence subordinates. Intellectual stimulation refers to a leader's efforts to promote creative and proactive problem-solving strategies. Individual consideration refers to the leader's focus on the subordinate, including emotional connections and opportunities to share a vision (Doherty, 1997).

In contrast, transactional leadership is based on a reciprocal and deterministic relationship between the leader and subordinate, where the leader uses a negotiation process to motivate behavior (Burns, 1978); this approach uses rewards and punishments to manage employee behavior. O'Reilly and Tushman (2021) suggested that this leadership approach is helpful for exploitative innovation, i.e., improving existing processes and products. To achieve their objectives, transactional leaders use techniques like contingent rewards, active management by expectation, and passive management by exception. Contingent rewards refer to a leader-follower relationship that links rewards and punishments to performance. In contrast, management by expectation refers to a management style in which the leader observes, corrects, and punishes deviations in subordinate behavior. Management by exception describes a leader who anticipates that subordinates will deviate from agreed-upon goals, collects behavioral data to prevent deviations, and acts only when a problem arises.

Transformational leaders are generally considered more effective than transactional leaders. They are more likely to promote organizational renewal through policies encouraging creative problem-solving, risk-taking, and experimentation; however, some claim that transformational leadership can be ineffective. If charisma is too strong, the field becomes psychologically saturated, and people stop developing new ideas (Hemp, 2008). Therefore, we propose the following as the primary research question:

RQ1: *Which type of leadership, transformational or transactional, is more effective in leading the creation of innovation in the Japanese radio industry?*

Organizational Coordination Mechanisms

Jansen et al. (2006) observed that how ambidextrous organizations coordinate the development of exploratory and exploitative innovations remains unclear. They examined how formal and informal coordination mechanisms affect exploratory and exploitative innovation in organizational units, classifying general organizational coordination mechanisms into formal hierarchical structures and informal social relationships.

Centralization and formalization are two examples of formal hierarchical structures. Centralization refers to the degree to which decision-making within an organization is centralized (Aiken & Hage, 1968), reducing organizational members' sense of control over their work and the likelihood that they will seek innovative and new solutions (Damanpour, 1991). Research has suggested that centralization can reduce exploratory innovation, necessitating atypical problem-solving and deviations from existing knowledge while increasing exploitative innovation (Sheremata, 2000). This situation occurs because exploitative innovations have a limited scope and novelty, making them less uncertain for the organization.

We next examine the formalization levels of rules, procedures, instructions, and communication. The reliance on rules and procedures discourages experimentation, ad hoc problem-solving efforts, and the likelihood of individuals deviating from structured behavior

(Weick, 1979). Thus, formalization limits exploratory innovation while simultaneously encouraging the systematic and efficient application of existing best practices; thus, formalization is thought to encourage exploitative innovation.

Meanwhile, connectedness is an informal social relationship between individuals within an organizational unit. Connectivity expands the opportunities for informal discussions and increases access to all-in-one discussion and knowledge sources, encouraging exploratory innovation. Nonetheless, when connectivity exceeds a moderate level, strong norms emerge that discourage deviance and reduce exploratory behavior in organizational units. In contrast, exploitative innovation necessitates that organizational units efficiently use and improve existing knowledge; thus, connectedness can promote improvements in existing knowledge resources and increase exploitative innovation in organizational units.

As shown, many previous studies have examined organizational coordination mechanisms that affect innovation from the perspectives of (1) centralization, (2) formalization, and (3) connectedness. Based on the preceding, the second research question is as follows:

RQ2: *What organizational coordination mechanisms can effectively lead to innovation in the Japanese radio industry?*

Attributes of the Senior Team

Exploration and development in ambidextrous management necessitate fundamentally different and conflicting architectures and competencies, potentially creating paradoxical challenges. Thus, senior management teams in ambidextrous organizations frequently face role conflicts, which can reduce decision-making acceptability (O'Reilly & Tushman, 2004). Senior management teams must recognize ambiguous and conflicting expectations and translate them into actionable plans. Resolving these conflicts within the senior management team is critical to creating synergies between exploratory and deepening activities in a firm (Gibson & Birkinshaw, 2004).

Jansen et al. (2008) examined how senior management team characteristics (shared vision, social integration, and contingent rewards) and leadership behaviors (transformational leadership) affect exploratory and exploitative innovation. They demonstrate that a shared vision and contingent rewards for the senior team are associated with the firm's ability to combine both innovations at a high level. The shared vision embodies goals and values for the organization's future development, resolves conflicts of interest, and establishes a shared strategic direction. According to Tushman and O'Reilly (1996), shared goals and values provide information exchange and bonding opportunities among senior management teams.

Social integration differs from shared vision, directly affecting the senior management team's emotional factors and social power dynamics. Members of a socially integrated senior management team are expected to engage in both exploratory and exploitative activities to generate synergy (Smith et al., 1994). Contingent rewards encourage senior management team members to look beyond their departmental interests and find ways to devote resources to exploratory and exploitative innovations. It also establishes guidelines for senior management to improve their thinking, identify complex problems, and find solutions (Wageman, 1995).

Thus, shared vision, social integration, and contingent rewards are essential characteristics of senior management teams that are thought to impact innovation significantly. Based on the above, we propose the third research question.

RQ3: *What attributes of the senior management team effectively lead to innovation in the Japanese radio industry?*

Environmental Dynamism

Environmental dynamism has several definitions; in this study, it refers to the speed and magnitude of environmental change and its unpredictable nature (Dess & Beard, 1984). Dynamic environments render existing products and services obsolete, necessitating the development of new products and services. Organizational units must act as catalysts for innovation to differentiate themselves from existing products and services. In contrast, exploitative innovation will likely reduce performance in a rapidly changing environment (Jansen et al., 2009a).

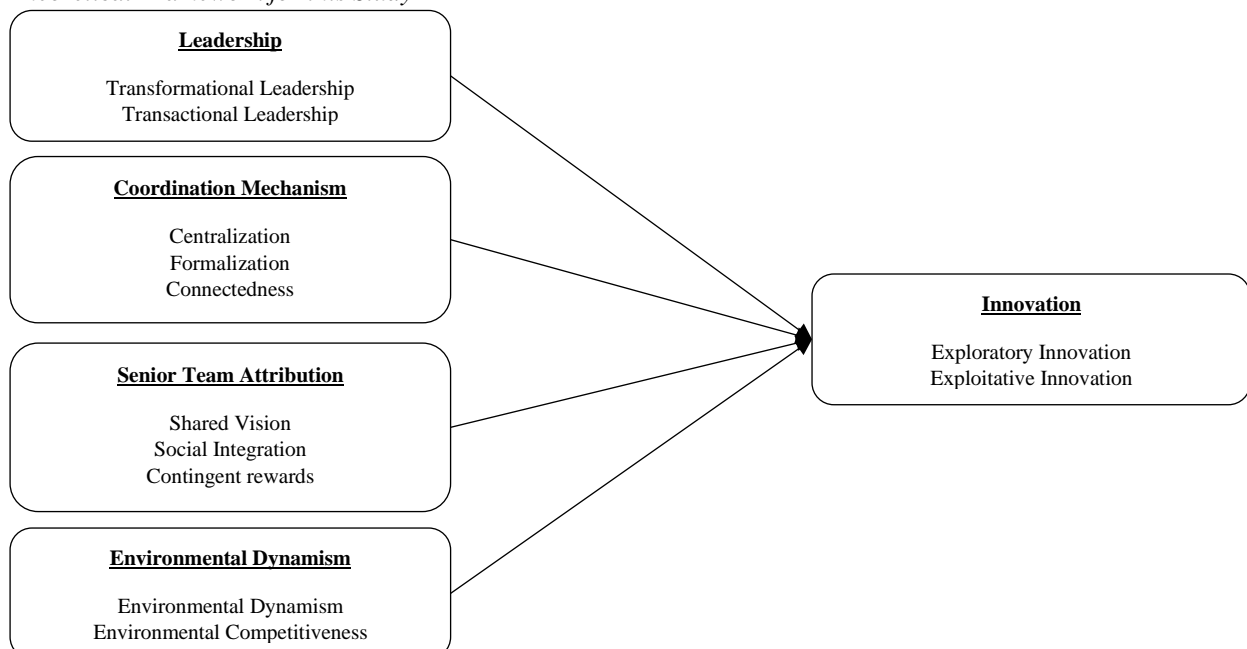
In contrast, some argue that a highly competitive environment, combined with intense pressure for higher efficiency and lower prices, limits exploratory innovation, which involves significant risk-taking and aggressive aggressiveness (Jansen et al., 2006; Zahra, 1996; Zahra & Bogner, 2000). Organizational units responding to existing trends and demands can drive innovation, leading to exploitative innovation by changing or expanding their current products, services, and markets, thereby improving their competitive performance. Therefore, we propose the fourth research question:

RQ4: *How does organizational members' sense of urgency toward environmental dynamism affect innovation in the Japanese radio industry?*

Based on the above research questions, Figure 1 presents the theoretical framework of this study.

Figure 1

Theoretical Framework for this Study



Hypotheses

This section considers the characteristics of the Japanese radio industry to develop hypotheses for the four research questions listed above. In addition to the findings of previous studies, an interview survey was conducted with six top management members of radio stations across Japan. This approach allowed us to obtain information about their industry-specific problems and corporate culture, which we used for developing the hypotheses.

The interviews were conducted from March 8 to April 21, 2023. The interviewees included top management members of Japanese radio stations belonging to the Radio Management Issues Study Group among member companies of the National Association of Commercial Broadcasters in Japan (six interviewees from top management in core and local districts). The selection was made without bias, considering the size of the coverage area, sales volume, AM and FM stations, and AM radio and TV stations. There was no honorarium. Participants received the questions in advance, and semistructured interviews were later conducted. Each interview lasted about 90 minutes. At the start of the survey, we explained (in writing and verbally) our purpose and how the information would be handled; participants agreed by signing and sealing a consent form for the interview.

The following four points summarize the organizational characteristics of the Japanese radio industry as a result of the interview survey. First, a significant gap exists between top management and on-site awareness—top management at AM radio and TV stations primarily comprises people from TV stations (parent companies). The top management of FM stations affiliated with national networks comes from the key station (Tokyo) or the local shareholder companies. Furthermore, most top managers at independent FM stations are midcareer hires or from shareholder-owned companies. This disparity between top management with little field experience and proud field leaders is characteristic of the Japanese radio industry.

“Creating content—that’s the trickiest thing left until the end. Maybe I would have been better off if I had started as the head of programming or production at this company.”
(Company A)

Second, an apprentice-style management system based on implicit knowledge persists. In the production department, authority is primarily allocated to experienced directors and talent hired on long-term contracts; such individuals can be hesitant to accept changes proposed by young employee producers that reflect the wishes of top management. In the technology division, authority is excessively delegated to broadcast technology specialists, and broadcast engineers tend to reject communication technology, slowing innovation.

“It was as if they were saying, ‘I’m going to make it the old-fashioned way.’ People in the broadcasting field are the creators of the programs, and they have only their own view of the world, I guess... Hmmm.... They cannot see outside.” (Company D)
“For better or worse, they have their own world, so there is opposition to the order to change their way of doing things. Many of them want to do things the way they have always done them.” (Company F)

Third, there is a shortage of senior management professionals. The absence of human resource policies based on seniority and lifetime employment has resulted in human resource

rigidity, creating a management concern for radio stations. A culture of resistance to change and an evaluation system in which affirmation of the status quo leads to personal gain has reduced growth opportunities for senior management and increased competition.

“In the past, there were no people who felt they had to study. Many people thought that they had already reached their goal of backgammon.” (Company A)

“I knew that in order to change the culture of our station, a culture that seems to think that everything in the world is what we see, we had to bring in outside forces, outside eyes. We agreed on this at the time.” (Company A)

“We did not do headhunting because it was still too risky.” (Company F)

Fourth, a license-protected conservative corporate culture has grown. The results show that several factors can foster a conservative corporate culture that is resistant to change. These include a commitment to vested interests to maintain a highly profitable business model developed over many years and a sense of privilege in the media industry, described as the “fourth power” after the judiciary, legislature, and administration.

“Because it is a licensed business, it is easy to develop a sense of privilege. Well, because of past successes. In such a company, seniority and lifetime employment are more of a drag than in other companies.” (Company A)

Leadership Characteristics

Previous studies on ambidextrous management have focused on top management’s transformational leadership, which manages while balancing knowledge exploration and exploitation. Japanese firms generally use transactional leadership, which is less risky, more stable, and focuses on improving existing businesses; thus, the importance of transformational leadership in managing the pursuit of knowledge in a well-balanced manner is frequently discussed.

Conversely, an interview survey of top management in the radio industry revealed that top executives prefer transactional leadership (setting specific evaluation criteria and responding to a performance-based system) over transformational leadership.

“Since he has no charisma, he has to organize his employees in other ways. Even those who have a lot of charisma are not aware of this, so it is important to use something else.” (Company A)

“Radio has been declining steadily. In this environment, everyone is looking for recognition for a job well done.” (Company B)

This situation differs from the knowledge-exploitation management above. The six top managers interviewed are members of the Radio Management Issues Study Group, which is aware of innovation in the Japanese radio industry; however, they prioritize transactional leadership in their leadership style. Many managers in the Japanese radio industry are not professionals but come from other organizations; thus, a gap exists between their awareness and that of the frontline, which may prevent transformational leadership from working effectively. Therefore, we believe transactional rather than transformational leadership will drive exploratory innovation in the Japanese radio industry more effectively.

Hypothesis 1: *Transactional leadership positively affects exploratory innovation in the Japanese radio industry.*

Organizational Coordination Mechanisms

The extant research has examined organizational coordination mechanisms regarding how formal hierarchical structures and informal social relations interact, resulting in innovation in exploration and exploitation in organizational units (Jansen et al., 2006). Formal hierarchical structures, such as centralization and formalization, have been shown to significantly negatively affect knowledge exploration (exploration) and positively affect knowledge deepening (exploitation). This situation occurs because both decrease the likelihood of seeking novel solutions and deviate from structured behavior. Regarding informal social relationships, connectivity has increased opportunities for informal discussions within organizational units. This circumstance tends to increase access to hall talk and knowledge sources, allowing the adoption of exploratory innovations. Thus, as organizational coordination mechanisms, it is widely assumed that increased organizational connectedness affects knowledge exploration.

The situation may differ in the Japanese radio industry. Our interview results show that the execution units in the production and engineering departments, which should be the driving forces of innovation in an organization, are the most conservative and inclined to maintain tacit knowledge of business plans. Conservative and tacit knowledge-based business models can impede innovation, and the top management interviews also mentioned the need to move away from tacit knowledge.

“Not when there is a producer at the start-up, but the moment you become the second producer, you lose power over the program. It is very common.” (Company A)

We expect formalizing rules and communication in the Japanese radio industry to positively affect exploratory innovation.

Hypothesis 2: *Formalization positively affects exploratory innovation in the Japanese radio industry.*

The Attributes of the Senior Team

In ambidextrous management, the senior management team is essential in driving innovation. According to Jansen et al. (2008), senior team attributes such as shared vision, social integration, and contingent rewards all positively impact innovation. Conversely, interviews in the Japanese radio industry revealed the immaturity of the senior management team, which has failed to adequately fulfill its function of coordinating contradictions within the organization. Some measures to leverage top management have been implemented, such as hiring outside personnel and selecting younger employees; however, learning systems and human resource development programs have yet to be established, and early improvements are not anticipated.

“The management team is trying to make sure that what we are saying is not disparate, so we are all deciding together what we think, starting from scratch, but first of all, we need to agree on these things.” (Company B)

“They don’t study, so in sales, they say “I am sorry I didn’t make the sale. I will take responsibility.” Do you quit after taking responsibility?” It is a very rough conversation. That is the biggest weakness of our company alone.” (Company E)

“The senior team, in a sense, is the front line of management, the link between management and the general public, which is a very important role, so this is where we started doing the qualification screening, right?” (Company A)

As a result, attributes like shared vision and social integration, which rely on the senior team’s high competence, may not be expected to affect the Japanese radio sector. Instead, we expected that management by contingent rewards would positively affect exploratory innovation to increase the perception of competition.

Hypothesis 3: *Contingent rewards positively affect exploratory innovation in the Japanese radio industry.*

Environmental Dynamism

Environmental dynamism reflects the speed and magnitude of environmental change and its unpredictability, serving as an adjustment factor for the extent to which organizations are sensitive and responsive to change (Dess & Beard, 1984). Prior research has shown that a dynamic environment can either promote exploratory innovation (leading to innovation) or limit exploratory innovation and promote exploitative innovation in a nation with high efficiency and low prices.

As we predicted, organizational characteristics and the results of our interviews with top management in the Japanese radio industry indicate that even with a strong awareness of dynamic environmental change, corporate conservatism and the unwillingness of frontline organizations to change may promote exploitative innovation over exploratory innovation.

“If we compare it to agriculture, there is no doubt that there is a lifestyle habit of maintaining the status quo, saying “I hope the sun shines next year, too.” From the viewpoint of innovation, there is no doubt that this is the case.” (Company E)

“People don’t really feel it. I guess it is the difference between Tokyo and the countryside. I don’t mean to sound rude, but there is a difference in the amount of information and the sense of feeling. Even sponsors are saying, “I don’t get it when you talk about digitalization.” How can we use the media to target potential customers through digitalization? No one is implementing such a strategy. Then, they say, “We can eat as we are now, so we will not do that.”” (Company E)

Hypothesis 4: *Perceived environmental dynamism positively affects exploitative innovation in the Japanese radio industry.*

Method

We conducted a questionnaire survey of middle management, on-site leaders of organizations, top management leadership, and the status of their organizations; we then tested the hypotheses using quantitative analysis. The quantitative analysis identified leadership characteristics, organizational coordination mechanisms, senior team attributes, and environmental dynamism as explanatory variables; the objective variables included exploratory and exploitative

innovation. We used multiple regression analysis to examine the effects of top management leadership and organizational factors on innovation.

Survey Summary

The respondents included members of Japan's Commercial Broadcasters Association (99 stations) and NHK's middle management. We distributed the questionnaire to 810 respondents who were registered as "general managers" at Radiko, Inc. The "general managers" were the primary decision-makers in each company's development area. We sent the request letter and questionnaire as an e-mail attachment, and 100 respondents were randomly chosen to receive a 1,000-JPY Amazon gift card as a reward. The survey ran from Monday, May 8, 2023, to Thursday, May 25, 2023.

We excluded false answers and two respondents who provided the same number for all items from Q7 to Q9, leaving 157 valid responses. The gender breakdown was 143 males and 14 females, with an average age of 50.06 years. Eighty-seven respondents worked for AM stations, whereas 70 for FM stations. The respondents included 20 executives, 23 station managers, 71 department heads, and 43 section managers.

Questionnaire Items

Bass (1985) developed the multifactor leadership questionnaire to examine leadership characteristics in top management. The factors for transformational leadership included idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. The factors for transactional leadership were contingent rewards and management by exception. We obtained responses using a 7-point Likert scale.

We followed Jansen et al. (2006) for organizational coordination mechanisms, with centralization, formalization, and connectedness as factors; responses were scored on a 7-point Likert scale. For senior team attributes, "shared vision" was measured using a 7-item scale adapted from Sinkula et al. (1997), and our "social integration" measurement followed that of Smith et al. (1994).

We used an adapted Jansen et al. (2006) scale for environmental dynamism and competitiveness. Jansen et al. (2008) developed a scale for exploratory and exploitative innovation.

Results

Table 1 shows each variable's descriptive statistics, reliability, and correlation coefficients. For the variables used as the measurement scale, we first checked for distortions in the distribution of responses based on the mean and standard deviation. We found no items for which ceiling and floor effects occurred; thus, all items were used in the analysis. Next, the reliability coefficient α was calculated; it exceeded the acceptable value ($\alpha \geq .80$) for all variables, indicating sufficient reliability. Furthermore, significance tests were performed for all correlation coefficients in the correlation matrix. Table 1 presents details of these results.

Table 1*Basic Statistics, Reliability Coefficients, and Correlation Coefficients for Each Variable*

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|------|------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 Transformational leadership: idealized influence | 4.18 | 1.50 | (.81) | | | | | | | | | | | | | | | |
| 2 Transformational leadership: inspirational motivation | 3.80 | 1.38 | .81 ** | (.82) | | | | | | | | | | | | | | |
| 3 Transformational leadership: intellectual stimulation | 4.03 | 1.65 | .84 ** | .80 ** | (.81) | | | | | | | | | | | | | |
| 4 Transformational leadership: individual consideration | 3.94 | 1.47 | .88 ** | .77 ** | .83 ** | (.82) | | | | | | | | | | | | |
| 5 Transactional leadership: contingent rewards | 3.37 | 1.23 | .78 ** | .67 ** | .74 ** | .79 ** | (.82) | | | | | | | | | | | |
| 6 Transactional leadership: management by exception | 3.19 | 0.98 | -.45** | -.27** | -.34** | -.42** | -.32** | (.87) | | | | | | | | | | |
| 7 Coordination mechanism: centralization | 3.67 | 1.31 | -.27** | -.14* | -.26** | -.24** | -.24** | .30 ** | (.87) | | | | | | | | | |
| 8 Coordination mechanism: formalization | 3.24 | 0.94 | .41 ** | .42 ** | .39 ** | .39 ** | .39 ** | -.18 * | .08 | (.83) | | | | | | | | |
| 9 Coordination mechanism: connectedness | 5.29 | 1.10 | .35 ** | .17 * | .25 ** | .34 ** | .38 ** | -.36** | -.44** | .13 | (.84) | | | | | | | |
| 10 Senior team: shared vision | 3.96 | 1.50 | .71 ** | .60 ** | .67 ** | .60 ** | .61 ** | -.34** | -.45** | .45** | .45** | (.82) | | | | | | |
| 11 Senior team: social integration | 4.16 | 0.96 | .48 ** | .39 ** | .37 ** | .38 ** | .41 ** | -.22** | -.34** | .29** | .44** | .66** | (.83) | | | | | |
| 12 Senior team: contingent rewards | 2.92 | 1.15 | .32 ** | .29 ** | .33 ** | .29 ** | .42 ** | -.00 | -.03 | .36** | .04 | .34** | .12 | (.84) | | | | |
| 13 Environmental dynamism | 5.24 | 1.03 | .20 * | .24 ** | .21 ** | .21 ** | .21 ** | -.01 | -.03 | .10 | .09 | .20 * | .19 * | .20 * | (.84) | | | |
| 14 Environmental competitiveness | 4.90 | 1.28 | .12 | .13 | .07 | .07 | .09 | .01 | .01 | .01 | .06 | .03 | .13 | .12 | .63** | (.85) | | |
| 15 Exploratory innovation | 4.19 | 1.05 | .35 ** | .28 ** | .38 ** | .32 ** | .36 ** | .03 | -.02 | .37** | .22** | .37** | .17 * | .31** | .53** | .30** | (.83) | |
| 16 Exploitative Innovation | 4.11 | 1.07 | .32 ** | .25 ** | .34 ** | .28 ** | .35 ** | .03 | -.14* | .38** | .26** | .39** | .26** | .28** | .35** | .20 * | .73** | (.83) |

Note. ** = $p < .01$, * = $p < .05$, and + = $p < .10$. Values in parentheses are alpha coefficients. N = 155

Exploratory innovation was the objective variable for the multiple regression analysis. Table 2 shows the results. We set four factors in transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration), two in transactional leadership (contingent rewards and management by exception), three in senior team (shared vision, social integration, and contingent rewards), three in organizational coordination (centralization, formalism, and connectedness), and two in environmental dynamism (environmental dynamism and environmental competitiveness).

Multicollinearity can destabilize the results of multiple regression analysis when the explanatory variables are strongly related; therefore, we examined the Variance Inflation Factor (VIF), an indicator of multicollinearity. The VIF values for all explanatory variables ranged from 1.43 to 7.80. The VIF values were less than 10; thus, multicollinearity was not an issue.

Transformational leadership positively impacted exploratory innovation (idealized influence: $b = .23$, $SE = .12$, $\beta = .33$, $t(140) = 2.03$, $p = .045$) among leadership characteristics. Conversely, transformational leadership's inspirational motivation negatively impacted exploratory innovation (inspirational motivation: $b = .22$, $SE = .09$, $\beta = -.29$, $t(140) = -2.56$, $p = .012$). Management by exception in transactional leadership had a positive impact on exploratory innovation. (Management by exception: $b = .26$; $SE = .08$; $\beta = .25$; $t(140) = 3.45$; $p = .001$); thus, Hypothesis 1 received support.

Formalizing organizational coordination positively affected exploratory innovation ($b = .28$, $SE = .08$, $\beta = .25$, $t(140) = 3.38$, $p = .001$), which supported Hypothesis 2. Connectivity positively impacted exploratory innovation ($b = .18$, $SE = .07$, $\beta = .19$, $t(140) = 2.50$, $p = .014$).

Social integration among senior management negatively impacted exploratory innovation ($b = -.22$, $SE = .09$, $\beta = -.20$, $t(140) = -2.34$, $p = .021$). However, senior management contingent rewards had no significant effect; therefore, Hypothesis 3 was not supported.

Environmental dynamism significantly impacted exploratory innovation ($b = .48$, $SE = .08$, $\beta = .47$, $t(140) = 5.86$, $p = .000$).

Table 2
Multiple Regression Analysis Results for Exploratory Innovation

| Variable | β | | <i>b</i> | <i>SE</i> | <i>t</i> | <i>df</i> | <i>p</i> | |
|---|---------|----|----------|-----------|----------|-----------|----------|----|
| Transformational leadership: idealized influence | .33 | * | .23 | .12 | 2.03 | 140 | .045 | * |
| Transformational leadership: inspirational motivation | -.29 | * | -.22 | .09 | -2.56 | 140 | .012 | * |
| Transformational leadership: intellectual stimulation | .25 | + | .16 | .08 | 1.92 | 140 | .057 | + |
| Transformational leadership: individual consideration | -.16 | | -.11 | .10 | -1.08 | 140 | .281 | |
| Transactional leadership: contingent rewards | .03 | | .03 | .09 | 0.27 | 140 | .788 | |
| Transactional leadership: management by exception | .25 | ** | .26 | .08 | 3.45 | 140 | .001 | ** |
| Coordination mechanism: centralization | .08 | | .06 | .06 | 1.01 | 140 | .314 | |
| Coordination mechanism: formalization | .25 | ** | .28 | .08 | 3.38 | 140 | .001 | ** |
| Coordination mechanism: connectedness | .19 | * | .18 | .07 | 2.50 | 140 | .014 | * |
| Senior team: shared vision | .17 | | .12 | .08 | 1.45 | 140 | .150 | |
| Senior team: social integration | -.20 | * | -.22 | .09 | -2.34 | 140 | .021 | * |
| Senior team: contingent rewards | .02 | | .02 | .06 | 0.26 | 140 | .793 | |
| Environmental dynamism | .47 | ** | .48 | .08 | 5.86 | 140 | .000 | ** |
| Environmental competitiveness | -.00 | | -.00 | .06 | -0.05 | 140 | .957 | |
| <i>R</i> ² | .51 | ** | | | | | | |

Note. ** = $p < .01$, * = $p < .05$, and + = $p < .10$.

Similarly, exploitative innovation was the objective variable in a multiple regression analysis. Table 3 shows the results. The explanatory variables consist of four factors in transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration), two in transactional leadership (contingent rewards and management by exception), three in senior team attributes (shared vision, social integration, and contingent rewards), three in organizational coordination mechanisms (centralization, formalization, and connectedness), and two in environmental dynamism (environmental dynamism and environmental competitiveness)

The results for leadership characteristics showed that management by exception in transactional leadership positively impacted exploitative innovation ($b = .29$, $SE = .09$, $\beta = .29$, $t(140) = 3.28$, $p = .001$). Management by exception in transactional leadership positively impacted exploratory and exploitative innovation, implying that it is a vital leadership characteristic in the radio industry.

Formalization of organizational coordination mechanisms positively impacted both exploratory and exploitative innovations ($b = .34$, $SE = .10$, $\beta = .30$, $t(140) = 3.55$, $p = .001$). Connectedness positively impacted exploitative innovation ($b = .17$, $SE = .09$, $\beta = .26$, $t(140) = 2.02$, $p = .045$).

Regarding senior team attributes, senior management's shared vision, social integration, and contingent rewards did not affect exploitative innovation.

Environmental dynamism had a positive effect on exploitative innovation ($b = .27$, $SE = .09$, $\beta = .47$, $t(140) = 2.91$, $p = .004$), supporting Hypothesis 4.

Table 3
Multiple Regression Analysis Results for Exploitative Innovation

| Variable | β | | <i>b</i> | <i>SE</i> | <i>t</i> | <i>df</i> | <i>p</i> | |
|---|---------|----|----------|-----------|----------|-----------|----------|----|
| Transformational leadership: idealized influence | .26 | | .19 | .13 | 1.40 | 140 | .164 | |
| Transformational leadership: inspirational motivation | -.25 | + | -.19 | .10 | -1.93 | 140 | .056 | + |
| Transformational leadership: intellectual stimulation | .21 | | .14 | .01 | 1.43 | 140 | .156 | |
| Transformational leadership: individual consideration | -.19 | | -.14 | .12 | -1.17 | 140 | .246 | |
| Transactional leadership: contingent rewards | .08 | | .07 | .11 | 0.67 | 140 | .505 | |
| Transactional leadership: management by exception | .27 | ** | .29 | .09 | 3.28 | 140 | .001 | ** |
| Coordination mechanism: centralization | -.06 | | -.05 | .07 | -0.65 | 140 | .514 | |
| Coordination mechanism: formalization | .30 | ** | .34 | .10 | 3.55 | 140 | .001 | ** |
| Coordination mechanism: connectedness | .18 | * | .17 | .09 | 2.02 | 140 | .045 | * |
| Senior team: shared vision | .12 | | .08 | .09 | 0.88 | 140 | .382 | |
| Senior team: social integration | -.06 | | -.06 | .11 | -0.59 | 140 | .557 | |
| Senior team: contingent rewards | .02 | | .02 | .07 | 0.28 | 140 | .779 | |
| Environmental dynamism | .26 | ** | .27 | .09 | 2.91 | 140 | .004 | ** |
| Environmental competitiveness | .01 | | .01 | .08 | 0.15 | 140 | .883 | |
| R^2 | .38 | ** | | | | | | |

Note. ** = $p < .01$, * = $p < .05$, and + = $p < .10$.

Discussion

Leadership Characteristics

Existing studies on ambidextrous management indicate that transformational leadership contributes significantly to pursuing exploratory innovation (Jansen et al., 2009b). Conversely, our analysis shows that transactional leadership has a more significant impact than transformational leadership in exploratory and exploitative innovation. Notably, among transactional leaders, “management by exception” positively impacted both innovations. Management by exception is a leadership style that focuses on what is necessary at work while managing and controlling deviations from it. The results suggest that this type of strict management may affect innovation in the radio industry, where the gap between top management and frontline organizations is highlighted.

Furthermore, “inspirational motivation” in transformational leadership negatively affected exploratory innovation. As with the aforementioned management by exception, the organizational characteristics of the Japanese radio industry may have contributed to this result. The results (like “whistle-blowing but no dancing”) suggest that emotional factors such as emotional motivation may be counterproductive unless top management and the frontline organization have a shared awareness.

Organizational Coordination Mechanisms

This study shows that formalization among organizational coordination mechanisms has a strong influence on exploratory and exploitative innovation. Existing studies indicate that centralization and formalization of organizational units reduce the quality and quantity of ideas and knowledge obtained in organizations and decrease the likelihood that members will seek innovative and novel solutions (Jansen et al., 2006). As a result, centralizing decision-making authority and formalizing the improvement of existing products and services can promote exploitative rather than exploratory innovation. In contrast, we found that formalization significantly affects exploratory innovation.

The interview survey suggests that this finding could be due to the “management system based on tacit knowledge” in the Japanese radio industry. Production and technical departments,

which should lead the “search for knowledge” in management on both sides, have an old apprenticeship-like relationship with the industry, resulting in an organization unwilling to change and ultimately inhibiting change. The phrase “management system based on tacit knowledge” indicates immaturity in the organizational structure; therefore, it may be necessary to tighten the management system by formalizing rules, procedures, a chain of instructions, and communication.

Attributes of the Senior Team

Existing research has shown that senior team characteristics such as shared vision, social integration, and contingent rewards are effective for exploratory and exploitative innovations (Jansen et al., 2008). In contrast, our findings show that the senior management team’s social integration negatively affects exploratory and exploitative innovations.

This study identified “difficulty in human resources at the senior management level” as an issue in the Japanese radio industry. This difficulty was indicated by the interview survey of top management, which may have contributed to these results. On the one hand, the effects of shared vision and social integration among senior management teams are dependent on the presence of an independent and mature senior management team. However, the adverse effects of social integration may be due to a phenomenon similar to “disorderly crowds” in the senior management team. The results suggest that senior management teams must develop senior management human resources to promote innovation.

Environmental Dynamism

Existing studies show that environmental dynamism and competitiveness modulate the impact of both exploratory and exploitative innovations on performance (March, 1991). In contrast, in this study, an organizational sense of urgency about environmental dynamism positively impacted both exploratory and exploitative innovations. As a result, the organizational sense of urgency toward environmental dynamism promotes both exploratory and exploitative innovation in the Japanese radio industry, suggesting the importance of sharing a sense of urgency throughout the organization.

Conclusion

Academic Implications

This study’s academic contribution is to identify the unique organizational factors that drive innovation in the Japanese radio industry by quantitatively testing an original hypothesis developed through an interview survey.

Our findings can be summarized in the two points below. First, in the Japanese radio industry, management, except for transactional leadership, positively affects exploratory and exploitative innovation, whereas inspirational motivation from transformational leadership has a rather negative effect on both types of innovation. Second, formalization as an organizational coordination mechanism positively affects exploratory and exploitative innovation in the Japanese radio industry.

Existing studies have argued that transformational leadership has a greater effect on innovation than transactional leadership and that formalization encourages exploitative rather than exploratory innovations. In contrast, the analysis of the current study yields contradictory

results. We attribute this result to the possibility that organizational factors specific to the Japanese radio industry influenced the interview survey results. These findings are unique to this study, which combined an interview survey with quantitative analysis. These results are considered this study's academic contribution.

Practical Implications

The analysis results have three practical implications. First, top management must use transactional leadership to drive innovation in the Japanese radio industry. This approach involves anticipating deviations from goals, gathering behavioral data to prevent such deviations, and acting when a problem arises. However, transformational leadership can also inhibit innovation creation. Furthermore, many top managers are appointed from outside organizations in the Japanese radio industry; therefore, an organizational mechanism must be implemented to compensate for the conscious divergence from the frontline organization by strengthening the senior management layer that has developed within the organization.

Second, formalization's importance as an organizational coordination mechanism is essential. Program production and broadcast technology departments should be the primary drivers of innovation in the Japanese radio industry; however, our interview survey indicated that the root cause of the impediment to innovation is that these organizations are managed by tacit knowledge that has become gentrified. Veteran producers of outsourcing companies wield power and discretion in the program production department, and they run the organization using traditional methods. Broadcast technology engineers refuse to introduce communication and technology, making it difficult to drive innovation. In contrast, organizational formalization may help to foster innovation. This study's results suggest that the field organization of the Japanese radio industry may require a rough treatment in which top management's intentions penetrate the field by introducing organizational management based on strict rules.

Third, we must consider the importance of senior team characteristics. The multiple regression analysis of the questionnaire survey revealed that the senior management team's shared vision was ineffective and that social integration negatively impacted the organization. Existing studies have shown that the most crucial aspect of ambidextrous management is that senior management teams with competing interests share a company-wide perspective. This aspect is based on resolving conflicts when each senior management team coordinates conflicting goals in their respective tasks. However, social integration reinforces a conservative corporate culture, which can stifle innovation due to a lack of human resources and organizational immaturity among the senior management team in the Japanese radio industry. This study's practical contribution demonstrates the importance of strengthening the early-stage senior management team regarding external personnel recruitment and internal personnel development.

Limitations

This study's limitations include issues related to the survey. The first concern is the number of individuals in the middle management sample. Only 99 radio stations are members of the Japan Commercial Broadcasters Association; hence, the number of middle managers is limited, creating challenges when securing a specific number of participants. This point remains an issue for future research. Second, although we selected top managers in the radio industry as

interview subjects, a positive bias toward innovation may exist in the radio industry. This bias may occur because the respondents were selected from the members of the Radio Management Issues Study Group from member companies of the Japan Association of Commercial Broadcasters.

As a future issue, we must examine the relationship between Bass's (1985) transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration) and transactional leadership (contingent rewards and management by exception) and organizational coordination mechanisms (organizational units, senior management, and environmental dynamism) in the management of both sides of the industry. The interaction between transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and personalized attention) and transactional leadership (pay-for-performance and management by exception) must be analyzed. Moreover, future studies must establish a specific model for leading innovation using different leadership characteristics for different organizational factors.

Declarations

Acknowledgements

Not applicable.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Ethics Approval

Not applicable.

Funding Acknowledgements

This work was supported by JSPS KAKENHI Grant Number 22K13475.

Citation to this article

Miyazawa, Y., & Kimura, Y. (2024). Organizational factors leading to innovation in Japan's Radio Industry. *International Journal of Organizational Leadership*, 13(2), 394-412. <https://doi.org/10.33844/ijol.2024.60421>

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