

# The Effects of Dimensions of Organizational Structure on Innovation in Business School Libraries in India: An Empirical Study

Champeswar Mishra<sup>1\*</sup> and Bulu Maharana<sup>2</sup>

<sup>1</sup>Tripura University (A Central University), Suryamaninagar (W), Agartala - 799 022, Tripura, India; champeswarm@gmail.com

<sup>2</sup>Department of Library and Information Science, Sambalpur University, Jyoti Vihar, Burla - 768019, Sambalpur, Odisha, India; bulumarana@gmail.com

## Abstract

**Purpose:** In an intensely competitive and changing environment, innovation can be considered as a survival strategy. The purpose of this paper is to investigate the effects of organization structure on innovation in business school libraries in India. **Design/methodology/approach:** The study focused on libraries of leading business schools, viz., IIMs. A structured questionnaire was used to collect data for this study. The quantitative data were analyzed to test the hypothesis. **Findings:** The dimensions of organizational structure i.e., vertical complexity, employee participation and organizational complexity are positively related to innovation and have higher OS influence in innovation among business school libraries. On the other hand, increase in formalization, the degree of centralization and strict adherence to pre-defined roles and rigid rules in the organization are negatively related to innovation. **Research Limitations:** The study is limited to libraries of Indian Institutes of Management (IIM) India. Thus, other scientific and technical libraries are not in the ambit of this study. **Originality/value:** In India, there is no study conducted in academic management libraries. This study can be used as a guide for library administrators to accomplish the objectives of the organization by enabling innovation in the context of organizational structure.

**Keywords:** Academic Management Library, IIMs, Indian Management Schools, Library Innovation, Organizational Structure, Organizational Innovation, Structural Dimensions

## 1. Introduction

Innovation in organizations is an important factor contributing to success in today's rapidly changing and intensely competitive environment. Transformation among academic libraries is evident for survival as noted by Stoffle, Renaud, and Veldof (1996). Innovation can be used as an instrument for transforming academic libraries. A number of factors – internal and external – affect innovation in the organizations (Ahuja, Lampert & Tandon (2008). Organizational climate, conducive working atmosphere and organization structure are internal influential factors on organizational innovation.

Organization structure is one of the most visible and influential elements of organization form, which, when assessed, could bring out the preparedness of an organization for innovation (Yamini & Gupta, 2008).

It has been suggested that there is a significant relationship between innovation and organizational structure (Aiken, 1980; Menguc, 2010; Sahay, 2011). In India, there is hardly any research on the influence of organizational structure on innovation in the context of academic libraries. This research is an attempt at examining the effect of OS on innovation in business school libraries in India.

\*Author for correspondence

## 2. Literature Review

### 2.1 Defining Organizational Structure and Related Dimensions

Thompson (2017) says: “the structure as the means for the organization sets limits and boundaries for efficient performance by its employees, by delimiting responsibilities, control over resources, and other matters”. Organizational structure is nothing but an established pattern of relationships among various components in an organizational setup (Mintzberg, 1979). Further, Mintzberg emphasized that formalization (the standardization of work processes) facilitates innovation, whereas vertical differentiation/direct supervision inhibits innovation. Organizational structure and characteristics and dimensions are strongly related to the environment behaviour. As argued by Daft (2015), in a stable environment having a rigid organizational structure can be the characteristic of vertical control, efficiency, specialization, standardization and centralization in the decision-making process. Further, the study argues that in a quickly changing environment, a more flexible structure with a strong horizontal coordination, little standardization, and a centralized decision-making process is required for success. Damanpour (1991) has identified thirteen organizational characteristics associated with organizational innovation, viz., specialization; functional differentiation; management attitudes towards change; professionalism; decentralization; sources of technical knowledge; administrative intensity, inactive resources; and internal and external communication. Further, the study argued that high formalization, centralization of decisions, and vertical differentiation are directly associated with organizational innovation. Fredrickson (1986) argued that organizational characteristics, centralization, formalization and complexity of tasks have received more attention among organizations due to their stronger influence in strategic decision-making. Organizational complexity is considered one of the important dimensions which plays a dominant role in organizational innovation (Zaltman et al., 1973). Further, the study argued that in order to cope with risks and turbulent environment, organizational leaders need to increase “organizational complexity by recruiting people with different knowledge and skill sets and by creating new functional units”. Paswan et al., (1998) focused on formalization, centralization, environmental uncertainty, and bureaucratization in distribution channels in an organizational structure. Vertical complexity is important for enhancing organization innovation as

studied by Robbin (1999), where he established that flat structure reduces growth opportunities in an organization. Vertical complexity creates an opportunity for employees to meet power, authority, and status needs. Thus, it can be proposed that vertical complexity has a positive and significant relationship with organizational innovation. On the other hand, horizontal complexity has less-defined chain command in an organization where employees have equal input in organizational success. Pavitt (1994) speculated that horizontal complexity develops prime and best opportunities for new product development, especially in an R & D based organization. Bommer and Jalajas (2004) argued that greatest innovations happen in an organization by interaction or coordination among different sections or units with each other to develop new products, process or services to meet the needs of customers. Thus, it can be proposed that horizontal complexity has a positive and significant relationship with organizational innovation.

A centralized structure is a form of organization where decision-making lies with the top authority in the hierarchy. Lysonski et al., (1995) discussed that in the dimensions of organizational structure, “the degree of centralization of decision-making, formalization of rules and procedures, and structural differentiation in their investigation of environmental uncertainty” have played a significant role in decision-making. Burns and Stalker (1961) argued that a stable environment, leads to mechanistic structures with centralized and hierarchical controls, on the other hand, turbulent environment supports flattened structures and diversity of professional knowledge and skills. Damanpour and Gopalakrishnan (1998) argued that the framework of organizational innovation can be divided into two dimensions as stable/unstable and predictable/unpredictable. Chen and Huang (2007) believed that centralization in OS decreases communication, commitment, and involvement with tasks among participants. An organization having rigid rules with high centralization leads to a lower rate of innovation as it inhibits communication and innovative ideas (West, 2000; Hage and Aiken, 1970; Pugh et al., 1969) Many have suggested that innovations require decentralization in the workplace in order to develop and implement new ideas (Vedamanickam, 2001), McNulty and Ferlie, 2004)

Zaltman et al., (1973) says that formalization in organizational system refers to following of specific rules and prescribed procedures. An organization having low formalization permits openness, and openness among employees encourages new ideas (Pierce and Delbecq, 1977). Employee participation in the decision-making process is important to get feedback and develop new ideas

for the betterment of the organization. Library leaders should encourage and involve their team in implementing new and innovative ideas. West (1990) claimed that an important aspect of successful innovation is the participation of team members in the decision-making process.

## 2.2 Organizational Innovation

Innovation is no more considered as a small idea which can be applied only to new products or services. Innovation is a necessity in organizations including libraries. Khandwalla (1995), observed strong and positive correlations between participation in the decision-making process and organizational innovations in an Indian context. Shadur, Kienzle and Rodwell (1999), claimed that organizational structures with employees having larger participation in the decision-making process, leads to greater commitment and stimulates innovation in the organization. Participative decision-making process has a positive relationship and significant for innovation.

Innovation may broadly be defined as the adoption of an internally generated or purchased device, system, policy, program, process, product, or service that is new to the adopting organization” (Damanpour & Evan, 1984; Zaltman, Duncan & Holbek, 1973; Robbins and Barnwell, 2006). Damanpour (1988) defined innovation “as a means of changing an organization either as a response to changes in the external environment or as a pre-emptive action to influence the environment. There are three types of innovation that have gained the most attention among organizations, i.e., administrative and technical, product and process, and radical and incremental. Technical innovation is an outward process that pertains to products, processes, services, and production process technology, whereas an administrative innovation refers to administrative processes which are indirectly related to the activities of an organization and are more directly related to its management. Product innovation is the introduction of new products or services to meet an external user or market demand, whereas process innovation refers to the adoption of new ideas into an organization’s production or service. Dewar and Dutton (1986) have distinguished between Radical Innovation (RI) and Incremental Innovation (II). In an organizational setup, managerial attitude and technical knowledge resources stimulate radical innovations (Dewar & Dutton, 1986; Hage, 1980), whereas structural complexity and decentralization facilitate incremental innovations (Ettlie et al., 1984).

Implementation of innovations in organization passes through a number of stages for testing and implementing the new ideas. Rogers (1983), Zaltman et al., (1973) and Ducan (1976) suggested in initiation stage i.e., perception of problem, information gathering about the problem, evaluation of resources and decision making to adopt the ideas and second one is the implementation stage the utilization of ideas or innovations for the success of the organization. Rowley (2011) proposed three important stages to implement innovation in an organization i.e., (i) generating ideas and opportunities, (ii) concept testing and development, and (iii) implementation.

## 2.3 Organizational Structure in Libraries

There is no comprehensive theory or research which can be used to study innovation in management school libraries. Pugh (2005) argued that library organizations should act as living networks i.e., decentralized and flattened structures in order to survive in the turbulent environment which ultimately encourages collaboration. Adeyoyin (2006) argues that organizational culture has a positive and significant relationship with innovation. He mentioned Ranganathan’s fifth library law i.e., the library as a growing organism where it is stated that a flexible organizational culture is vital. Chang and Wu (2013) assert that ‘overly formalized and elaborate structures undermine job satisfaction in organizations.’ Hward (1997) examined the impact of OS on innovation in research libraries. Flower (1998) identified fourteen variables which might have an impact on organizational innovation.

## 2.4 Research Hypotheses

This study examines the impact of organization structure on innovation in libraries of IIMs in the country. The following hypotheses have been formulated:

- H1: Organizational structure is positively related to innovation.
- H2: Vertical complexity is positively related to innovation.
- H3: Formalization of structure inhibits innovation.
- H4: Centralized structure is positively related to innovation.
- H5: Employee participation in the decision-making process has a negative relationship with innovation
- H6: Organizational complexity is negatively related to innovation.
- H7: Strict adherence to pre-defined roles is positively related to innovation.

### 3. Methodology

Questionnaires were sent by email and hard copy to librarians of IIMs with a covering letter stating the purpose of the research. A total of 20 questionnaires were distributed among the librarians of all leading IIMs, out of which  $n = 14$  (70%) responses were received. The data were analyzed to test the hypotheses.

### 4. Results

The formulated hypotheses were tested using inferential statistics Chi-Square test to examine the significance of relationships between observed and expected frequencies. If the ' $p$ ' value is less than 0.05 ( $p < 0.05$ ), then the statistic is considered to be significant. The results are shown in Table 1.

**Table 1.** Proportional Test for the effect of OS on Innovation

Independent Variable	Response	$p$ -Value
H1- Organizational Structure	Yes (14)	0.9996
	No (0)	
H2-Vertical Complexity	Yes (10)	0.0294
	No (4)	
H3-Degree of Formalization	Yes (3)	0.9959
	No (11)	
H4- Degree of Centralization	Yes (4)	0.0294
	No (10)	
H5- Participative Decision Making	Yes (5)	0.1284
	No (9)	
H6- Organizational Complexity	Yes (3)	0.9959
	No (11)	
H7-Predefined Roles and Rigid Rules	Yes (2)	0.0004
	No (12)	

### 5. Discussion and Conclusions

The paper seeks to understand the influence of dimensions of OS on innovation with particular reference to business school libraries. Based on the literature, the study proposed seven hypotheses. Among these, three hypotheses (H1, H5, H6) are supported, which suggest that organizational structure, participative decision-making and organizational complexity have a significant relation with innovation. On the other hand, four hypotheses (H2, H3, H4, H7) are not supported, suggesting that vertical complexity, increase in formalization, the degree of centralization, and strict adherence to pre-defined roles and rigid rules in the organization are negatively related to innovation. For the success of innovation in academic libraries, libraries should avoid too much formalization, centralization, complexity in working structure and should avoid adopting rigid rules. Hage and Aiken's (1967) theory proposed that organizational dimensions such as

complexity positively and centralization, formalization, and stratification negatively relate to the rate of innovation. Employee autonomy is equally important in the workplace to be innovative which supported the argument of Maku (2014) who argued that employee engagement assumes a critical role in creativity and innovation in the workplace. Leadership is a critical factor that plays a significant role in organizational innovation (Scott and Bruce, 1994).

### 6. References

1. Adeyoyin, S. O. (2006). Managing the library's corporate culture for organizational efficiency, productivity, and enhanced service. *Library Philosophy and Practice* (e-journal), 75.
2. Ahuja, G., Lampert, C. M., & Tandon, V. (2008). Moving beyond Schumpeter: management research on the determinants of technological innovation. *Academy of Management Annals*, 2(1): 1-98. <https://doi.org/10.1080/19416520802211446>

3. Aiken, M., Bacharach, S. B., and French, J. L. (1980). Organizational structure, work process, and proposal making in administrative bureaucracies. *Academy of Management Journal*. 23(4): 631-652. <https://doi.org/10.2307/255553>
4. Bandelin, J. M. (1999). "The academic library: Its context, its purpose, and its operation". *Reference & User Services Quarterly*. 38(2): 220.
5. Bommer, M., & Jalajas, D. S. (2004). Innovation sources of large and small technology-based firms. *IEEE Transactions on Engineering Management*. 51(1): 13-18. <https://doi.org/10.1109/TEM.2003.822462>
6. Burns, T., & Stalker, G. M. (1961). *The management of innovation*. Social Science Paperback, London, Tavistock: 104-108.
7. Chang, C. C., & Wu, C. C. (2013). "Multilevel analysis of work context and social support climate in libraries". In *ASLIB Proceedings: New Information Perspectives*. 65(6): 644-658. <https://doi.org/10.1108/AP-05-2012-0051>
8. Chen, C. J., & Huang, J. W. (2007). How organizational climate and structure affect knowledge management-the social interaction perspective. *International Journal of Information Management*. 27(2): 104-118 <https://doi.org/10.1016/j.ijinfomgt.2006.11.001>
9. Daft, R. L. (2015). *Organization theory and design*: Cengage Learning.
10. Damanpour, F. (1988). Innovation type, radicalness, and the adoption process. *Communication Research*. 15(5): 545-567. <https://doi.org/10.1177/009365088015005003>
11. Damanpour, F. (2010). An integration of research findings of the effects of firm size and market competition on product and process innovations. *British Journal of Management*. 21(4): 996-1010. <https://doi.org/10.1111/j.1467-8551.2009.00628.x>
12. Damanpour, F., & Aravind, D. (2012). Organizational structure and innovation revisited: From organic to ambidextrous structure. In *Handbook of organizational creativity*. 483-513. <https://doi.org/10.1016/B978-0-12-374714-3.00019-7>
13. Damanpour, F., & Gopalakrishnan, S. (1998). Theories of organizational structure and innovation adoption: the role of environmental change. *Journal of Engineering and Technology Management*. 15(1): 1-24. [https://doi.org/10.1016/S0923-4748\(97\)00029-5](https://doi.org/10.1016/S0923-4748(97)00029-5)
14. Dasgupta, M., Gupta, R. K., & Sahay, A. (2011). Linking technological innovation, technology strategy and organizational factors: A review. *Global Business Review*. 12(2): 257-277. <https://doi.org/10.1177/097215091101200206>
15. Dewar, R. D., & Dutton, J. E. (1986). The adoption of radical and incremental innovations: An empirical analysis. *Management Science*. 32(11): 1422-1433. <https://doi.org/10.1287/mnsc.32.11.1422>
16. Duncan, R. B. (1976). The ambidextrous organization: Designing dual structures for innovation, in R. Kilman & L. Pondy (eds.) *The Management of Organizational Design*. New York: North-Holland: 167-188.
17. Ettlie, J. E. (1983). Organizational policy and innovation among suppliers to the food processing sector. *Academy of Management Journal*. 26(1): 27-44. <https://doi.org/10.2307/256133>
18. Ettlie, J. E., Bridges, W. P., & O'keefe, R. D. (1984). Organization strategy and structural differences for radical versus incremental innovation. *Management Science*. 30(6): 682-695. <https://doi.org/10.1287/mnsc.30.6.682>
19. Fowler, R. K. (1998). The university library as a learning organization for innovation: an exploratory study. *College & Research Libraries*. 59(3): 220-231. <https://doi.org/10.5860/crl.59.3.220>
20. Fredrickson, J. W. (1986). The strategic decision process and organizational structure. *Academy of Management Review*. 11(2): 280-297. <https://doi.org/10.5465/amr.1986.4283101>
21. Gichohi, P. M. (2014). The role of employee engagement in revitalizing creativity and innovation at the workplace: A survey of selected libraries in Meru County-Kenya. *Library Philosophy and Practice*, 0\_1.
22. Hage, J. (1980). *Theories of organizations*. New York: Wiley.
23. Hage, J., & Aiken, M. (1967). Program change and organizational properties in a comparative analysis. *American Journal of Sociology*. 72(5): 503-519. <https://doi.org/10.1086/224380>
24. Hage, J., & Aiken, M. (1970). *Social change in complex organizations*, 41, Random House Trade.
25. Heller, F. A., Pusic, E., Strauss, G., & Wilpert, B. (1998). *Organizational participation: Myth and reality*, 4, Oxford University Press.
26. Howard, H. (1977). The relationship between certain organizational variables and the rate of innovation in academic libraries. Unpublished doctoral dissertation). Rutgers, the State University of New Jersey.
27. Khandwalla, P. N. (1977). *The design of organizations*. Harcourt, Brace, Jovanovich, New York.
28. Lyonski, S., Levas, M., & Lavenka, N. (1995). Environmental uncertainty and Organizational Structure: A product management perspective. *Journal of Product and Brand Management*, 4(3): 7-18. <https://doi.org/10.1108/10610429510097609>
29. McNulty, T., & Ferlie, E. (2004). Process transformation: Limitations to radical organizational change within public service organizations. *Organization Studies*, 25(8): 1389-1412. <https://doi.org/10.1177/0170840604046349>
30. Menguc, B., and Auh, S. (2010). Development and return on the execution of product innovation capabilities: The role of organizational structure. *Industrial Marketing Management*, 39(5): 820-831. <https://doi.org/10.1016/j.indmarman.2009.08.004>
31. Mintzberg, H. (1979). *The structuring of organization: A synthesis of the research*. Prentice-Hall.
32. Paswan, A. K., Dant, R. P., & Lumpkin, J. R. (1998). An empirical investigation of the linkages among rationalism, environmental uncertainty, and bureaucratization. *Journal of Business Research*, 43(3): 125-140. [https://doi.org/10.1016/S0148-2963\(97\)00218-X](https://doi.org/10.1016/S0148-2963(97)00218-X)

33. Pierce, J. L., & Delbecq, A. L. (1977). Organization structure, individual attitudes and innovation. *Academy of Management Review*, 2(1): 27-37. <https://doi.org/10.5465/amr.1977.4409154>
34. Prakash, Y., & Gupta, M. (2008). Exploring the relationship between organisation structure and perceived innovation in the manufacturing sector of India. *Singapore Management Review*, 30(1): 55.
35. Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1968). Dimensions of organization structure. *Administrative Science Quarterly*, 13(1): 65-105. <https://doi.org/10.2307/2391262>
36. Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1969). The context of organization structures. *Administrative Science Quarterly*, 14(1): 91-114. <https://doi.org/10.2307/2391366>
37. Pugh, L. (2005). *Managing 21<sup>st</sup>-century libraries*. Lanham, Md.: Scarecrow Press.
38. Robbins, S. P., & Barnwell, N. (2006). *Organisation theory: Concepts and cases*. Frenchs Forest, NSW: Pearson Education Australia.
39. Rogers, E. M. 1983. *Diffusion of innovations*. New York: Free Press
40. Rowley, J. (2011). Should your library have an innovation strategy?. *Library Management*. 32(4/5): 251-265. <https://doi.org/10.1108/01435121111132266>
41. Sahay, Y. P., and Gupta, M. (2011). Role of organization structure in innovation in the bulk-drug industry. *Indian Journal of Industrial Relations*. 46(3): 450-464.
42. Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behaviour: A path model of individual innovation in the workplace. *Academy of Management Journal*. 37(3): 580-607. <https://doi.org/10.2307/256701>
43. Shadur, M. A., Kienzle, R., & Rodwell, J. J. (1999). The relationship between organizational climate and employee perceptions of involvement: The importance of support. *Group & Organization Management*. 24(4): 479-503. <https://doi.org/10.1177/1059601199244005>
44. Stoffle, C. J., Allen, B., Morden, D., & Maloney, K. (2003). Continuing to build the future: academic libraries and their challenges. *Portal: Libraries and the Academy*. 3(3): 363-380. <https://doi.org/10.1353/pla.2003.0068>
45. Thompson, J. D. (2017). *Organizations in action: Social science bases of administrative theory*. Routledge. <https://doi.org/10.4324/9781315125930>
46. Tom, B. & G. M., Stalker (1961). *The management of innovation*. London: Tavistock: 104-08.
47. Walton, R. E. (1984). *From control to commitment: transforming workforce management in the united states*. Division of Research, Harvard Business School.
48. West, J. (2000). Institutions, information processing, and organization structure in research and development: evidence from the semiconductor industry. *Research Policy*. 29(3): 349-373. [https://doi.org/10.1016/S0048-7333\(99\)00035-9](https://doi.org/10.1016/S0048-7333(99)00035-9)
49. West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology*. 51(3): 355-387. <https://doi.org/10.1111/1464-0597.00951>
50. Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. John Wiley & Sons.