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Designing an Open Innovation Model Based on Sustainable Ethical Behaviors Using Textual Content Analysis Approach

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Abstract

Given the unrestricted nature of knowledge in today's world and the dissolution of rigid boundaries between organizations and even countries, the concept of closed innovation has been replaced by open innovation. Organizations are transitioning from closed innovation to open innovation, which represents one of the most complex stages of the innovation process. Sustainable business ethics is considered a crucial issue for organizations, and the lack of recognition of its related indicators can lead to negative consequences in society. The present study aims to design an open innovation model based on sustainable ethical behaviors using a textual content analysis approach. Accordingly, 45 domestic articles and 77 international articles were utilized. Based on the content analysis approach, the identified factors include individual factors with six criteria (respectful behavior, honesty, conscientiousness, benevolence, prudent behavior, and knowledge sharing), organizational factors with six criteria (meritocracy, support, workplace spirituality, informed decision-making, fair evaluation, and excellence), and environmental factors with five criteria (law compliance, technology, scholarly interaction, supportiveness, and trust). These factors collectively contribute to open innovation based on sustainable ethical behaviors.

Keywords: *Open Innovation, Sustainable Ethical Behaviors, Textual Content Analysis*

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1. Introduction

Today, adherence to professional ethics in organizations is considered one of the most important factors for organizational success [1]. In recent decades, organizational managers have increasingly recognized the importance of strengthening professional ethics in the core processes of their organizations and regard ethics as a key factor in organizational stability and achieving strategic goals [2]. According to conducted research, ethics is one of the significant and influential variables in the success and progress of organizations [3-5]. The modern world is becoming increasingly competitive for organizations. Therefore, organizations seek to gain a competitive advantage over other companies through ethical behavior, as producing high-quality products alone is not sufficient to capture a larger market share [6, 7].

Open innovation is a model based on the assumption that if companies aim to enhance their technological capabilities, they can and should utilize external technological ideas in addition to internal ones and leverage diverse internal and external pathways to reach the market [8-10]. Ethical behavior in practice refers to what is accepted as good or right versus bad or wrong within a social context. Therefore, ethical behavior can be defined as conduct that is generally accepted by the public as appropriate and correct in a specific environment [11, 12].

Open innovation has been defined as "the purposeful use of inbound and outbound knowledge flows to accelerate internal innovation and expand the market for external use of innovation." In this regard, open innovation is a paradigm in which a company can leverage both external and internal ideas [13, 14]. This concept involves "using inflows and outflows of knowledge to enhance internal innovation while also utilizing market opportunities to capitalize on external innovations." According to Chesbrough, "organizations seeking to advance their technologies can and should make use of external ideas to the same extent as internal ideas and employ both internal and external pathways to market" [15].

Efficient managers aim to create a suitable foundation to improve ethical behavior within the organization to enhance the performance of their subordinates. Another ethical dimension is having a meaningful perspective on life. To achieve a meaningful outlook on life, it is essential to deeply reflect on all aspects of life. Achieving this goal requires not only a proper understanding of logical and emotional intelligence but also consideration of spiritual intelligence [16, 17].

Ethics is an inseparable pillar of human life, and neglecting it has led to significant damage. Work ethics is a set of beliefs and attitudes that reflect core work values and a set of attitudes and beliefs related to work behavior. Many organizations face decline due to ethical issues; therefore, research into ethical issues and the effectiveness of ethical theories has gained attention. Ethical behavior in an organization is defined as actions that align with the organization's existing ethical values and reflect individual values. Ethical behavior is considered a fundamental approach to eliminating ethical abnormalities within organizations. It is defined as behavior that conforms to the policies, values, and established norms of the organization. Ethical behavior reflects individual values, which include a range of beliefs and preferences that drive an individual's behavior. When individuals fail to adhere to ethical principles, their ethical standards decline, and in an unethical psychological state, they justify a wide range of behaviors for themselves [16, 18-20].

Therefore, the primary objective of this study is to design an open innovation model based on sustainable ethical behaviors using a textual content analysis approach.

2. Methodology

The present study falls within the category of applied research in terms of its objective. The statistical population includes all domestic and international studies published in the field of organizational innovation, ethical behaviors, and supporting theories (whether quantitative, qualitative, or mixed methods) within a specific timeframe. The domestic studies considered were conducted over the past five years, from 2018 to 2022 (Gregorian calendar), and international studies within the same five-year period, from 2017 to 2021. In qualitative research, the richness of information and the researcher's analytical ability are considered more important than the sample size. In such studies, data collection is discontinued when saturation is reached across all relevant categories. This occurs when the theory or subject under study is fully explored and no new information is obtained. Therefore, in qualitative research, the sample size is considered synonymous with data saturation or theoretical saturation. Based on the outlined criteria, 45 domestic articles and 77 international articles were selected for analysis.

Most qualitative methodologists, instead of using the terms validity and reliability—concepts rooted in the quantitative paradigm—prefer to use the criterion of

trustworthiness or credibility to assess the quality of qualitative research results. Guba and Lincoln define trustworthiness through four criteria: credibility, transferability, dependability, and confirmability.

3. Findings and Results

Content analysis is one of the documentary research techniques used in social sciences. Documentary research methods involve studying, analyzing, and reviewing documents, texts, and articles to fulfill the research objectives. This technique involves analyzing and processing content to extract key textual data and primary indicators related to the topic. A comparative study of criteria related to open innovation based on sustainable ethical behaviors has been conducted through importance-performance analysis of the research content, coded from the following sources. The identification of the most critical criteria associated with open innovation based on sustainable ethical behaviors has been achieved through textual content analysis of domestic and international articles. In essence, the identification of key components has been carried out by analyzing the content of the reviewed articles. The identified key components are summarized in Table 1 based on the qualitative findings (E: English articles, P: Persian articles):

Table 1. Identification of Components Related to Open Innovation Based on Sustainable Ethical Behaviors

Statement	Source
Polite behavior	E1, E4, E9, E15, E49, E75, P2, P5, P12, P32, P40
Sincerity	E51, E63, E66, P13, P23, P25, P30, P36, P40
Positive attitude	E3, E6, E8, E12, E16, E50, E59, P14, P17, P31
Timely and accurate information sharing	E7, E53, E69, P6, P20, P28, P38, P44
Avoiding exaggeration	E13, E17, E23, E64, E65, P8, P19, P34
Avoiding negligence in work	E27, E35, E42, E46, E54, E62, P6, P10, P17, P22, P37
Awareness of job descriptions	E5, E19, E33, E39, E41, E68, E70, P1, P11, P27
Understanding direct stakeholders	E25, E47, E52, E57, E61, E73, P26, P29, P33
Work discipline	E2, E11, E22, P24, P31
Understanding colleagues' circumstances	E18, E28, E30, E39, E55, E77, P7, P18, P39
Self-sacrifice	E15, E18, E32, E38, P3, P5, P42
Not undermining colleagues	E14, E21, E34, E49, E66, P2, P14, P32, P42
Striving for knowledge acquisition	E30, E41, E44, P12, P25, P27
Respect	E1, E10, E43, P4, P22
Receptiveness to criticism	E4, E51, P7, P16, P23
Responsibility	E2, E26, E36, E35, E74, P15, P30
Proper planning	E37, E60, P1, P21, P35, P43
Providing accurate information	E8, E29, E48, E71, P20
Experience sharing	E2, E7, E11, E15, E53, P16, P36
Teamwork	E3, E20, E31, E45, E56, E63, E75, P11
Work support	E6, E26, E36, E40, E58, P26, P29, P45
Justice	E24, E44, E60, P5, P9, P41
Experience-based approach	E5, E23, E31, E50, E59, P8
Fair promotion	E16, E32, E58, E68, E74, P10, P33
Creating an interactive environment	E6, E14, E26, E40, E76, P9, P35
Considering God as an observer of actions	E4, E24, E49, P4, P17, P39
Prioritizing organizational over personal interests	E2, E21, E34, E64, P12, P21, P38
Avoiding favoritism	E10, E23, E37, E50, P9, P24
Treating everyone equally	E32, E43, P14, P19, P41
Avoiding artificial formalities	E5, E16, E25, E60, E70, P1, P18, P44
Strict supervision of work processes	E9, E29, E48, E61, E77, P22, P37
Proper contractor evaluation	E1, E22, E36, E59, E72, P3
Training	E14, E27, E47, E62, P2, P15, P21, P39
Appreciation	E7, E15, E30, E43, E58, E69, P5, P10, P32, P41
Employee growth	E3, E31, E54, P5, P25, P45
Providing promotion opportunities	E11, E39, E52, E71, P13, P29
Trust in teamwork	E6, E38, E57, E76, P16, P24
Compliance with laws and regulations	E17, E35, E42, E44, E68, P2, P8, P28

Awareness of laws and regulations	E7, E15, E18, E42, E55, E65, P11, P31, P34, P42
Monitoring law implementation	E12, E28, E53, E63, P6, P23, P40
Obedience	E14, E20, E30, E40, E46, E67, P5, P33, P41
Performing quality work accurately	E13, E19, E41, E66, P20, P30, P43
Proper infrastructure	E8, E33, E51, P7, P26
Optimal use of ICT	E20, E45, E56, E67, P11, P26, P36
Clarification of duties and expectations	E32, E44, P4, P17, P40, E66, E77, P45
Experience transfer to contractors	E29, E40, E67, E72
Facilitating problem-solving in project execution	E8, E18, E33, E55, P8, P33, P43
Fulfilling commitments	E10, E31, E48, E54, E74, P8, P18, P41
Financial support	E13, E38, E51, E58, E71, E75, P7, P19, P31, P44
Security	E5, E11, E20, E43, E55, E61, E69, P13, P25, P35, P42
Providing accurate programs	E3, E12, E24, E63, E73, P13, P23
Information sharing	E6, E17, E27, E37, E47, E56, E65, P24, P43
Overlooking minor mistakes	E4, E13, E35
Observing workplace privacy	E1, E22, E42, E57, E67, P3, P16, P28, P34, P40
Youth-centered approach	E12, E16, E25, E38, E52, E70, P1, P10, P21, P36, P45
Consultation and collaboration	E9, E19, E28, E46, E62, E72, E76, P4, P15, P30, P37

Table 2. Statements Related to Organizational Innovation Based on Sustainable Ethical Behaviors

Dimension	Criterion	Sub-Criterion	Statement
Individual Factors	Respectful Behavior	Polite behavior	Polite behavior in the organization will lead to open innovation.
		Sincerity	Sincerity in the organization will foster affectionate behavior.
		Positive attitude	Having a positive attitude in the organization will lead to open innovation.
	Honesty	Timely and accurate information sharing	Timely and accurate information sharing will result in honesty at work.
		Avoiding exaggeration	Avoiding exaggeration will lead to open innovation.
	Conscientiousness	Avoiding negligence	Avoiding negligence in work will contribute to advancing open innovation in the organization.
		Awareness of job descriptions	Employees' awareness of their responsibilities will foster comprehensive cooperation in creating opportunities for innovation.
		Understanding direct stakeholders	Employees' understanding of direct stakeholders will contribute to advancing open innovation goals.
		Work discipline	Having work discipline in the organization will ensure proper conscientiousness in achieving open innovation.
	Benevolence	Understanding colleagues' conditions	Understanding colleagues' conditions will promote benevolence in open innovation.
		Self-sacrifice	Self-sacrifice is one of the individual factors contributing to open innovation.
		Avoiding undermining colleagues	Avoiding undermining colleagues is an individual factor contributing to open innovation.
		Effort to acquire knowledge	Striving to acquire knowledge will result in open innovation.
		Respect	Mutual respect in the organization will foster open innovation.
	Prudent Behavior	Receptiveness to criticism	Being receptive to criticism will lead to open innovation.
		Responsibility	Responsibility is one of the prudent behaviors contributing to open innovation.
		Proper planning	Proper planning will lead to open innovation.
	Knowledge Sharing	Providing accurate information	Providing accurate information will result in open innovation.
		Experience sharing	Experience sharing will lead to open innovation.
		Teamwork	Teamwork will result in open innovation.
		Work support	Work support will facilitate knowledge sharing.
Organizational Factors	Meritocracy	Justice	Justice in the organization will ensure meritocracy.
		Experience-based approach	An experience-based approach will lead to open innovation.
		Fair promotion	Fair promotion will contribute to open innovation.
	Support	Experience sharing	Experience sharing will lead to open innovation.
		Teamwork	Teamwork will advance open innovation.
		Creating an interactive environment	Creating an interactive environment will act as a supportive factor.
	Spirituality at Work	Considering God as an observer	Considering God as an observer will enhance spirituality at work.

		Prioritizing organizational over individual interests	Prioritizing organizational over individual interests will lead to open innovation.
	Informed Decision-Making	Avoiding favoritism	Avoiding favoritism in the organization is a sign of informed decision-making.
		Treating everyone equally	Treating everyone equally in the organization will foster open innovation.
		Avoiding artificial formalities	The absence of artificial formalities will promote open innovation.
	Fair Evaluation	Accurate supervision of work processes	Accurate supervision of work processes will ensure fair evaluation.
		Proper contractor evaluation	Proper contractor evaluation will lead to open innovation.
	Excellence	Training	Training will lead to open innovation.
		Appreciation	Appreciation will foster open innovation.
		Employee development	Employee development will contribute to open innovation.
		Providing promotion opportunities	Providing promotion opportunities will lead to open innovation.
		Trust in teamwork	Trust in teamwork will foster open innovation.
Environmental Factors	Law Compliance	Adherence to laws and regulations	Compliance with laws and regulations will lead to open innovation.
		Awareness of laws and regulations	Awareness of laws and regulations will foster open innovation.
		Supervision of law enforcement	Supervision of law enforcement will lead to open innovation.
		Obedience	Obedience in the organization will foster open innovation.
		Performing quality work correctly	Performing quality work correctly will contribute to open innovation.
	Technology	Proper infrastructure	Having proper infrastructure will foster open innovation.
		Optimal use of ICT	Optimal use of ICT will contribute to open innovation.
	Scholarly Interaction	Clarification of duties and expectations	Clarifying duties and expectations will foster open innovation.
		Experience transfer to contractors	Experience transfer to contractors will contribute to open innovation.
		Facilitating problem-solving in execution	Facilitating problem-solving in execution will lead to open innovation.
		Fulfilling commitments	Fulfilling commitments in the organization will contribute to open innovation.
	Supportiveness	Financial support	Financial support will provide the foundation for open innovation.
		Security	Security will contribute to support for open innovation.
		Providing proper programs	Providing proper programs will contribute to open innovation.
	Trust	Information sharing	Information sharing among employees will foster open innovation.
		Overlooking minor mistakes	Overlooking minor mistakes will foster open innovation.
		Observing workplace privacy	Observing workplace privacy will build trust.
		Youth-centered approach	A youth-centered approach will foster trust in the open innovation process.
		Consultation and collaboration	Consultation and collaboration will lead to open innovation.

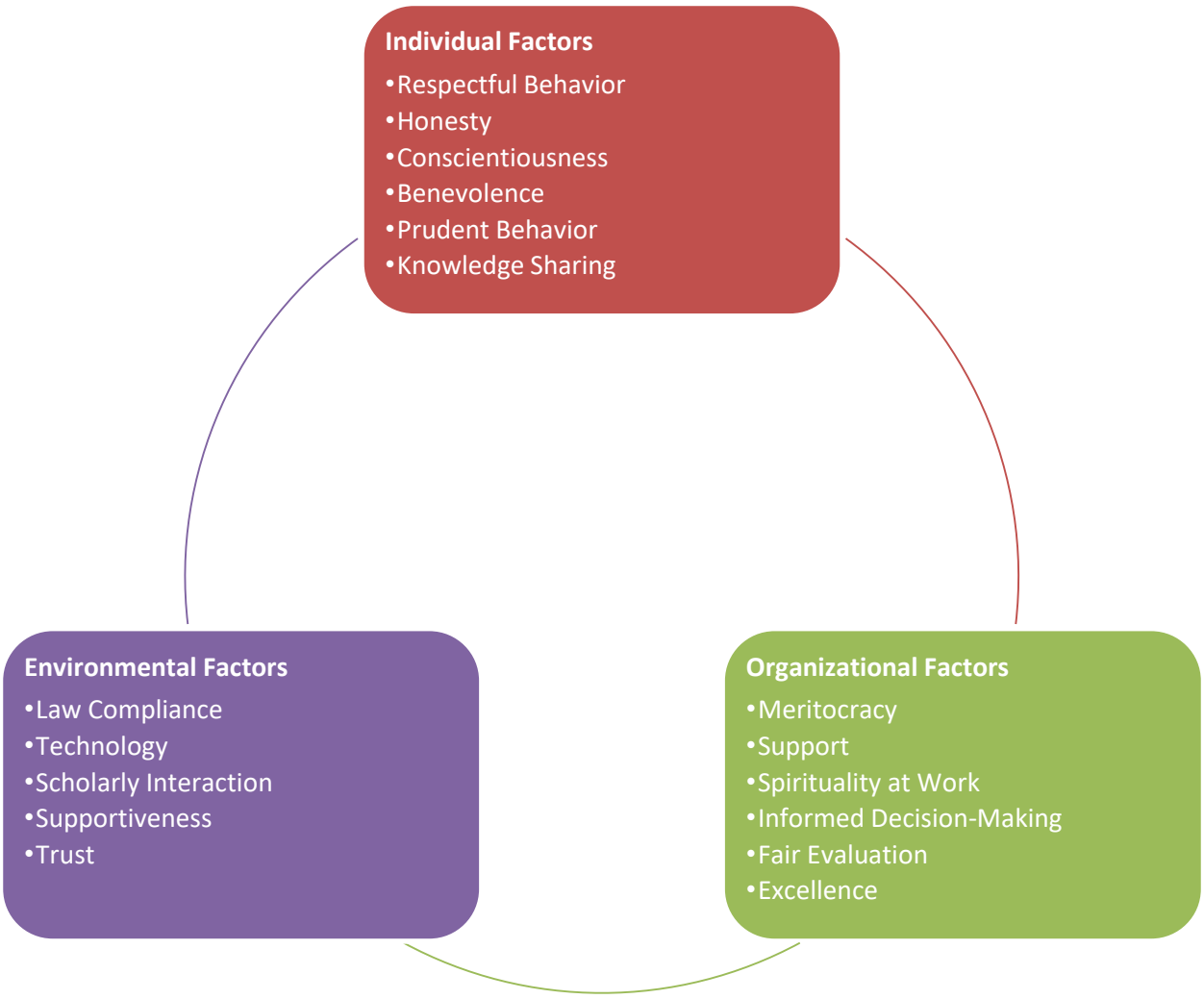

Figure 1. Final Model of the Study

4. Discussion and Conclusion

Based on the conducted analyses using a textual content approach, individual factors include six criteria (respectful behavior, honesty, conscientiousness, benevolence, prudent behavior, and knowledge sharing). Organizational factors include six criteria (meritocracy, support, spirituality at work, informed decision-making, fair evaluation, and excellence), and environmental factors include five criteria (law compliance, technology, scholarly interaction, supportiveness, and trust), all of which contribute to open innovation based on sustainable ethical behaviors.

The issue of honesty, or existential integrity, is one of the key ethical concerns, often raised due to perceived gaps in consequentialist theories and some deontological theories. This has led to the need for a new type of normative theory—one that assigns a fundamental role to personal identity and character in ethical thought. Additionally, there is a close relationship between managers' understanding of organizational priorities and their conscientiousness. Since there is no objective concept of conscientiousness and all strategies exist only in individuals' minds, managers can only implement their subjective interpretations of strategic plans. Therefore, each manager interprets the surrounding environment and strategic directives in their unique way, making managerial characteristics crucial in strategic decision-making within organizations.

Prudent behavior is essential for progress and change, as it requires adequate knowledge and readiness among organizational managers to align with evolving systems. Consequently, it is evident that the open innovation approach also demands innovative management practices.

Regarding knowledge sharing, it is widely believed that to successfully adopt the open innovation model, organizations must develop the capability to identify, absorb, and utilize external knowledge and ideas. Open innovation fundamentally revolves around strengthening both internal and external knowledge to enhance the innovation process. Therefore, a knowledge management system should be implemented to leverage both internal and external knowledge in support of the open innovation approach.

Some studies also consider cultural factors as essential prerequisites for open innovation, reflecting an organization's value alignment with innovation. The lack of internal commitment to open innovation is identified as a cultural barrier that hinders its implementation.

In the open innovation process, managers must first recognize new opportunities, prioritize them, identify critical factors, and guide their organizations through less familiar domains. Open innovation involves the highest levels of organizational and managerial complexity and requires the highest levels of managerial competence. It necessitates managers who can make new decisions regarding the development and implementation of innovative activities. Managers must determine when, how, with whom, for what purpose, and by what means to collaborate with external institutions.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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