DETERMINANTS OF OPEN INNOVATION ADOPTION IN INDIA'S MANUFACTURING SECTOR: AN EMPIRICAL ANALYSIS

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ABSTRACT

Open innovation is gaining recognition as a strategic approach for the industrial sector to enhance competitiveness and adaptability. This study investigates the primary determinants influencing the implementation of open innovation (OI) in Indian manufacturing firms, a context that is presently insufficiently addressed in the existing literature. Innovation theory and the resource-based view, seven antecedents are examined: competitive advantage, government support and policy, innovation and flexibility, knowledge absorptive capacity, market uncertainty, organizational readiness, and proactivity. This study aims to determine the factors that influence Indian manufacturing companies' decision to adopt open innovation, including organizational readiness, competitive advantage, government policy and support, innovation and flexibility, knowledge absorption capacity, market uncertainty, and proactiveness. The study employed a descriptive and causal design and used primary data gathered from 398 senior executives in the manufacturing sector. We used a structured questionnaire that was based on items that had been validated in previous research to gather data. The proposed hypotheses were tested and the significance of the correlations between the constructs was evaluated using Structural Equation Modeling via Partial Least Squares (SEM-PLS). The results show that organizational readiness, competitive advantage, innovation and flexibility, market uncertainty, and proactiveness all have a major impact on OI adoption. Organizational readiness was more important than government support or the capacity to take in new information. These results show that internal strategic and structural capabilities of Indian businesses are more significant in promoting OI practices than external institutional support. This work adds to the theory of innovation in emerging economies by providing a tested structural model that can be applied to the manufacturing sector in India. It illustrates that lawmakers need to change the way they aid businesses and that businesses need to use their own skills. The study shows that innovation methods that work in one place may not work in another, especially in economies with limited resources and different types of institutions.

INTRODUCTION

Innovation has become a key part of the global industrial environment for staying competitive, efficient, and growing in a sustainable way. Traditional innovation methods, especially in manufacturing, depended a lot on internal research and development (R&D) and didn't always let people share what they knew with people in other parts of the company (Szromek & Bugdol, 2024). Firms are starting to see the problems with closed innovation methods as markets become more unstable and technologies change quickly. This shift has led to the rise of Open Innovation (OI) as a new paradigm that promotes collaboration with external stakeholders—including customers, suppliers, universities, startups, and even competitors—to source and exploit ideas and knowledge beyond the firm’s internal

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environment (Fu et al., 2024b). Open innovation enables firms to respond more effectively to customer needs, reduce innovation costs, accelerate product development, and access complementary capabilities that would otherwise be unavailable or expensive to build internally. In manufacturing sectors, where production cycles, technological requirements, and customer expectations are constantly shifting, the capacity to integrate external inputs is crucial (Yang et al., 2021). By leveraging open innovation, firms can introduce new products faster, adopt more flexible manufacturing techniques, and align operations with emerging technological trends such as Industry 4.0, IoT, and advanced analytics Çallı et al., (2024b). Furthermore, the global trend toward digital transformation and sustainability has increased the urgency for manufacturers to innovate beyond their internal capacities (Cuevas-Vargas et al., 2023). Companies in developing countries like India can embrace open innovation as a way to tackle their local problems and connect with global innovation networks. This is especially important in India, where there are still problems with infrastructure, skills, and resources. It also allows Indian enterprises connect with partners all over the world to build new technologies and learn from a number of various places (Cordeiro et al., 2022). Open innovation has been adopted by India's industrial sector on and off over the years. Many companies are still doing research and development the old-fashioned way.We need to know what makes it easier or harder for firms to embrace OI in this scenario (Chatterjee et al., 2021) if we want to make them more competitive, stimulate long-term growth, and help our country come up with new ideas. As India seeks to establish itself as a global manufacturing center, supported by initiatives like Make in India and the Production-Linked Incentive (PLI) plan, the incorporation of open innovation into manufacturing strategy is becoming pertinent and essential (Cordeiro et al., 2022).

This research seeks to analyze the primary factors influencing the adoption of open innovation within Indian manufacturing firms. It aims to develop and empirically test a comprehensive structural model that clarifies the relationship between organizational, strategic, and environmental antecedents and the extent to which manufacturing enterprises embrace open innovation methodologies (Sarpong et al., 2024). The study concentrates on seven pivotal antecedents competitive advantage, government support and policy, innovation and flexibility, knowledge absorptive capacity, market uncertainty, organizational readiness, and proactivity recognized in previous literature as crucial facilitators or impediments to innovation adoption (Qu & Kim, 2025). These antecedents are considered subordinate reflective structures within the structural model, each signifying a unique aspect of the firm's internal competencies, strategic positioning, or external setting Edquist & Hommen, (2000). The endogenous variable, the adoption of open innovation, is considered a reflective construct. Through the use of Structural Equation Modeling using Partial Least Squares (SEM-PLS), this research tests the hypothesized relationships among these constructs based on survey data collected from decision-makers in the Indian manufacturing sector (Wang et al., 2022). The purpose of this study is not only to determine whether or not these characteristics have a significant impact on the adoption of OI, but also to quantify the extent to which they do have an impact. This will provide us with a better understanding of how individuals are able to accept novel concepts Dabić et al., (2023b). By offering an empirical foundation for assessing OI determinants, the research aids in reconciling theoretical frameworks with practical implementation, particularly given India's distinct socio-economic and institutional landscape (Sarpong et al., 2024). Additionally, the model aims to assist firm-level decision-making by aiding managers in determining which capabilities and conditions should be emphasized to promote open innovation Dabić et al., (2023b). The decisions that are made about innovation may be influenced by a wide range of external factors, such as the legislation of the government and the unpredictability of the market Grant, (1996). According to Ayinaddis (2023b), one of the internal factors that influences

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evaluations of innovation is the organization's readiness and its capacity to absorb new information. The primary objective is to provide academics, practitioners, and policymakers with a robust framework that will stimulate open innovation (OI) among businesses in developing nations such as India.

The significance of this study lies in its focus on an under-researched yet strategically important area: the adoption of open innovation in the Indian manufacturing context. While open innovation has been extensively studied in developed economies, relatively little empirical research exists for emerging markets, where contextual factors such as institutional support, infrastructure, and organizational maturity differ substantially(Szromek & Bugdol, 2024). Despite the fact that the government of India has efforts in place to encourage innovation, such as the Atal Innovation Mission and the National Innovation Council, many manufacturing companies in India continue to struggle to effectively apply business innovation strategies. This gap in practice is a reflection of a lack in understanding, which is something that this research aims to address by empirically verifying a structural model that is anchored on innovation theory and knowledge management views (Liu, 2023). The study is significant for its comprehensive approach, incorporating both internal and external antecedents to offer a multidimensional perspective on innovation uptake. It recognizes that companies must not only develop internal competencies, including knowledge absorptive ability and organizational readiness, but also adeptly manage external influences such as market dynamics and policy contexts (Cepeda-Carrion et al., 2022b). The resource-based view (RBV) of the company posits that strategic resources and organizational behavior significantly influence innovation results, aligning with the focus on competitive advantage and proactivity. The research aims to produce actionable findings (Radicic & Alkaraan, 2022b). The findings have the potential to assist businesses in making better use of their resources and in developing new concepts that are tailored to meet their requirements. In order to accomplish this, it is necessary to determine which aspects of the adoption of OI have the most impact Qu & Kim, (2025). According to Marzi et al. (2023), governments might utilize the information to construct tailored programs, such as capacity-building initiatives or innovation incentives, in order to assist industrial enterprises in overcoming their own difficulties Quesado & Silva, (2021a). These programs could be designed to help industrial companies. It is probable that some manufacturers will go to these alternatives in order to find a solution to the problems that they are experiencing. This study makes a contribution to the enhancement of both academic literature and practical knowledge by providing a tried-and-true framework for explaining the acceptability and expansion of open innovation in India's complex and ever-changing corporate environment. This framework's purpose is to explain why open innovation is becoming more popular (Najib et al., 2021a).

This research report has five main parts. Each part is meant to build on the others in a logical and consistent way Rabie et al., (2024). The first section talks about the research setting and the goals of the study. It also talks about the importance of open innovation in manufacturing and how the study relates to the Indian context.. In the second section, a detailed analysis of the current literature on open innovation and its implementation across industrial sectors throughout the world and in developing countries is presented. It identifies important theoretical frameworks, highlights gaps in the current literature, and presents the conceptual model and hypothesis derived from prior research. In Section 3, we talk about how the study was done. This includes the research design, the sampling strategy, the method of collecting data, the use of SEM-PLS for data analysis, and the making and usage of constructs. This part also speaks about why statistical methods are utilized and how reliable and precise the measurement model is. In Section 4 of the empirical research, you may see the results of hypothesis testing, descriptive statistics, and model fit indices. Along with tables and graphs, there is also a picture of the structural model to aid with understanding and

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The goal of this article is not just to add to academic theory, but also to provide a practical framework that would make it feasible for open innovation to operate well in India's industrial sector. your logical technique will help you do your assignment successfully. In Section 5, we will discuss the most significant findings, taking into account the study's objectives and the existing body of research Tra et al., (2024). It goes into the study's limits and recommends new areas for investigation, as well as expanding on the theoretical and managerial implicationsRobertsone, Lapins & Heilala, (2024b).

LITERATURE REVIEW

Theoretical background

A lot of research is now being conducted on open innovation (OI) in India's industrial sector. To increase industrial competitiveness, they deploy new ways based on shared information and skills (Abdullah & Almaqtari, 2024). This considerably increases the value of this method. This will be done by employing known concepts and data obtained from prior research. A variety of things are affecting the Indian business sector right now. Some of these things are globalization, fast changes in technology, and changes in government policy.

Open innovation is becoming a key approach for businesses to use their own skills and information from outside the company to come up with new ideas, speed up the time it takes to go to market, and make themselves more competitive overall (Priyadarshini et al., 2024). This is due to the fact that businesses may use both their own and their employees' skills, and the world is always changing. However, the extent to which Indian manufacturing firms use online inventories varies greatly. Recent studies conducted in developed nations have demonstrated the importance of network strength, absorptive capacity, and leadership commitment in fostering open innovation. However, there is a lack of sufficient data from the actual world that is directly associated with India. The term "open innovation" refers to the deliberate sending and receiving of information with the purpose of accelerating the process of internal innovation and creating new markets for external usage. Accordingly, open innovation (OI) is distinct from other forms of OI due to the fact that it places an emphasis on collaborative efforts among individuals, the generation of new information, and the formation of partnerships (Szromek and Bugdol 2024). There are a number of potential advantages that may be gained via open innovation (OI), including more strategic flexibility, decreased expenses, and improved innovation performance. As a consequence of this, it becomes increasingly desirable to businesses that operate in markets that are volatile.

This paper conducts a literature review to identify and categorize the factors affecting open innovation adoption in the manufacturing sector and to assess its implications. Among the prominent theoretical underpinnings, the resource-based view (RBV) has been widely applied in open innovation literature. RBV asserts that companies aim to enhance their internal resource base via external collaborations to achieve enduring competitive advantage (Naseer et al., 2020). In this framework, open innovation is regarded as a means to broaden resource limits and augment dynamic capabilities. Open innovation commonly use the resource-based view (RBV), but researchers have given little thought to alternative theoretical frameworks like as institutional theory and transaction cost economics (TCE). Institutional theory differs from transaction cost economics (TCE), which is concerned with the costs of various types of information transmission and alliance building, as well as how these aspects drive innovation. This perspective, which has not been well investigated, has the potential to assist us in comprehending the expansion of open innovation in various sectors. Through the incorporation of theoretical frameworks and empirical data, this research contributes to the advancement of the current body of literature on open innovation.

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Because of this, the particular characteristics of India's economy are brought to light, and proposals for more study are encouraged to be carried out.

Organizational Factors

The information that comes from sources outside the company is referred to as its "absorptive capacity," and it is an extremely important factor in determining how well organizational innovation initiatives are carried out. When it comes to the efficiency with which organizational innovation initiatives are carried out, one of the most important contributing factors is the corporation's "absorptive capacity," which refers to its capability to collect, evaluate, and utilize information that comes from sources outside the company (Fu et al. 2024). When it comes to open innovation projects, bigger companies usually have more resources and better technology to back them up. Conversely, SMEs may face challenges due to a lack of internal resources and external network connections. Nonetheless, SMEs can compensate through agility, niche specialization, and stronger relational networks. A well-structured organization makes it simpler for individuals from diverse professions to work together, share information, and try out new ideas. All of these things are vital for organizational innovation (OI). One of the most important things that helps people be creative is how committed their leaders are. This practice helps individuals talk to each other more clearly, work together to reach their goals, and share resources. Firm's with corporate leaders that encourage ongoing learning and new ideas are more likely to develop conditions that are good for implementing organizational innovation

(Tsai et al.'s 2022). Open innovation may have trouble growing and being used because of all the problems that come up with running a business. Some of these challenges are tight hierarchies, departments that don't communicate to one other, and departments that don't operate together. Companies need to create a culture that is flexible, based on facts, and encourages people to work together to find solutions to these problems. A configuration like this shows the ability of the value chain to stimulate the generation of new ideas and to enhance the assimilation of concept from the outside into those that already exist. According to this point of view, the success of open innovation in the industrial sector is not only dependent on the presence of organizational preparation and leadership support, but it is also crucial for the success of open innovation.

Technological Factors

Advanced technologies enable open innovation by facilitating collaboration and data sharing. Effective Intellectual Property Management strategies help firms manage risks associated with open innovation (Haylemariam et al., 2024b). Technological aspects are crucial in promoting open innovation by allowing enterprises to assimilate external knowledge, enhance cooperation, and expedite innovation processes. The implementation of Industry 4.0 technologies, such as automation and smart manufacturing, improves companies' ability to participate in open innovation by refining supply chain management and production processes. Advanced digital technologies, including artificial intelligence, big data analytics, cloud computing, and the Internet of Things , augment a company's capacity to collect, evaluate, and utilize external insights efficiently (Quesado & Silva, 2021a). Robust research and development capabilities enhance the adoption of open innovation , enabling organizations to collaboratively create new products, processes, and business models with external partners. Moreover, digital platforms and open-source technology facilitate information exchange and co-creation, promoting collaboration with entrepreneurs, universities, and industrial networks. Nonetheless, technological obstacles such as inadequate infrastructure, elevated implementation expenses, and cybersecurity issues may impede

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companies from effectively capitalizing on open innovation. Organizations must invest in digital transformation, augment their absorptive ability, and create a robust technical environment to facilitate seamless collaboration and innovation-driven growth in order to surmount these hurdles Lepore, (2003b).

External Factors

Open innovation is something that companies need to use if they want to accommodate the expectations of their customers and stay ahead of the competition. Increased knowledge acquisition and the development of novel ideas are both made possible via the formation of partnerships between educational institutions and their respective industries. When businesses are offered financial incentives, such as tax refunds, they are more likely to incorporate open innovation ideas within their organization. Internal factors the only determinants of open innovation success and organizations use it. Because they revolutionize the way companies interact with their environments (Najib et al. 2021a). Customer expectations and industry changes are few examples of the market factors that necessitate outside assistance and collaboration for organizations to maintain performance (Marzi et al., 2023). Innovation incentives, IP protection, and research funding are all examples of regulatory measures that firms require from the government in order to engage in open innovation.Globalization and digital connection have facilitated collaboration among enterprises, foreign partners, research institutions, and technology suppliers by granting them access to a broader array of external networks. Relationships with universities, research institutions, and startups are key outside sources of open innovation because they supply firms with new ideas, specialized skills, and cutting-edge technology. This is because these relationships give businesses with these things (Mishra, 2024). Both public-private partnerships and industry consortia are effective ways to improve the transmission of information and lower the risks that are involved with innovation Cohen & Levinthal, (1990). Despite this, it can be challenging to collaborate with people who are not affiliated with the organization due to factors such as concerns around intellectual property, a lack of trust, and cultural differences. In order to get the most out of open innovation, organizations need to build comprehensive techniques for connecting with other persons, establish clear norms for working together, and make the most of external ecosystems to stimulate creativity and long-term success. These are the three things that are necessary. When they do so, they will be able to make the most of the potential benefits it offers.

Financial Performance

As a result of the fact that businesses that make use of external information are able to reduce their expenditures on research and development while simultaneously increasing their productivity, research suggests that open innovation has a positive link with corporate profitability (Akjou & Fakhreddine, 2024c). The time it takes for new products to be brought to market is usually shortened for businesses that engage in open innovation, which ultimately results in increased income streams. Because it affects a company's ability to invest in external partnerships, research, and the adoption of technology, the financial success of a business is a key component of open innovation. When it comes to financial consequences, businesses that make efficient use of open innovation often have superior results (Ogiemwonyi et al. 2023a). This is because not only do they generate more money, but they also spend less money and become more competitive in the market. There is also the economic benefit of cost efficiency that comes with open innovation. Businesses may choose to boost their investment on research and development (R&D) and concentrate on enhancing current technology rather than developing all new technology in-house (Chen et al.

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2024b). This may be accomplished by acquiring ideas and solutions from other nations. By utilizing information from the outside, businesses have the potential to produce new products and services more efficiently. This reduces the amount of money spent on research and development (R&D) as well as the amount of time it takes to bring a product to market.

The primary financial advantage of open innovation is its capacity to distribute risk. A firm can share the costs and risks of development with other businesses in the same field (Ahmed et al., 2024b). This type of working together makes it easier for one company to pay for things and makes it more likely that the product will do well in the market. Collaboration and the signing of licensing agreements allow companies to potentially save money while gaining access to superior ideas. The use of open innovation platforms and crowdsourcing have shown to be cost-effective methods for addressing difficult problems. As a result, it is less expensive to experiment with ideas and make mistakes. It is possible to generate money by getting licenses and working with other firms to exploit their unused intellectual property. Open innovation can help you save money, but it costs more to run and could put your ideas at risk (Petruzzelli et al., 2021d).Companies must establish robust governance frameworks to manage financial risks and ensure that partnerships are aligned with their overall strategic objectives (Radicic & Alkaraan, 2022b). Organizations that strategically and judiciously invest in open innovation initiatives tend to experience growth and maintain a competitive edge over their counterparts in the long run. One can maintain a viable enterprise and engage in conflict by contemplating the implications of innovative concepts on financial outcomes.

Innovation Performance

Information sources (Liu, 2023). Enhanced product and process innovation arises from collaborative endeavors with external stakeholders. The innovation performance in open innovation signifies a company's capacity to generate and execute novel ideas, products, and processes via external partnerships. Organizations that adopt open innovation frequently get enhanced invention velocity, efficacy, and caliber by incorporating varied knowledge resources (Cepeda-Carrion et al., 2022b). By utilizing collaborations with universities, research institutes, startups, and industry consortia, companies can obtain advanced technology and skills that improve their innovation results. This cooperative strategy allows organizations to remain at the forefront of industry developments and foster ongoing enhancement. A primary advantage of open innovation is the expedited innovation process. Conventional closed innovation frameworks frequently necessitate considerable time and money for the internal development of new items (Ayinaddis, 2023b). Through open innovation, companies can collaborate with external partners, thereby decreasing the time-to-market for new ideas. This accelerated innovation cycle enables organizations to react more swiftly to client needs and competitive pressures, so enhancing their overall innovation performance.

Diversity of knowledge significantly contributes to the improvement of innovative results. By collaborating with external stakeholders, firms can include novel perspectives, unorthodox concepts, and interdisciplinary knowledge into their innovation strategy (Singh et al., 2019b). This wide range of feedback leads to new ideas that would not have been conceivable with only an internal research and development team. Open innovation makes it easier for enterprises to share technology, which means they may use and change current solutions instead of developing new ones from start.

Open innovation can enhance the generation of novel ideas. It complicates matters, hence hindering collaboration and addressing issues pertaining to intellectual property (Sarpong et al., 2024). To ensure mutual benefits from collaboration with external partners, it

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is essential to possess strong organizational skills, robust information management systems, and the ability to draft unambiguous contracts. Organizations shall improve open innovation and reduce associated risks by establishing clear guidelines for its management. Open innovation will help companies remain ahead of the competition and expand by generating more innovative ideas (Wang et al. 2022). Using modern technology, collaborating with others, and promoting cooperation may help businesses expand. Open innovation may make companies more inventive, adaptable, and successful in the fast-paced commercial environment of today.

This study develops a conceptual framework grounded in the theoretical underpinnings of innovation management and the resource-based view (RBV) to analyze the principal antecedents affecting the adoption of open innovation across Indian manufacturing enterprises. Open innovation is influenced not just by internal capabilities but also by external environmental factors, strategic intent, and organizational readiness (Haylemariam et al., 2024b).Therefore, the framework combines both internal and external factors to give a full picture of the things that might help or hinder the adoption of OI (Ahmed et al., 2024b). It has been discovered that seven different ideas, which are independent factors, have the potential to predict the adoption of open innovation. Competitive advantage, government backing and policy, innovation and flexibility, knowledge absorptive ability, market uncertainty, organizational preparedness, and proactivity are the factors that are included in this category (Qu & Kim, 2021). It was believed that each of these factors directly influences the use of open innovation (the dependent variable).The following parts will explain the seven assumptions in writing and talk about the idea that each link is based on.

Competitive advantage and adoption of open innovation

Competitive advantage is a key motivator for firms to innovate. Manufacturing firms pursue open innovation to develop unique products, improve operational efficiencies, and capture new markets enhancing their position relative to competitors. In increasingly dynamic industries, firms that adopt OI can more effectively integrate external technologies and ideas, speeding up innovation and reducing costs (Ahmed et al., 2024b). This creates an advantage not easily replicated by rivals Mubarak et al., (2012b). OI allows firms to respond faster to technological changes and customer preferences, thus strengthening their market position. Moreover, open collaboration with research institutions or technology partners allows firms to access cutting-edge knowledge without bearing full R&D costs. One way to stand out and be the cheapest in India's manufacturing sector where costs are crucial and competition is fierce is to use OI (Singh et al., 2019b). Therefore, it is expected that the desire to gain and maintain a competitive edge would play a significant role in firms' decisions to use open innovation strategies.

***H_1**: Competitive advantage has a significant positive influence on the adoption of open innovation*.

Government support & policy and adoption of open innovation

Government support and favorable policy environments play a vital role in promoting innovation, particularly in emerging economies. Policies that provide financial incentives, tax benefits, innovation grants, or support for public-private partnerships can significantly lower the barriers to adopting open innovation. In India, initiatives like ‘Make in India’, the Production-Linked Incentive (PLI) schemes, and the Atal Innovation Mission aim to stimulate industrial growth and technological advancement (Ayinaddis, 2023b). These policies often encourage collaboration between academia, research institutions, and private enterprises, aligning closely with the principles of OI. Moreover, regulatory clarity, IP

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protection frameworks, and infrastructure development foster an environment conducive to knowledge sharing and external collaboration. Indian manufacturing firms, especially SMEs, rely heavily on institutional support to experiment with open models of innovation due to resource constraints (Sarpong et al., 2024). Hence, proactive government policies are expected to not only influence firms' innovation orientation but also provide the structural and financial ecosystem necessary for successful open innovation adoption.

***H_2**: Government support & policy has a significant positive influence on the adoption of open innovation*

Innovation & flexibility and adoption of open innovation

For a company to be successful with open innovation, it must be innovative and able to adapt quickly to new circumstances. Companies that place a high priority on innovation, exploring new ideas, and taking risks are more likely to make use of technology and ideas that originate from outside sources. It is simpler to employ the ideas of other people in the workplace, according to Liu (2023), if you have the ability to adapt your ideas, techniques, and ways of making choices. When working in a field where things are always changing and need to be modified to match the requirements of each individual customer, you need to be creative and adaptable in order to be successful. Businesses that are open to new experiences and that are able to adjust to novel concepts are more inclined to collaborate with other businesses, educational institutions, and even competitors. They are better equipped to respond to opportunities arising from new technologies or market disruptions. In the Indian context, where traditional hierarchical structures dominate many firms, those that demonstrate internal flexibility and openness to change are more likely to break rigid boundaries and pursue OI (Petruzzelli et al., 2021d). Thus, a strong orientation toward innovation and organizational flexibility is positively associated with OI adoption.

***H_3**: Innovation & flexibility has a significant positive influence on the adoption of open innovation*

Knowledge absorptive capacity and adoption of open innovation

Knowledge absorptive capacity refers to a firm’s ability to recognize, assimilate, and apply external knowledge effectively. It is a critical internal capability for successful open innovation. Firms that lack the ability to absorb and integrate external ideas may fail to benefit from OI efforts, regardless of access to external partners. High absorptive capacity allows firms to evaluate the relevance of external innovations, align them with internal goals, and implement them efficiently (Radicic & Alkaraan, 2022b). This capacity is often built through prior R&D experience, employee skill development, and learning-oriented cultures. In Indian manufacturing firms, where skill gaps and resource limitations can pose challenges, building absorptive capacity is essential to realize the benefits of OI. Firms with strong absorptive capabilities can bridge the gap between external knowledge sources and internal application, leading to quicker commercialization of innovations (Szromek & Bugdol, 2024). Therefore, absorptive capacity is seen not just as a supporting factor but a foundational requirement for effective open innovation adoption.

***H_4**: Knowledge absorptive capacity has a significant positive influence on the adoption of open innovation*

Market uncertainty and adoption of open innovation

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Market uncertainty—characterized by fluctuating customer demands, technological disruptions, and competitive unpredictability—can serve as a catalyst for innovation. Under high uncertainty, firms are compelled to look beyond traditional innovation strategies to remain agile and responsive. Open innovation offers an adaptive mechanism by allowing firms to tap into diverse external knowledge sources, thus expanding their solution space (Fu et al., 2024). For Indian manufacturing firms operating in volatile markets, OI can help reduce the risk of innovation failure by distributing the innovation burden across partners. It also allows for faster prototyping, diversified product development, and quicker access to emerging technologies. Moreover, OI helps firms monitor trends and align offerings with rapidly changing market needs Patrick, Chau, & Tam, (1997). While uncertainty increases operational risk, it also incentivizes strategic flexibility making firms more likely to collaborate, crowdsource, and co-develop (Ayinaddis, 2023b). Thus, in dynamic and unpredictable markets, firms may adopt open innovation not only as a growth strategy but also as a survival mechanism.

***H_5**: Market uncertainty has a significant positive influence on the adoption of open innovation*

Organizational readiness and adoption of open innovation

Organizational readiness encompasses the structural, cultural, and technological preparedness of a firm to implement innovation strategies like OI. It includes factors such as leadership support, available infrastructure, digital maturity, cross-functional coordination, and an innovation-oriented workforce (Haylemariam et al., 2024b). Firms that lack readiness may face barriers in managing external partnerships or integrating external ideas. In contrast, ready organizations can rapidly adapt and scale innovation practices. In the Indian manufacturing context, organizational readiness becomes even more critical due to infrastructural diversity, varying levels of digital adoption, and workforce heterogeneity. A firm's ability to adopt OI hinges on having the right internal enablers such as skilled employees, collaborative tools, open communication, and supportive leadership. These elements facilitate effective knowledge exchange and trust with external partners. Organizational readiness thus acts as a mediator that translates strategic intent into actionable innovation practices (Ahmed et al., 2024b). Therefore, firms with high readiness levels are significantly more likely to adopt and benefit from open innovation models.

***H_6**: Organizational readiness has a significant positive influence on the adoption of open innovation*

Proactivity and adoption of open innovation

Company engages in proactive conduct, it displays that it is prepared to search out fresh opportunities before those prospects become problems or demands. In order to be proactive, organizations must engage in activities such as monitoring developments, searching for trends, embracing new technology at an early stage, and experimenting with new ways to run their operations. During the course of their innovation processes, businesses are encouraged to make use of information and networks from the outside world, which is in line with the principles of open innovation (Marzi et al., 2023). This strategy is in accordance with these principles. Proactive businesses are more likely to collaborate with academic institutions, startups, or other international partners in order to gain access to a wider variety of ideas and resources. This is because proactive businesses are more likely to interact with these types of organizations. Indian manufacturing companies to join early on in collaborative ecosystems, technical developments, and legislative incentives if they take a proactive approach. It increases the robustness of systems to disruptions by making it

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possible for rapid reactions to be taken.There is a correlation between being proactive and taking risks and fostering an innovative culture, as stated by Szromek and Bugdol (2024). All of these factors are necessary for the successful implementation of organizational innovation implementation. As a consequence of this, firms that are extremely proactive are likely to be more inclined to and capable of efficiently utilizing open innovation strategies Figure 1.

***H_7**: Proactivity has a significant positive influence on the adoption of open innovation*

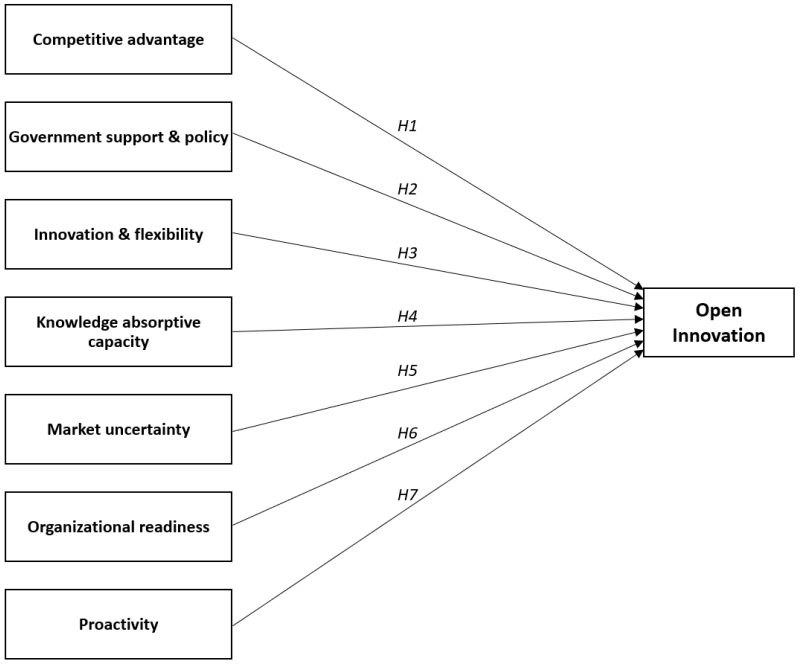

FIGURE 1
PROACTIVITY AND ADOPTION OF OPEN INNOVATION

METHODOLOGY

Research objective and design

This study examines the contribution of different selected antecedents influencing the adoption of open innovation by India's manufacturing firms. Seven antecedents were identified from the extensive literature review, namely competitive advantage, Government support and policy, Innovation and flexibility, Knowledge absorptive capacity, Market uncertainty, Organizational readiness and Proactivity and examined their influence on the adoption of open innovation by the manufacturing firms in India. A conceptual structural model was proposed and examined using a SEM-PLS approach. The study started with well-defined research problem, objective, and hypotheses; therefore, a descriptive research design was adopted to describe the factors that explain the adoption of open innovation by India's manufacturing firms with the help of empirical analysis.

Data type and sampling design

The primary responses were collected from 398 senior executives with more than 5 years of experience in manufacturing firms and knowledge of the extensive innovations adopted by firms in recent years. The responses were collected using a schedule method,

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where the responses were recorded on the basis of personal discussions with selected executives Camilleri et al., (2023b). The questionnaire started with criteria questions, satisfying which respondents were requested to provide their responses to the questions mentioned in the questionnaire. A judgmental sampling method was adopted to collect responses from the industry executives. The list of industries was collected from different websites, and requests from email were sent to HR managers for short discussions for research purposes. The three criteria-based questions were included at the beginning of the questionnaire, asking whether they were aware of the different open innovations adopted by the firms (yes/no), how long they were involved in the innovation process in the firms, and whether they were aware of the different innovations adopted by their competitors. The primary responses were collected from respondents over six months, from Oct 24 to March 25. A total of 398 complete responses were collected over six months, and considered for the final data analysis for hypothesis testing and to achieve the purpose of the study. Responses were collected using a 7-point scale (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = cannot say, 5 = somewhat agree, 6 = agree, and 7 = strongly agree) used in the questionnaire. The sample size of 398 is considered representative as it satisfied the criteria of 10 times the number of items included in the structural model (Nunnally, J. C., & Bernstein, I. H., 1994).

Scale development and questionnaire design

The research instrument (questionnaire) used in the paper was developed in four stages. The different factors (mentioned in the conceptual framework) were identified from the extensive literature review along with the statements measuring them. The first draft questionnaire was prepared from the literature review, which is further discussed with industry experts. Thus, in second stage, the draft questionnaire was examined for its content validity with the help of five senior industry executives who have more than ten years of experience in dealing with open innovations in the firms and five academic experts who published research papers related to open innovations adopted by the firms Cordeiro, Puig & Ruiz-Fernández, (2023). This stage ensures the content validity as the draft questionnaire was modified according to the suggestions and reviews provided by the experts. The third stage includes the testing of face validity with a pilot survey conducted with 60 industry respondents. The pilot survey examined the response reliability, item duplicity, language framed for the statement's descriptive analysis of the responses etc. The pilot survey was found useful in improving the questionnaire by dropping a few statements, improving the language of the statements etc. Finally, the modified questionnaire was used for the final data collection from the respondents.

The questionnaire adapted the items/statements from different research papers. The items measuring Proactivity were adapted from Feder, 2015; Lumpkin & Dess, 1996; Hansen et al., 2011 and Rauch et al., 2009, items measuring Innovation and flexibility from Cuevas-Vargas et al., 2023; AlMamun et al.,2019; Cuevas-Vargas et al., 2019 and Faul et al., 2009, the items measuring Competitive advantage from Dao,2024; Singh et al., 2019 ; Boso et al., 2012 and Hansen et al., 2011, items of Organizational readiness from Qu & Kim, 2025 ; Vega-Jurado et al., 2008 ; Iacovou et al., 1995; Yang et al., 2021, items measuring Market uncertainty from Qu & Kim, 2025 ; Chau & Tam, 1997 ; Chatterjee et al., 2021 and Cordeiro et al., 2022, items measuring Knowledge absorptive Capacity from Qu & Kim, 2025 ; Grant, 1996 ; Verona et al., 2003 and Cohen et al., 1990, the items measuring Government support and policy were adapted from Qu & Kim, 2025 ; Edquist et al., 2000 ; Cohen et al., 1990 and Oliveira & Martins, 2011 and finally the items measuring Open innovation from Qu & Kim, 2025 ; Davis, 1989 ; and Laursen & Salter, 2006.

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Statistical methods

The different statistical methods were applied to the collected primary responses to achieve the research objectives and hypothesis testing. The frequency distribution is applied on the responses representing sample demographics. The internal consistency of the included factors in the measurement scale was examined with Cronbach alpha. The construct validity of the scale in the research instrument was examined with 'confirmatory factor analysis (CFA)' approach, which includes examining both convergent and discriminant validity of the instrument. The item collinearity was examined for each item in the scale with the help of the 'variance inflation factor (VIF)'. The presence of 'common method bias (CMB)' in the responses was examined using the 'Harman single factor method'. Finally, the testing of the proposed hypothesis was executed with the help of SEM-PLS approach using SmartPLS software. The PLS-SEM approach was used in the paper due to the reason that the proposed model is a new contribution to the literature and prediction orientation approach is more suitable to apply. The next section discusses the results of the statistical analysis applied to the responses Pundziene, Nikou & Bouwman, (2021b).

Data analysis and interpretation

This section discusses the findings and interpretations of statistical analysis and hypothesis testing done in the research. The statistical analysis was performed on the primary responses collected from the different employees working with different selected manufacturing firms in India, participated in the survey. Section 4.1 mentions the demographic details of the employees participated in the survey. Section 4.2 discusses the results of different statistical assumptions examined on the primary responses collected in the survey, which includes testing of the 'internal consistency reliability', 'construct validity', 'item multicollinearity' and 'common method bias'. Section 4.3 discusses the results of hypothesis testing using the PLS-SEM approach to examine the proposed structural model in the paper. The research paper finally discusses the contribution of different selected antecedents influencing the adoption of open innovation by India's manufacturing firms.

Sample demographics

The primary responses were collected from the 398 senior industry executives with more than 5 years of experience in manufacturing firms and have knowledge of the extensive innovations adopted by firms in recent years. The sample is assumed as representative of the population, and to arrive at valid conclusions, the responses were collected from industry executives with different demographics. Table 1 demonstrates the frequency distribution of the customers who participated in the survey. The selected demographic variables (Gender, work experience, age- group, designation and industry) were included in the sample demographics.

Table1
SAMPLE DEMOGRAPHICS

Demographic profile	Sub category	Frequency (%)	
Gender	Male	252	63.3 %
	Female	146	36.7 %
Work Experience	Less than 10 Years	176	44.2 %
	11 to 15 Years	154	38.7 %
	16 to 20 Years	68	17.1 %
Age- Group	Less than 35 Years	126	31.7 %

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	36 to 45 Years	153	38.4 %
	46 to 55 Years	83	20.9 %
	Above 55 Years	36	9.0 %
Designation	Junior Manager	104	26.1 %
	Middle Manager	179	45.0 %
	Senior Manager	115	28.9 %
Industry	Automobile	95	23.9 %
	Pharmaceutical	75	18.8 %
	Textile	74	18.6 %
	Electronics	81	20.4 %
	Chemical	73	18.3 %

The results reported in Table 1 represent that out of 398 industry executives working with manufacturing firms in India, participated in the survey, 252 (63.3 %) were males and 146 (36.7%) were females. The results also represent that 176 (44.2%) have work experience less than 10 years, 154 (38.7%) with work experience from 11 to 15 years and 68 executives have experience above 15 years. 126 (31.7 %) of the respondents belong to the age group less than 35 years, 153 (38.4 %) belong to the age group "36 to 45 years" and 83 (20.0%) belong to the age group above 46 to 55 years and remaining 36 above 55 years. Wrt the designation, 104 (26.1%) were junior managers, 179 (45%) gave designation equivalent to middle managers and 115 (28.9%) from senior management of the firms. Finally, the results indicate that the responses were collected from the executives working with manufacturing firms in five industries namely Automobile (23.9%), pharmaceutical (18.8%), textile (18.6%), electronics (20.4%) and chemical (18.3 %).

Reliability and validity analysis

The research paper included the different antecedents in the research instrument (Competitive advantage, 'Government support & policy', 'Innovation and flexibility', 'Knowledge absorptive capacity, 'Market uncertainty', 'Organizational readiness' and Proactivity) as the independent factors influencing the adoption of open innovation by India's manufacturing firms. The instrument quality was examined before testing of the hypothesis and arriving at the conclusions. The Cronbach alpha was applied to examine the internal consistency of the items and reliability of the selected antecedents in the research instruments. The CFA approach is applied to ensure the construct validity of the instrument. Further, item multicollinearity is examined with 'variance inflation factor' (VIF) and finally, the 'common method bias' in the instrument is tested with the Harman single factor method and marker variable approach.

Reliability analysis

The reliability of the research instrument was tested with Cronbach's alpha, which is needed to be greater than 0.7 for each construct in the scale. The Cronbach alpha, higher than 0.7, confirms the presence of a significant relationship among the items within a construct. The results of reliability analysis are reported. The results indicate that the different constructs included in the research instrument satisfy the requirement of Cronbach alpha higher than 0.7 (Competitive advantage=0.884, innovation and flexibility =0.898, market uncertainty=0.912, open innovation=0.897, organizational readiness =0.867, proactivity =0.854, Government support &policy =0.895 and knowledge absorptive capacity = 0.908). Thus, the research instruments used in the research paper confirms the presence of consistency reliability.

Construct validity

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The construct validity (convergent and discriminant validity) of the research instruments used in the paper was also examined using the CFA approach. The construct validity of the measurement scale was examined for convergent and discriminant validity, where the convergent validity of the instrument represents high relationship between the constructs and its items, however, the discriminant validity represents that the constructs are different from each other. The convergent validity of the measurement scale consisting of the antecedents of adoption of open innovation was examined with construct loadings of the items included in the study, 'composite reliability' (CR) and 'average variance extracted' (AVE) estimates for each construct in the scale. To confirms the presence of convergent validity of the measurement scale, the required construct loadings of each item is greater than 0.7, and CR and AVE for each construct higher than 0.7 and 0.5 respectively (Hair et al, 2010). The discriminant validity of the measurement scale indicating the antecedents influencing adoption of open AI of manufacturing firms, was examined with the HTMT ratio and 'Fornell Larcker criteria'. Both the criteria of HTMT ratio and 'Fornell Larcker criteria' for testing the discriminant validity of the used scale depends upon the cross-loadings between the indicators/items of the different constructs in the measurement scale and are expected to be moderate or low. The HTMT ratio for different pairs of included constructs in the scale is expected to be less than 0.85, whereas, in 'Fornell Larcker criteria', the estimated square root of the AVE of each construct is expected to be higher than its correlation with remaining constructs in the scale (Fornell, C., & Larcker, D. F., 1981). Further, the collinearity among the items included in the scale was examined with VIF estimate and is expected to be lower than 3. The results of the CFA used to evaluate the construct validity (convergent and discriminant validity) of the measurement instrument are reported in Tables 3, 4 and 5.

Table 2 indicates that the construct loadings of the items measuring the included constructs in the measurement scale were found to be greater than 0.7, CR and AVE are greater than 0.7 and 0.5 respectively for each construct (Competitive advantage: CR=0.883, AVE=0.558, innovation and flexibility: CR =0.898, AVE=0.596, market uncertainty: CR=0.911, AVE=0.720, open innovation: CR=0.897, AVE=0.637, organizational readiness: CR =0.867, AVE=0.619, proactivity: CR=0.854, AVE=0.596, Government support & policy: CR =0.895, AVE=0.740, and knowledge absorptive capacity: CR = 0.908, AVE=0.712). Thus, the results indicate the presence of convergent validity of the measurement scale. For the discriminant validity of the measurement scale, the Table 4 reported the results of the HTMT ratio. The result indicates that all the estimated values in the matrix were less than 0.85 supports the presence of discriminant validity. Table 5 reported the results of the 'Fornell Larcker criteria'. The results indicates that the square root of the AVE for each construct in the matrix (first value in each column) was found greater than correlation estimates for each construct in the scale. Thus, the results supported the presence of discriminant validity of the measurement scale. The table 3 also reported the estimated value of VIF for all the items included in the instruments and found less than the required value of 3, ensuring that the scale does not have collinearity issues Appio et al., (2024b).

Statistical fit indices

The statistical fitness of the measurement model included in the paper is examined with two different statistical fitness indices namely-SRMR and NFI index. The SRMR estimate of the estimated measurement model is 0.038, which is less than the required value of 0.08 and the NFI index is found to be 0.906, higher than the minimum expected value of 0.8. Thus, the statistical fit of the measurement model is found satisfied. The next section discusses the results of hypothesis testing.

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Table 2
RELIABILITY, CONVERGENT VALIDITY AND ITEM MULTICOLLINEARITY

	Construct	Construct Loadings	Mean (SD	Cronbach alpha	Composite Reliability	Average Variance Extracted	VIF
CA1	Competitive Advantage	0.708	4.96 (1.52)	0.884	0.883	0.558	2.312
CA2		0.856	4.92 (1.52)				1.960
CA3		0.754	4.90 (1.51)				1.917
CA4		0.765	4.86 (1.55)				1.856
CA5		0.725	4.95 (1.53)				2.030
CA6		0.658	4.92 (1.55)				1.952
IF1	Innovation and Flexibility	0.763	4.68 (1.72)	0.898	0.898	0.596	1.958
IF2		0.811	4.75 (1.70)				2.315
IF3		0.801	4.70 (1.78)				2.115
IF4		0.678	4.73 (1.75)				2.048
IF5		0.832	4.69 (1.82)				2.372
IF6		0.737	4.62 (1.77)				2.062
MU1	Market Uncertainty	0.838	4.55 (1.55)	0.912	0.911	0.720	3.190
MU2		0.883	4.53 (1.52)				2.789
MU3		0.871	4.62 (1.43)				2.386
MU4		0.799	4.57 (1.58)				3.115
OI1	Open Innovation	0.733	4.82 (1.59)	0.897	0.897	0.637	2.152
OI2		0.783	4.73 (1.52)				2.381
OI3		0.868	4.73 (1.54)				2.561
OI4		0.795	4.77 (1.60)				2.126
OI5		0.804	4.76 (1.59)				2.222
OR1	Organizational Readiness	0.795	4.82 (1.59)	0.867	0.867	0.619	2.100
OR2		0.799	4.91 (1.50)				2.117
OR3		0.795	4.85 (1.56)				1.946
OR4		0.759	4.75 (1.54)				2.172
PRO1	Proactivity	0.677	4.98 (1.46)	0.854	0.854	0.596	1.840
PRO2		0.804	5.14 (1.34)				1.919
PRO3		0.744	4.97 (1.39)				2.043
PRO4		0.851	5.13 (1.34)				2.082
gsp1	Government Support and Policy	0.868	5.17 (1.64)	0.895	0.895	0.740	2.714
gsp2		0.812	5.27 (1.52)				2.801
gsp3		0.899	5.27 (1.61)				2.595
kac1	Knowledge Absorptive Capacity	0.849	4.91 (1.64)	0.908	0.908	0.712	2.880
kac2		0.838	4.90 (1.64)				2.836
kac3		0.875	5.05 (1.54)				2.584
kac4		0.812	4.81 (1.70)				2.588

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Table 3
HTMT RATIO FOR DISCRIMINANT VALIDITY

	CA	GSP	IF	KAC	MU	OI	OR	PRO
Competitive Advantage (CA)								
Government Support and Policy (GSP)	0.238							
Innovation and Flexibility (IF)	0.647	0.335						
Knowledge Absorptive Capacity (KAC)	0.639	0.324	0.620					
Market Uncertainty (MU)	0.726	0.332	0.645	0.737				
Open Innovation (OI)	0.643	0.301	0.580	0.548	0.648			
Organizational Readiness (OR)	0.761	0.303	0.630	0.785	0.805	0.684		
Proactivity (PRO)	0.674	0.374	0.592	0.748	0.716	0.628	0.820	

Table 4
FORNELL LARCKER CRITERIA FOR DISCRIMINANT VALIDITY

	CA	GSP	IF	KAC	MU	OI	OR	PRO
Competitive Advantage (CA)	0.747							
Government Support and Policy (GSP)	0.238	0.860						
Innovation and Flexibility (IF)	0.647	0.332	0.772					
Knowledge Absorptive Capacity (KAC)	0.638	0.323	0.617	0.844				
Market Uncertainty (MU)	0.726	0.331	0.644	0.736	0.848			
Open Innovation (OI)	0.647	0.302	0.583	0.549	0.649	0.798		
Organizational Readiness (OR)	0.760	0.302	0.629	0.786	0.805	0.684	0.787	
Proactivity (PRO)	0.672	0.372	0.591	0.743	0.712	0.630	0.816	0.772

Table 5
STATISTICAL FITNESS INDEX

Fitness Index	Saturated model	Estimated model
SRMR	0.038	0.038
D ULS	0.980	0.980
D G	0.478	0.478
Chi-square	962.558	962.558
NFI	0.906	0.906

Hypothesis Testing Results

The paper proposed to examine the structural model, representing the influence of different selected antecedents influencing the adoption of open innovation by India's manufacturing firms Chien, Zhang, & Sadiq (2022b). The paper included seven different antecedents in the structural model namely competitive advantage, 'Government support & policy', 'innovation & flexibility', 'knowledge absorptive capacity, 'market uncertainty', 'organizational readiness' & proactivity) as the independent factors influencing the adoption of open innovation by India's manufacturing firms. Here, all are included antecedents are lower order and reflective in nature. Further, adoption of open innovation is an endogenous construct in the structural model and also lower order, reflective construct. Finally, the proposed structural model assumes and examines the influence of the selected antecedents on the adoption of open innovations in Indian manufacturing firms McPhillips et al., (2024). The seven hypothesis (framed in section 2 of the paper) were examined with the SEM-PLS approach. The results of the hypothesis testing are reported in Table 5 and the structural model is shown in Figure 2.

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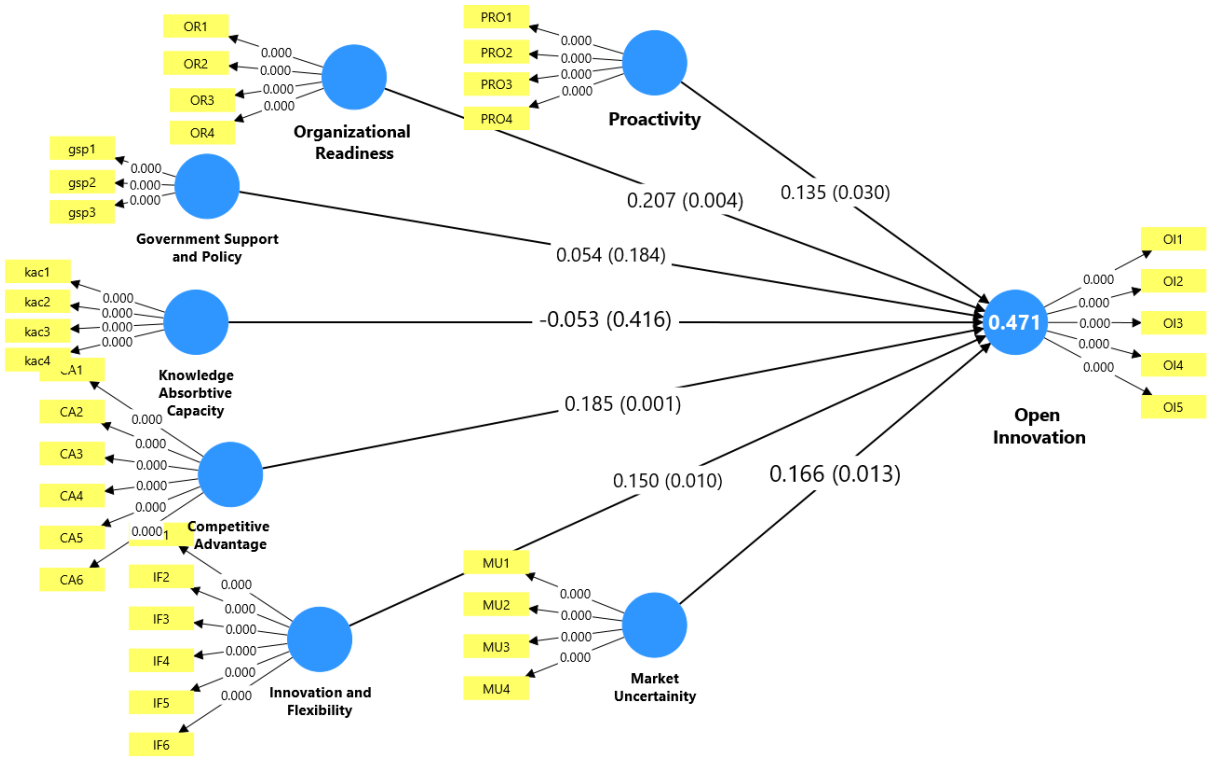

FIGURE 2
STRUCTURAL MODEL

Table 7
RESULTS OF THE HYPOTHESIS TESTING

Exogeneous Construct	Endogenous Construct	Path Coefficient	Standard error	T stats	R Square (Q^2)	Remark
Competitive advantage	Open Innovation	0.184	0.055	3.348**	47.1 % (.449)	Supported
Government support and policy		0.054	0.040	1.328		Not supported
Innovation and flexibility		0.154	0.059	2.560**		Supported
Knowledge absorptive capacity		-0.055	0.065	0.813		Not supported
Market uncertainty		0.164	0.067	2.484**		Supported
Organizational readiness		0.209	0.072	2.851**		Supported
Proactivity		0.133	0.062	2.177**		Supported

The results of the hypothesis testing support the five hypotheses in case of the impact of competitive advantage, innovation and flexibility, market uncertainty, organizational readiness and proactivity on the adoption of open innovation in Indian manufacturing firms. The results however failed to support the two-hypothesis indicating the impact of Government support & policy and Knowledge absorptive capacity on the adoption of open innovation in Indian manufacturing firms Cera & Subashi, (2024c). The path coefficient of all significant antecedents is found to be positive indicating the positive contribution of the selected antecedents on the adoption behaviour of open innovation of the firms. Comparing the path coefficients, the maximum relation contribution is found in case of organisation readiness (path coefficient = 0.209). This is followed by the competitive advantage (path coefficient = 0.184), which also found to have significant positive contribution on the

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adoption behaviour of open innovation of the firms. The other significant positive impact is found to be in case of market uncertainty ((path coefficient = 0.164), innovation and flexibility (path coefficient = 0.154) and proactivity ((path coefficient = 0.133) on the adoption of open innovation. Government support & policy and Knowledge absorptive capacity are not found to have significant influence on the adoption of open innovation in Indian manufacturing firms.

DISCUSSION

This study provides insights into the critical factors that influence the adoption of open innovation in manufacturing firms in India. Among the seven antecedents—competitive advantage, government support and policy, innovation and flexibility, knowledge absorptive capacity, market uncertainty, organizational readiness, and proactivity—five were found to significantly influence the adoption of open innovation practices. Organizational readiness was the most influential factor (path coefficient = 0.209), indicating that firms with strong internal facilities such as technological infrastructure, leadership support, and an innovation-oriented culture are more likely to adopt open innovation. The resource-based view model emphasizes internal capabilities as key enablers of strategic decisions such as OI adoption in firms. Firms lacking such readiness often face difficulties in managing external collaborations or assimilating external knowledge, reinforcing the literature (Haylemariam et al., 2024b; Vega-Jurado et al., 2008). The second strongest contributor was competitive advantage (path coefficient = 0.184), suggesting that firms seeking to outperform competitors perceive OI as a strategic tool to access external knowledge, accelerate innovation, and deliver differentiated offerings (Singh et al., 2019; Ahmed et al. 2024), as open innovation enhances firms' ability to adapt to market demands and technology disruptions. OI facilitates access to cutting-edge ideas and lowers R&D costs, enabling firms to remain in highly competitive environments. Market uncertainty also showed a significantly positive influence (path coefficient = 0.164), supporting the belief that dynamic and unpredictable environments push firms toward more collaborative and exploratory innovation strategies.

In competitive markets, OI allows firms to share innovation risks, accelerate development cycles, and manage the changes more effectively (Fu et al., 2024; Ayinaddis, 2023) because firms under high uncertain markets often adopt OI as a risk hedging and adaptability mechanism. Innovation and flexibility (path coefficient = 0.154) were also found to positively influence OI adoption, depicting the relevance of a firm's internal culture and adaptability. Firms that value experimentation, flexibility in structure and decision making are better positioned to utilise external knowledge (Liu, 2023; Cuevas-Vargas et al., 2023), suggesting that a culture of flexibility and open-mindedness is necessary for successful external collaboration. Finally, proactivity of the firm (path coefficient = 0.133) found to have a significant impact on adopting open innovation, indicating that the future-orientation and opportunity-seeking firms are more inclined to adopt OI. Proactive firms are more likely to explore external knowledge, innovation and initiate partnerships ahead of competitors (Marzi et al., 2023). The study, however, observed that government support and policy did not have a statistically significant impact on OI adoption of the firms (path coefficient = 0.054). This could be due to the perceived gap between policy design and ground implementation in India. Despite programs such as Make in India and PLI, many firms may not feel adequately supported or may lack awareness of or access to these benefits. It also highlights a potential policy-practice disconnect that warrants further investigation. In addition, knowledge absorptive capacity, often seen as a core enabler of OI, was not found to be significant in this context (path coefficient = -0.055). Indian manufacturing firms, particularly SMEs, still struggle with capability development, and may not yet be at a stage where they can

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effectively utilize external knowledge. Alternatively, absorptive capacity may already be embedded within broader constructs such as organizational readiness.

CONCLUSION

This study provides a comprehensive empirical analysis of the key determinants influencing open innovation (OI) adoption among manufacturing firms in India. Grounded in the theoretical frameworks of innovation theory and the resource-based view (RBV), this study examined seven antecedents: competitive advantage, government support and policy, innovation and flexibility, knowledge absorptive capacity, market uncertainty, organizational readiness, and proactivity. This study found that five factors—organizational readiness, competitive advantage, market uncertainty, innovation and flexibility, and proactivity—significantly contribute to the adoption of OI. Among these, organizational readiness emerged as the most influential determinant, underscoring the importance of internal preparedness in terms of leadership support, infrastructure, and collaborative capabilities. Competitive advantage and proactivity further highlight that firms driven by strategic goals and future-oriented innovation behaviors are more inclined to adopt OI practices. The significance of market uncertainty affirms that environmental dynamism encourages firms to seek external collaboration to stay competitive and agile, while innovation and flexibility reflect the cultural adaptability required for open innovation. However, government support, policy, and knowledge absorptive capacity do not significantly affect OI adoption. This indicates potential disconnects between policy implementation and industry perception, and suggests that Indian firms may face internal challenges in leveraging external knowledge despite available government incentives. This study makes two significant contributions to the literature. Theoretically, it validates a context-specific structural model to understand OI adoption in emerging economies, particularly within India's evolving industrial ecosystem. This study provides actionable insights for both managers and policymakers. Firms should focus on enhancing their internal readiness, building flexible innovation cultures, and cultivating proactive strategies. Policymakers, on the other hand, must bridge the gaps in the efficacy of institutional support and strengthen mechanisms to improve absorptive capacity among firms, especially SMEs. The adoption of open innovation in Indian manufacturing is driven more by internal capabilities and strategic intent than by external institutional factors. To realize the full potential of OI, Indian firms must prioritize capacity building and strategic alignment, whereas policymakers must ensure that innovation policies translate effectively into practice.

Theoretical and Managerial Implications

The results indicate the need for firms to invest in building internal enablers, particularly organizational readiness, innovation culture, and strategic proactivity, to fully capitalize on the benefits of open innovation. It also implies that external pressures, such as market volatility, are not necessarily barriers, but can act as catalysts for openness. From a theoretical standpoint, this study advances the open innovation literature in emerging market contexts by confirming the relevance of certain constructs while challenging others. This highlights that traditional enablers such as absorptive capacity may not uniformly apply across contexts and calls for contextualized models that consider institutional maturity and firm-level capability gaps.

REFERENCES

Citation Information: Gupta, P., & Choudhary, V. (2026) Determinants of open innovation adoption in india's manufacturing sector: an empirical analysis. *Academy of Marketing Studies Journal, 30*(1), 1-24.

Abdullah, A. A. H., & Almaqtari, F. A. (2024). The impact of artificial intelligence and Industry 4.0 on transforming accounting and auditing practices. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100218.

Ahmed, F., Rahman, M. U., Rehman, H. M., Imran, M., Dunay, A., & Hossain, M. B. (2024). Corporate capital structure effects on corporate performance pursuing a strategy of innovation in manufacturing companies. *Heliyon*, *10*(3).

Akjou, A., & Fakhreddine, M. O. I. (2024). Leaders and Managers Key Characteristics and Open Innovation Adoption in SMEs: Systematic Review and Future Directions. *Journal of Innovation Management*, *12*(1), 48-76.

Alkaraan, F., Elmarzouky, M., Hussainey, K., Venkatesh, V. G., Shi, Y., & Gulko, N. (2024). Reinforcing green business strategies with Industry 4.0 and governance towards sustainability: Natural-resource-based view and dynamic capability. *Business Strategy and the Environment*, *33*(4), 3588-3606.

Appio, F. P., Cacciatore, E., Cesaroni, F., Crupi, A., & Marozzo, V. (2024). Open innovation at the digital frontier: unraveling the paradoxes and roadmaps for SMEs' successful digital transformation. *European Journal of Innovation Management*, *27*(9), 223-247.

Ayinaddis, S. G. (2023). The effect of innovation orientation on firm performance: evidence from micro and small manufacturing firms in selected towns of Awi Zone, Ethiopia. *Journal of Innovation and Entrepreneurship*, *12*(1), 26.

Boso, N., Cadogan, J. W., & Story, V. M. (2012). Complementary effect of entrepreneurial and market orientations on export new product success under differing levels of competitive intensity and financial capital. *International Business Review*, *21*(4), 667-681.

Çallı, B. A., Özşahin, M., & Coşkun, E. (2024). The assessment of organizational innovativeness as a mediator between ICT adoption and firm performance in Turkish SMEs. *Sage Open*, *14*(4), 21582440241297939.

Camilleri, M. A., Troise, C., Strazzullo, S., & Bresciani, S. (2023). Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability. *Business Strategy and the Environment*, *32*(7), 4485-4502.

Cepeda-Carrion, I., Ortega-Gutierrez, J., Garrido-Moreno, A., & Cegarra-Navarro, J. G. (2023). The mediating role of knowledge creation processes in the relationship between social media and open innovation. *Journal of the Knowledge Economy*, *14*(2), 1275-1297.

Cera, E., & Subashi, R. (2024). How do commitment-based HRM practices and a developmental culture interact to foster open innovation in SMEs?. *Problems and Perspectives in Management*.

Chatterjee, S., Rana, N. P., Khorana, S., Mikalef, P., & Sharma, A. (2023). Assessing organizational users' intentions and behavior to AI integrated CRM systems: A meta-UTAUT approach. *Information Systems Frontiers*, *25*(4), 1299-1313.

Chau, P. Y., & Tam, K. Y. (1997). Factors affecting the adoption of open systems: an exploratory study. *MIS quarterly*, 1-24.

Chen, A., Li, L., & Shahid, W. (2024). Digital transformation as the driving force for sustainable business performance: A moderated mediation model of market-driven business model innovation and digital leadership capabilities. *Heliyon*, *10*(8).

Chien, F., Zhang, Y., & Sadiq, M. (2024). Impact of open innovation on globalization: a survey study on China. *Technological and Economic Development of Economy*, *30*(1), 196-217.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly*, *35*(1), 128-152.

Cordeiro, M., Puig, F., & Ruiz-Fernández, L. (2023). Realizing dynamic capabilities and organizational knowledge in effective innovations: the capabilities typological map. *Journal of Knowledge Management*, *27*(10), 2581-2603.

Cuevas-Vargas, H., Parga-Montoya, N., Lozano-Garcia, J. J., & Huerta-Mascotte, E. (2023). Determinants of openness activities in innovation: The mediating effect of absorptive capacity. *Journal of Innovation & Knowledge*, *8*(4), 100432.

Dabić, M., Daim, T., Bogers, M. L., & Mention, A. L. (2023). The limits of open innovation: Failures, risks, and costs in open innovation practice and theory. *Technovation*, *126*, 102786.

Dabić, M., Posinković, T. O., Vlačić, B., & Gonçalves, R. (2023). A configurational approach to new product development performance: the role of open innovation, digital transformation and absorptive capacity. *Technological forecasting and social change*, *194*, 122720.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Edquist, C., & Hommen, L. (2000). Public technology procurement and innovation theory. In *Public technology procurement and innovation* (pp. 5-70). Boston, MA: Springer US.

Citation Information: Gupta, P., & Choudhary, V. (2026) Determinants of open innovation adoption in india's manufacturing sector: an empirical analysis. *Academy of Marketing Studies Journal, 30*(1), 1-24.

Emőke–Szidónia, F. (2015). International entrepreneurial orientation and performance of Romanian small and medium-sized firms: empirical assessment of direct and environment moderated relations. *Procedia Economics and Finance*, *32*, 186-193.

Fu, X., Zanello, G., Contreras, C., & Ding, X. (2024). Innovation under constraints: the role of open innovation in Ghana. *Industry and Innovation*, *31*(4), 444-474.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic management journal*, *17*(S2), 109-122.

Hansen, J. D., Deitz, G. D., Tokman, M., Marino, L. D., & Weaver, K. M. (2011). Cross-national invariance of the entrepreneurial orientation scale. *Journal of Business Venturing*, *26*(1), 61-78.

Haylemariam, L. G., Oduro, S., & Tegegne, Z. L. (2024). Entrepreneurial agility and organizational performance of IT firms: A mediated moderation model. *Journal of Entrepreneurship, Management & Innovation*, *20*(2).

Iacovou, C. L., Benbasat, I., & Dexter, A. S. (1995). Electronic data interchange and small organizations: Adoption and impact of technology. *MIS quarterly*, 465-485.

Integrated CRM Systems: A Meta-UTAUT Approach. Inf. Syst. Front. 2023, 25, 1299–1313.

Laursen, K., & Salter, A. (2006). Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms. *Strategic management journal*, *27*(2), 131-150.

Lepore, D., Vecciolini, C., Micozzi, A., & Spigarelli, F. (2023). Developing technological capabilities for Industry 4.0 adoption: An analysis of the role of inbound open innovation in small and medium-sized enterprises. *Creativity and Innovation Management*, *32*(2), 249-265.

Liu, L. (2024). Green innovation, firm performance, and risk mitigation: evidence from the USA. *Environment, Development and Sustainability*, *26*(9), 24009-24030.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of management Review*, *21*(1), 135-172.

Marzi, G., Manesh, M. F., Caputo, A., Pellegrini, M. M., & Vlačić, B. (2023). Do or do not. Cognitive configurations affecting open innovation adoption in SMEs. *Technovation*, *119*, 102585.

McPhillips, M., Tegtmeier, S., & Nikitina, T. (2024). Going all in or spreading your bet: a configurational perspective on open innovation interaction channels in production sectors. *Production Engineering Archives*, *30*(2), 191-203.

Messeni Petruzzelli, A., Murgia, G., & Parmentola, A. (2022). How can open innovation support SMEs in the adoption of I4. 0 technologies? An empirical analysis. *R&D Management*, *52*(4), 615-632.

MIS Q. 1995, 19, 465.

Mishra, A. (2024). Empowering AI-Powered Product Companies: Enhancing Design with Knowledge Management, Open Innovation, and Foresight.

Mubarak, M. F., Tiwari, S., Petraite, M., Mubarik, M., & Raja Mohd Rasi, R. Z. (2021). How Industry 4.0 technologies and open innovation can improve green innovation performance?. *Management of Environmental Quality: An International Journal*, *32*(5), 1007-1022.

Najib, M., Ermawati, W. J., Fahma, F., Endri, E., & Suhartanto, D. (2021). Fintech in the small food business and its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 88.

Naseer, S., Khawaja, K. F., Qazi, S., Syed, F., & Shamim, F. (2021). How and when information proactiveness leads to operational firm performance in the banking sector of Pakistan? The roles of open innovation, creative cognitive style, and climate for innovation. *International Journal of Information Management*, *56*, 102260.

Ogiemwonyi, O., Alam, M. N., Hago, I. E., Azizan, N. A., Hashim, F., & Hossain, M. S. (2023). Green innovation behaviour: Impact of industry 4.0 and open innovation. *Heliyon*, *9*(6).

Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at firm level. *Electronic journal of information systems evaluation*, *14*(1), pp110-121.

Priyadarshini, A., Gao, Y., & O'Gorman, C. (2024). Firm specific determinants of open innovation in European SMEs. *Journal of Small Business & Entrepreneurship*, *36*(1), 130-157.

Pundziene, A., Nikou, S., & Bouwman, H. (2022). The nexus between dynamic capabilities and competitive firm performance: the mediating role of open innovation. *European Journal of Innovation Management*, *25*(6), 152-177.

Qu, C., & Kim, E. (2025). Investigating AI Adoption, Knowledge Absorptive Capacity, and Open Innovation in Chinese Apparel MSMEs: An Extended TAM-TOE Model with PLS-SEM Analysis. *Sustainability*, *17*(5), 1873.

Quesado, P., & Silva, R. (2021). Activity-based costing (ABC) and its implication for open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 41.

Rabie, N., Moustafa, A., & Ghaithi, F. A. (2024). Organizational Practices' Role in Managing Open Innovation and Business Performance. *Administrative Sciences*, *14*(5), 87.

Citation Information: Gupta, P., & Choudhary, V. (2026) Determinants of open innovation adoption in india's manufacturing sector: an empirical analysis. *Academy of Marketing Studies Journal, 30*(1), 1-24.

Radicic, D., & Alkaraan, F. (2024). Relative effectiveness of open innovation strategies in single and complex SME innovators. *Technology Analysis & Strategic Management*, *36*(9), 2113-2126.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship theory and practice*, *33*(3), 761-787.

Robertsone, G., Lapins, E., & Heilala, J. (2024). Exploring Relations Between Methods of Assuring Quality, Certified Management Systems, Adoption of Technologies and Company Performance. *Economics and Culture*, *21*(2), 77-90.

Sarpong, E. O., Yunfei, S., Coffie, C. P. K., & Akrong, G. B. (2024). Empirical evidence of inbound open innovation practice by Ghanaian SMEs. *Sage Open*, *14*(2), 21582440231196455.

Singh, S. K., Chen, J., Del Giudice, M., & El-Kassar, A. N. (2019). Environmental ethics, environmental performance, and competitive advantage: Role of environmental training. *Technological forecasting and social change*, *146*, 203-211.

Singh, S. K., Gupta, S., Busso, D., & Kamboj, S. (2021). Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. *Journal of business research*, *128*, 788-798.

Szromek, A. R., & Bugdol, M. (2024). Sharing heritage through open innovation—An attempt to apply the concept of open innovation in heritage education and the reconstruction of cultural identity. *Heritage*, *7*(1), 193-205.

Tra, D. T., Phuong, N. T. M., Van Tien, D., Van Ha, T., Huong, N. T. X., & Dung, L. T. P. (2024). THE EFFECT OF OPERATION MANAGEMENT AND OPEN INNOVATION ON WOMEN-OWNED SMALL AND MEDIUM ENTERPRISES PERFORMANCE IN VIETNAM. *International Journal of eBusiness and eGovernment Studies*, *16*(2), 384-401.

Tsai, F. S., Cabrilo, S., Chou, H. H., Hu, F., & Tang, A. D. (2022). Open innovation and SME performance: The roles of reverse knowledge sharing and stakeholder relationships. *Journal of Business Research*, *148*, 433-443.

Vega-Jurado, J., Gutiérrez-Gracia, A., & Fernández-de-Lucio, I. (2008). Analyzing the determinants of firm's absorptive capacity: beyond R&D. *R&d Management*, *38*(4), 392-405.

Verona, G., & Ravasi, D. (2003). Unbundling dynamic capabilities: an exploratory study of continuous product innovation. *Industrial and corporate change*, *12*(3), 577-606.

Wang, C., Lin, Z., & Kumar, N. A Meta-Analysis of the Nexus between Open Innovation and Innovation Performance: A Moderated Mediation Integrated Analysis. *Available at SSRN 4776390*.

Yang, M., Fu, M., & Zhang, Z. (2021). The adoption of digital technologies in supply chains: Drivers, process and impact. *Technological Forecasting and Social Change*, *169*, 120795.

Zhang, X., Chu, Z., Ren, L., & Xing, J. (2023). Open innovation and sustainable competitive advantage: The role of organizational learning. *Technological forecasting and social change*, *186*, 122114.

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