DEVELOPING INNOVATION STRATEGY FOR LARGE GLOBAL INFORMATION TECHNOLOGY FIRMS IN AN ENVIRONMENT OF THE RAPID EVOLUTION OF DIGITAL TECHNOLOGIES

RAJBIR SINGH

DEPARTMENT OF MANAGEMENT STUDIES

INDIAN INSTITUTE OF TECHNOLOGY DELHI

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by

RAJBIR SINGH

Department of Management Studies

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CERTIFICATE

This is to certify that the submission of the thesis titled **"Developing innovation strategy for large global information technology firms in an environment of the rapid evolution of digital technologies"** to the Department of Management Studies, Indian Institute of Technology Delhi, for the award of the degree of **Doctor of Philosophy** is a record of bonafide research work carried out by **Rajbir Singh**. He has worked under my guidance and supervision and has fulfilled the requirements for the submission of this thesis, which has attained the standard required for a Ph.D. degree of the institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

P. Vigneswara Ilavarasan, PhD
Professor
Department of Management Studies
Indian Institute of Technology Delhi
New Delhi – 110016, India

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ABSTRACT

The simultaneous and rapid emergence of multiple digital technologies, including digital computing, communication, storage, and the internet, has increased the pace of innovation and led to discontinuous and unpredictable changes in the information technology (IT) industry. Incumbent firms need to increase the rate of innovation, and to do that they need decision frameworks for developing innovation strategy. They need frameworks to decide the type of innovation, the timing of innovation, and to allocate resources for innovations. The current literature does not have frameworks for these decisions in this specific context. Firms that provide IT products and services have been studied because they have seen a significant impact as a result of the digital nature of their value chains and products and services, and they have been early responders to the change. For the study, a grounded inquiry research methodology supported by a cross-sectional, in-depth case study approach was followed, and thirty senior executives from eight large global IT firms were interviewed. Thematic analysis was used to identify underlying themes and develop insights and frameworks. Five frameworks have been proposed, including a decision-framework for each of the three components of innovation strategy as well as two high level processes for innovation management and resource allocation. According to the study, pioneers have an opportunity to succeed in this context and can dominate the market. Followers also have an opportunity to gain market leadership, and specific success factors have been suggested. The simultaneous emergence of multiple digital technologies and their interplay leads to the development of new technologies, resulting in unpredictable changes in the technology trajectory. These changes, coupled with the low cost of innovation and scaling businesses, create opportunities for pioneers to scale and dominate. According to the study, for innovations to succeed, deep engagement and collaboration of employees, suppliers, customers, and partners is critical across the innovation cycle, from idea sourcing, validation,

and implementation to market adoption. The study also revealed that strategic decisions were qualitative in nature, with quantitative frameworks used to formalize them. Collaboration among the leadership team is essential for developing a mental model of the future, which is used for selecting and prioritizing innovation initiatives. The limitations of the study and potential future research areas have also been identified.

Keywords: Decision Frameworks, Digital Technologies, Discontinuous Change, Innovation Strategy, IT Industry

अमूर्त

डिजिटल कंप्यूटिंग, संचार, भंडारण और इंटरनेट सहित कई डिजिटल प्रौद्योगिकियों के एक साथ और तेजी से उभरने से नवाचार की गति बढ़ गई है और सूचना प्रौद्योगिकी (आईटी) उद्योग में असंतुलित और अप्रत्याशित परिवर्तन हुए हैं। मौजूदा कंपनियों को नवाचार की दर बढ़ाने की जरूरत है, और ऐसा करने के लिए उन्हें नवाचार रणनीति विकसित करने के लिए निर्णय ढांचे की आवश्यकता है। उन्हें नवाचार के प्रकार, नवाचार का समय और नवाचारों के लिए संसाधन आवंटित करने के लिए रूपरेखा की आवश्यकता है। वर्तमान साहित्य में इस विशिष्ट संदर्भ में इन निर्णयों के लिए कोई रूपरेखा नहीं है। आईटी उत्पाद और सेवाएँ प्रदान करने वाली फर्मों का अध्ययन किया गया है क्योंकि उन्होंने अपनी मूल्य श्रृंखलाओं और उत्पादों और सेवाओं की डिजिटल प्रकृति के परिणामस्वरूप महत्वपूर्ण प्रभाव देखा है, और वे परिवर्तन के लिए शुरुआती प्रतिक्रियाकर्ता रहे हैं। अध्ययन के लिए, एक क्रॉस-सेक्शनल, गहन केस अध्ययन दृष्टिकोण द्वारा समर्थित एक जमीनी जांच अनुसंधान पद्धति का पालन किया गया और आठ बड़ी वैश्विक आईटी फर्मों के तीस वरिष्ठ अधिकारियों का साक्षात्कार लिया गया। विषयगत विश्लेषण का उपयोग अंतर्निहित विषयों की पहचान करने और अंतर्दृष्टि और रूपरेखा विकसित करने के लिए किया गया था। पाँच रूपरेखाएँ प्रस्तावित की गई हैं, जिनमें नवाचार रणनीति के तीन घटकों में से प्रत्येक के लिए एक निर्णय-ढांचे के साथ-साथ नवाचार प्रबंधन और संसाधन आवंटन के लिए दो उच्च स्तरीय प्रक्रियाएँ शामिल हैं। अध्ययन के अनुसार, अग्रदूतों के पास इस संदर्भ में सफल होने का अवसर है और वे बाजार पर हावी हो सकते हैं। अनुयायियों के पास बाज़ार नेतृत्व हासिल करने

का भी अवसर है, और विशिष्ट सफलता कारक सुझाए गए हैं। कई डिजिटल प्रौद्योगिकियों के एक साथ उद्भव और उनके परस्पर क्रिया से नई प्रौद्योगिकियों का विकास होता है, जिसके परिणामस्वरूप प्रौद्योगिकी प्रक्षेपवक्र में अप्रत्याशित परिवर्तन होते हैं। ये परिवर्तन, नवाचार की कम लागत और व्यवसायों को बढ़ाने के साथ मिलकर, अग्रदूतों के लिए बड़े पैमाने पर बढ़ने और हावी होने के अवसर पैदा करते हैं। अध्ययन के अनुसार, नवाचारों को सफल बनाने के लिए, विचार सोर्सिंग, सत्यापन और कार्यान्वयन से लेकर बाजार में अपनाने तक, नवाचार चक्र में कर्मचारियों, आपूर्तिकर्ताओं, ग्राहकों और भागीदारों की गहरी सहभागिता और सहयोग महत्वपूर्ण है। अध्ययन से यह भी पता चला कि रणनीतिक निर्णय प्रकृति में गुणात्मक थे, उन्हें औपचारिक रूप देने के लिए मात्रात्मक ढांचे का उपयोग किया गया था। भविष्य का एक मानसिक मॉडल विकसित करने के लिए नेतृत्व टीम के बीच सहयोग आवश्यक है, जिसका उपयोग नवाचार पहलों को चुनने और प्राथमिकता देने के लिए किया जाता है। अध्ययन की सीमाओं और संभावित भविष्य के अनुसंधान क्षेत्रों की भी पहचान की गई है।

कीवर्ड: निर्णय रूपरेखा, डिजिटल टेक्नोलॉजीज, निरंतर परिवर्तन, नवाचार रणनीति, आईटी उद्योग

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