

Key Determinants for Serial Innovators

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In today's rapidly evolving business landscape, where disruptive technologies and changing market dynamics pose both unprecedented challenges and remarkable opportunities, the ability of companies to innovate has become a critical determinant of success. To maintain their competitive edge and stay relevant in an increasingly dynamic marketplace, organizations must embrace a culture of constant innovation.

Keywords: CIS ; collaboration ; serial innovator

1. Introduction

Innovation has emerged as a fundamental driver of progress, enabling companies to thrive in an era defined by rapid change and intense competition. The traditional paradigm of relying solely on incremental improvements is no longer sufficient to sustain long-term success. In this dynamic landscape, where disruptive technologies, shifting customer preferences, and global interconnectedness are the norm, the ability to constantly innovate has become a strategic imperative for companies across industries ([Ra et al. 2019](#)).

Companies that prioritize innovation establish themselves as trailblazers, capable of identifying emerging trends, foreseeing customer demands, and adapting swiftly to evolving market conditions. Such organizations not only survive but also excel amid turbulence, consistently propelling themselves ahead of their competitors. However, to truly embrace the transformative power of innovation, businesses must recognize the limitations of internal capabilities and look beyond their own boundaries to foster collaborative synergies ([Vojak et al. 2012](#); [Griffin et al. 2014](#)).

Collaboration, both within and between organizations, has emerged as a potent catalyst for innovation, unlocking new avenues for growth and amplifying the impact of individual efforts. By joining forces with external partners, businesses can tap into diverse knowledge pools, leverage complementary expertise, and co-create solutions that surpass the possibilities of solitary endeavors. The collective intelligence and shared resources that result from collaboration fuel a virtuous cycle of innovation, enhancing competitiveness and propelling industries forward ([Esposito 2015](#); [Ahmed et al. 2016](#)).

There are several examples of companies joining forces for innovation. Innovation and collaboration, in this context, refers to how companies combine their knowledge and resources to achieve results beyond individual reach. Emblematic examples of this synergy include partnerships such as Nike and Apple, who combined their expertise in technology and design to develop products such as the Nike + iPod, integrating music and physical activity in a revolutionary way ([Belal et al. 2013](#)). Likewise, the partnership between Uber and Spotify offers users a personalized travel experience, combining transportation services and digital entertainment ([Gogris 2022](#)). Additionally, the collaboration between Tesla and Panasonic has resulted in significant advances in the production of batteries for electric vehicles, driving the adoption of sustainable technologies ([Dan 2021](#)). These cases highlight how strategic collaboration between companies can boost innovation, generating benefits for both partners and consumers.

The benefits of collaborative innovation extend beyond the individual organizations involved. By collaborating, companies can accelerate the pace of discovery, drive breakthroughs, and generate transformative solutions that address complex societal challenges. Collaborative ecosystems foster the exchange of ideas, nurture cross-fertilization of expertise, and foster a culture of openness and shared learning. Through collaborative innovation, companies not only fuel their own growth but also contribute to the greater good, creating positive ripple effects that resonate across entire industries and economies ([Fawcett and Jones 2013](#); [Cross et al. 2021](#)).

2. Innovation and Serial Innovation

Innovation is a driving force behind the growth and development of countries in today's dynamic and highly competitive global landscape. It plays a pivotal role in improving productivity, enhancing competitiveness, and fostering sustainable economic and social progress, and serves as a catalyst for productivity growth, enabling countries to generate higher outputs with the same or fewer resources. Innovation-driven productivity growth accounts for a substantial share of total economic growth. It enables firms to develop and adopt innovative technologies, streamline processes, and create novel products or services ([Bloom et al. 2020](#)).

Productivity growth is a key driver of income per capita, allowing nations to raise living standards and improve the overall quality of life ([Acemoglu and Restrepo 2019](#)). Innovation-driven competitiveness is critical for sustainable economic growth ([European Commission 2016](#)). By continuously introducing new and improved products, services, and business models, countries can differentiate themselves from competitors and capture market share. Nations with a strong innovation ecosystem tend to attract more investment, create high-value jobs, and enjoy a favorable trade balance ([European Commission 2016](#); [Xiao et al. 2022](#)).

Knowledge-intensive industries, such as information technology and biotechnology, have a higher growth potential and generate greater economic value. Through investments in research and development (R&D) and the promotion of entrepreneurship and startups, countries can foster an innovation ecosystem that stimulates the development of new industries and creates opportunities for economic diversification and resilience ([Acemoglu and Restrepo 2019](#); [Johnson et al. 2022](#)).

Technological advancements and innovative solutions are critical for tackling pressing issues such as climate change, healthcare access, and poverty alleviation. For instance, the development of renewable energy technologies and clean technologies is essential for reducing carbon emissions and ensuring a sustainable future. In addition, the application of innovative healthcare technologies and telemedicine can enhance healthcare access and quality, particularly in remote or underserved areas ([Shaheen et al. 2022](#)).

Innovation thrives in an environment that encourages knowledge exchange, collaboration, and interdisciplinary research ([Hou et al. 2019](#)). Collaboration between academia, industry, and government is vital for fostering innovation ([Ferreira et al. 2023](#)). Effective knowledge transfer mechanisms, such as research partnerships, technology transfer offices, and incubators, enable the translation of scientific discoveries into practical applications ([Castañer and Oliveira 2020](#)). By fostering a culture of collaboration, countries can harness the collective intelligence and expertise of various stakeholders, leading to breakthrough innovations and sustainable development ([Yang et al. 2021](#)).

Companies that are serial innovators and engage in fruitful collaborations are better equipped to meet market challenges, stay ahead of the competition, and achieve sustainable growth ([De Noni et al. 2018](#)).

Recurrent innovation is crucial for companies to maintain their competitive edge. This is particularly relevant in an era characterized by rapid technological advancements and shifting consumer preferences. The ability to continuously innovate ensures that companies remain relevant, engage customers, and create value ([Baierle et al. 2020](#)).

Recurrent innovation allows companies to enhance their market resilience. By regularly introducing new products, services, or processes, organizations are better positioned to withstand disruptions and economic downturns ([Binns et al. 2022](#)). As such, companies that embrace recurrent innovation are more likely to succeed in the long term.

Innovation also plays a pivotal role in meeting evolving customer expectations. Recurrent innovation allows companies to develop products and services that align with customer needs, preferences, and emerging trends. By consistently delivering innovative solutions, companies can cultivate customer satisfaction, increase loyalty, and foster long-term relationships ([Tidd and Bessant 2021](#)).

3. Determinants of Serial Innovation

3.1. The Role of Collaboration

There are several determining factors for serial innovation. One of these determinants is collaboration, which serves as a catalyst for innovation, enabling companies to leverage diverse expertise, resources, and perspectives ([Fawcett and Jones 2013](#)). The relevant literature underscores the importance of collaboration in driving innovative activities within companies ([Haus-Reve et al. 2019](#); [Esposito 2015](#); [Tortoriello et al. 2015](#); [González-Benito et al. 2016](#)).

It is also important to highlight the impact of cross-functional collaboration, where individuals from different departments collaborate to generate innovative ideas and solve complex problems ([Wright et al. 2022](#)). By promoting a collaborative culture, companies encourage the exchange of knowledge, creativity, and new perspectives. In other words, cross-functional collaboration promotes creativity and innovation, breaking down silos and facilitating the flow of information ([Ahmed et al. 2016](#); [Cross et al. 2021](#)).

Companies are increasingly recognizing the value of open innovation, which involves collaborating with external partners, such as suppliers, customers, research institutions, and startups. Open innovation practices foster a broader ecosystem of knowledge sharing and idea generation ([Bertello et al. 2023](#)). By embracing external collaborations, companies gain access to diverse expertise, resources, and novel perspectives, thereby enhancing their capacity for innovation ([Radicic et al. 2020](#)).

3.2. The Role of Technological and Educational Levels

In addition to the collaborative intensity, there are other factors that can impact the company's innovative initiative. Factors that influence the company's innovative activity and condition the outputs of innovation, namely regarding industrial property registrations: patent registration, trademark registration, and design registration ([World Intellectual Property Organization 2022](#)).

It should also be noted that there is a strong relationship between the specific technological level of a company's sector and its innovative capacity. Sectors characterized by greater technological intensity, such as biotechnology or artificial intelligence, tend to foster greater innovation potential due to constant advances and disruptive changes in these fields ([Hong et al. 2016](#)).

Firms operating in sectors with higher technological levels tend to have a stronger commitment to innovation, invest more in research and development (R&D), and exhibit a higher rate of product innovation. It is thus possible to state that technological intensity stimulates companies to continually push boundaries and develop innovative solutions ([Hou et al. 2019](#)).

While a high technological level in a sector offers significant opportunities for innovation, it also presents challenges that companies must navigate. One key challenge is the need for a skilled and adaptable workforce ([Davey et al. 2016](#)). As technology advances rapidly, companies must ensure their employees possess the necessary skills to leverage emerging technologies effectively. Firms operating in highly technologically intensive sectors face increased demand for specialized talent, leading to fierce competition for skilled individuals. In this way higher education plays a pivotal role in shaping the innovative capacity of individuals ([Li 2022](#)). There is a positive correlation between educational attainment and innovation. Individuals with higher education possess advanced analytical and critical thinking skills, critical thinking abilities, and domain-specific knowledge, which are crucial for generating innovative ideas ([Ra et al. 2019](#)).

In this way, it is possible to highlight the importance of higher education institutions as sources of knowledge creation and diffusion ([Chais et al. 2017](#)).

Several studies highlight the importance of collaboration between universities and industry as this collaboration plays a crucial role in advancing knowledge and technological innovation ([Chais et al. 2017](#); [Huggins and Johnston 2009](#)). This collaboration stimulates academic research, producing innovation that meets the needs of companies, boosting investment in scientific capital and encouraging patenting in the most diverse areas ([Faria et al. 2019](#)). For example, the interaction between R&D activities in medical schools and hospitals is fundamental given that R&D activities in medical schools influence R&D activities in hospitals, and vice versa ([Faria et al. 2021](#)).

Universities and research institutions serve as hubs for research and development activities, fostering collaborations between academia and industry. This interaction enables the transfer of innovative knowledge and promotes the development of innovative solutions ([Huggins and Johnston 2009](#)).

Companies that employ workers with higher education qualifications tend to have a competitive advantage in terms of innovation. Such workers bring a range of valuable skills to the table, including technological expertise, research capabilities, and the ability to apply theoretical knowledge to practical challenges ([Haskel and Westlake 2023](#)).

3.3. The Role of Public Support and R&D Investment

Other factors, such as public support for innovation, play a crucial role because public funding of R&D significantly enhances companies' innovative capabilities ([Guellec and Pottelsberghe 2000](#)). It provides resources and financial

incentives that enable firms to engage in riskier, long-term research projects, which may not be financially viable in the short run ([Hong et al. 2016](#)).

Innovation is inherently risky, particularly for smaller companies with limited financial resources. Public support acts as a risk-sharing mechanism by mitigating financial and market risks. Government grants, tax incentives, and subsidies can alleviate the burden of high upfront costs associated with innovation, enabling companies to experiment and invest in disruptive ideas. Public financial support reduces the aversion to risk, encouraging companies to undertake ambitious innovation projects with higher potential societal impact ([Mina et al. 2021](#)).

With or without public support, the truth is that the investments made by the company in R&D are important. These investments may refer to internal R&D expenditures or they may refer to external expenditures, and they serve as a catalyst for technological advancements, propelling companies to develop cutting-edge solutions. By allocating resources to R&D, organizations can explore new technologies, experiment with ideas, and uncover breakthrough innovations ([Alam et al. 2020](#); [Greve 2003](#)).

Effective product development is crucial for organizations seeking to meet evolving customer needs and preferences. Recent studies highlight the vital role of R&D expenses in enhancing product development processes. As such, increased R&D spending allows companies to conduct extensive market research, identify emerging trends, and design innovative products accordingly ([Kim and Lee 2022](#); [Delgado-Verde and Díez-Vial 2023](#)).

3.4. The Role of Internationalization

Another factor that influences the innovative activity of companies and the result of this activity is the degree of internationalization of companies. The degree of internationalization can be evaluated according to the turnover resulting from exports. In this sense, exports enable companies to reach larger markets, providing them with increased opportunities to sell their products and services. Firms that engage in exporting tend to have a stronger focus on innovation compared to their non-exporting counterparts ([Li et al. 2011](#)). The access to larger markets leads to increased demand, motivating companies to invest in R&D to improve existing products or develop new ones to meet the varied needs of international consumers ([Ortigueira-Sánchez et al. 2022](#)).

In this way, it is possible to state that exports expose companies to different international markets, customers, and competitors, promoting learning and knowledge transfer. That is, it acts as a facilitating element in the acquisition of knowledge about innovative technologies, production processes, and marketplaces. This knowledge can stimulate innovative thinking in companies, leading to the development of new products, services, and business models. In addition, it also drives companies to adapt their products and processes to meet the standards, regulations, and preferences of international customers ([Ortigueira-Sánchez et al. 2022](#)).

In conclusion, it is possible to point out that export-oriented companies operate in clusters or supply chains, promoting collaboration and knowledge propagation effects ([Hou et al. 2019](#)). These collaborations allow companies to leverage the complementary strengths of their partners, leading to accelerated innovation processes and the development of new and improved products ([Baierle et al. 2020](#)).

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