

Innovation in Business and Survival: A Long-Term Approach

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DOI: [10.36348/sjbms.2024.v09i08.001](https://doi.org/10.36348/sjbms.2024.v09i08.001)

| Received: 25.06.2024 | Accepted: 31.07.2024 | Published: 02.08.2024

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Abstract

There is an overall understanding that in a business environment that is serious, the performance of the company will extraordinarily rely upon its capacity to innovate. To shed light on how, when, and to what extent innovation has an effect on the market as well as the financial performance of the companies. The paper deploys regression equation models that seemingly look unrelated to examining different Portuguese firms. The results of this paper confirm that there is a positive effect of innovation on a firm's development as well as its performance. However, the results also suggest that the opposite is also true. The innovation process is very complex and depends on the environment in which it is used.

Keywords: Open Innovation Model, Circular Business Models, Research Policy, Agility.

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INTRODUCTION

Since capacity innovation is broadly perceived as one of the primary variables in the foundation and guard of a company's upper hand, there is consistent tension - not in particular because of the difficulties, intricacy, and dangers intrinsic in the administration of innovation - for specialists to keep fostering how they might interpret what advancement means for the financial and market performance of a company along with the components through which the different gatherings of partners engaged with the initiation of innovation and seek after their contribution simultaneously.

According to this point of view, innovation can not only be important for the manageable handling of companies regarding monetary and fierce terms but also for the economies in which - even during globalization - they structure a section. Research that has been conducted in this particular field shows that organizations that utilize innovation for the working of their cycles or potentially to separate their items/administrations will quite often encounter better market and monetary execution, estimated as far as a piece of the pie, benefit, development in deals turnover, and market capitalization.

In any case, this equivalent examination would in general be halfway, since it has not just commonly centered around a deficient rundown of pertinent factors yet in addition with few exemptions has focused on unambiguous periods of the innovation process as opposed to the cycle all in all. Be that as it may, ongoing refinements in the definition and estimation of development might allow these impediments to be survived: the variables related to advancement can be disaggregated into their particular degrees of mediation (full scale, meso, and miniature) and can be arranged as connecting with info, throughput and result stages. The research that was conducted in this paper uses innovative conceptual approaches that are more recent. Through these approaches, innovation's impact on the financial and the performance of the market has been identified. The factors that have been determinant the most about the Portuguese firm's performance for the recent period have been identified.

Two of the fundamental explanations behind deciding to investigate the process of innovation and its influence on the market and monetary execution are as follows:

1. Comparative exploration has been directed beforehand (C. Marques, 2006)

2. It is normal for specialists to have a specific interest in examining their prompt climate (for example the public economy) to have the option to propose upgrades in the board, procedure, and approaches.

According to this research paper, it should be seen as updating the existing information on the innovation processes of a company and their effect, over a specific timeframe, in a particular economy.

There were two reasons why the decision to utilize the Portuguese Community Innovation Survey (CIS) information had been made. The very first reason was to furnish the opportunity to contribute with the discoveries and ideas for the partner's navigation (which is directly and indirectly), these partners are enthused about learning about the impact of development on the exhibition of the organizations that are situated in a geographical region that is of authors interest.

Besides, it was pointed toward applying this procedure to one country, so that further examination can be used in other European nations in which CIS information is accessible.

The organization of the paper is as follows: first is an introduction, followed by a theoretical overview of the ways to deal with innovation processes and their effect on financial and economic execution; this paper then, at that point, continues regularly with areas on methodology, results, and conclusion, respectively. The paper's fundamental restrictions and a few roads for future exploration, as well as suggestions for the executive's practice, are likewise investigated.

Theoretical Background

At present, the main topic in the literature of management is innovation, however, it is also the main topic when it comes to practicing management. This has also been stated by H. Bouchikhi (2001) in their two major statements:

1. To survive, firms need to do innovation
2. The widespread acknowledgment of this goal and the hassle that is required to support and stimulate a firm's innovation has led to a rise in the exploration and consultancy industry, especially that which is focusing on administrative parts of these topics.

In their opinion, "innovation may well be said to be one of the main topics of research and consultancy nowadays" (H. Bouchikhi, 2001). The innovation concept has acquired a naturally positive meaning, even more than before. Even though risks and uncertainty are linked with innovation when innovative ideas tend to lead towards successful effects on the firm's financial performance and market, effects are then transmitted to the consumers. Therefore, innovation is a crucial element in two things; firstly, in a firm's effort in terms of

improving its market as well as financial performance, and secondly, in efforts to improve the competitiveness of the national economy.

Nevertheless, the phrase that 'a firm's performance is improved by innovation' is a complex one as it has yet to be researched in detail. Different factors need to be analyzed on both; a macro as well as micro level. These factors are not simple and are commonly the subject of empirical and theoretical dispute. Some of these disputes are the sustainable rates of economic growth of a nation, the cutthroat techniques of flagship organizations, the overall competitiveness, the long-term profitability, and the performance along with the sustainability of different firms that make up the national economy.

Until now, most exact explorations on the determinants of firms' productivity have embraced the overall analytical framework first created in seminal studies by Schumpeter (1939). As per the Schumpeterian perspective on rivalry as a dynamic cycle that spreads all through and, surprisingly, past a given industry, new items are grown, new business sectors are infiltrated, new unrefined components come into utilization, and new types of business association are taken on, with the fleeting monopolistic benefits that at first build to the trend-setter step by step declining as the upgrades are embraced both by imitators inside the business and by new market participants.

Until this point, most observational exploration on the determinants of firms' productivity has taken on the overall scientific structure first created in quite a while by Schumpeter (1934). As indicated by the Schumpeterian view of competition as a dynamic interaction that spreads all through and, surprisingly, past a given industry, new items are grown, new business sectors are entered, new unrefined components come into utilization, and new types of business association are taken on, with the temporary monopolistic benefits that at first build to the pioneer progressively declining as the upgrades are embraced both by imitators inside the business and by new market participants (Bartoloni, 2009).

That's what ongoing examination affirms, by embracing systems of advancement, organizations are ready to work on their market and monetary execution as estimated by a piece of the pie and productivity or by development and capitalization of the market. Nonetheless, little consideration has been paid to the examination of the exact components by which advancement influences the available and monetary execution of firms, and now and again the scope of factors remembered for the investigation has been deficient. From this point of view, the accompanying speculation can be proposed with explicit respect to the public economy chosen for examination:

H1^(L): Development usefully affects the market and monetary execution of firms as well as the other way around, via positive communications between the different periods of the development cycle

The conclusion drawn from late investigations in this field would propose that various factors have an unequivocal effect in every period of the development cycle as well as contribute differentially to the overall improvement of a company's exhibition. While the most usually involved variable in the info period of development is development in innovative work (RandD) use, this action has the hindrance of barring firms who have not put resources into RandD previously. Different authors have selected to use the variable "innovation's total investment" that best addresses the company's endeavors in such a manner at the information period of the cycle since it considers the course of development change (throughput), result, and market/monetary execution. On this premise, a first theory was proposed:

H1^(la): Innovation's input phase is affected by the processes of transformation, input determinations, and the overall performance of a firm.

A large number of research that have looked to try out the connection between results of innovation and company execution have involved the variable 'sales percentage of new products in the total number of sales' to gauge the result of practices that are innovative. In any case, given the accessibility in the CIS III and IV of information on different sorts of innovation, it was concluded that for this review, 'innovation yield' could be ideally estimated by conglomerating yields for both mechanical and non-mechanical innovations (for example in items, processes, showcasing, markets, and business association). On this, another hypothesis was proposed:

H1^(lb): In the innovation's output phase, the input determinants influence the performance, transformation processes, and the firm's overall performance.

The literature supporting this study recommends improving firms' innovation and better paces of development of the two deals and benefits. Besides, firms that collaborate in innovation on an extremely durable premise can likewise hope to encounter expanded deals (for example Marques and Monteiro-Barata (2006)). Thus, 'the development of sales would appear to be the most suitable variable to utilize while depicting the general presentation of our example of organizations. Thus, a third hypothesis was set:

H1^(lc): The sales growth of a firm is affected by the output along with other variables that are performance-related.

In recent times, a lot of research has been conducted on the various approaches to characterizing and estimating development and innovation. From one perspective, innovation factors can be isolated into full-scale, meso, and micro factors and, then again, into info, throughput, and result factors. This research provided details regarding centers around the micro level and recognizes advancement inputs, the change of contributions to yields (here assigned 'throughput'), and innovation yields.

The hypothesis that has been indicated above is to be used to investigate empirically if innovation has a positive impact on the performance of Portuguese firms. A model of innovation that has four phases has been used, this model is based on the work of B. Crepon (1998) which is shown in the figure below:

First phase	The firm's decision to innovate or not is analysed on the assumption that several factors will influence the innovation output
Second phase	The model examines the innovation decision, and the influence this has over levels of innovation inputs, and the corresponding expenditures to be made
Third phase	The transformation of the innovation input into innovation output (throughput) occurs between the second and third phases; the model assesses innovation output achieved in the light of the innovation inputs expended
Fourth phase	The model examined the relationship between innovation output and firms' market and financial performance

Data and Experimental Methodology

Data Set

The approach that was most suitable to accessing longitudinal information towards the development experience of a significant example of different companies was to utilize the optional information gathered as a component of the EU's CIS, an overview facilitated by EUROSTAT and embraced, in

the Portuguese case, by the Planning, Strategy and International Relations Evaluation Office (GPEARI) of the Ministry of Science, Technology and Higher Education (MCTES).

Drawing on the data sets of CIS III and CIS IV for the periods ranging from 1998 to 2000 and from 2002 to 2004, separately, an example of more than 500

companies from the essential, optional, and tertiary areas was built, remembering endeavors for country and metropolitan areas, both; with the experience of development as well as without it, as shown in Table 1.

Experimental Method

The research model talked about above was sent to recognize the elements impacting innovation in each period and to examine whether input existed in any of the stages. In later studies conducted for this question, the neoclassical vision of innovation and direct sorts of

models seem to have been subbed by additional mind-boggling conceptualizations that give a closer view and not just a more extensive scope of speculations by the firm (remembering those for preparing, showcasing, plan and picture, participation and systems administration, for instance), yet additionally the subtleties of the course of information creation.

Therefore, the notion of maximizing the profits of a firm is replaced by the notion of a learning organization.

	<i>CIS III</i>			<i>CIS IV</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Total</i>	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
Total firms (no.)	178	330	508	178	330	508
Primary sector (%)	2.8	2.7	2.8	2.8	2.7	2.8
Secondary sector (%)	73.6	66.4	68.7	73.6	66.4	68.7
Tertiary sector (%)	24.2	30.9	28.5	24.2	30.9	28.5
Micro firms (%)	0	0	0	0	0.9	0.6
Small firms (%)	32.6	29.1	30.3	33.1	29.4	30.7
Medium firms (%)	33.1	30.9	31.7	23.6	29.7	27.6
Large firms (%)	34.3	40.0	38.0	43.3	40.0	41.1
SME (%)	65.7	60.0	62.0	56.7	59.1	58.3
Innovative firms: yes (%)	74.7	80.0	78.1	70.8	74.8	73.4
Product innovation (%)	36.0	40.9	39.2	38.2	48.8	42.5
Process innovation (%)	44.9	43.6	44.1	47.8	51.2	50.0
Other innovations (%)	62.9	70.9	68.1	47.2	60.0	55.5
Innovation in products and processes (%)	4.5	1.8	2.7	7.3	5.8	6.3
Innovation strategy: innovation in the market (%)	27.5	336	31.5	24.2	28.8	27.2
Job creation: yes (%)	39.9	32.7	35.2	39.9	32.7	35.2

Source: Authors' CIS database.

While investigating the different parts of innovation that comprise communication between the four phases of the course of innovation (input, throughput, result, and execution), more perplexing econometric strategies, for example, those integrated into the models of probit, Tobit, and Heckman and those utilizing concurrent conditions, are suggested.

In studies that talk about feedback relations, it is normal to utilize models having two or three stages (Löf, L. Klomp (1999), individually), the two of which use the least squares to appraise simultaneous equations that have already been defined. In an investigation of

Portuguese modern firms that was led by C. Marques, Determinants of the innovation process: an empirical (2006, the regression statement (SURE) model was utilized to appraise the synchronous conditions that summed up potential criticism relations between information, result and firm execution. Considering the calculated and strategic issues introduced above and the qualities of the informational index, it was chosen to apply a similar SURE way to deal with the CIS board information. The factors engaged with the advancement cycle as well as their foremost qualities are introduced in Table 2.

Table 2 Innovation process variables and their characteristics

<i>Variables</i>	<i>Description</i>	<i>Scale</i>
<i>Input</i>		
Innovation effort	Total investment in innovation	Interval
Training for innovation	Percentage of investment in training for innovation	Interval
<i>Throughput</i>		
Innovation strategy	Innovation as part of the strategy	Dichotomous
Market	Dummy variable – performance in the market	Dichotomous
Customer	Dummy variable – customer satisfaction	Dichotomous
Cooperation	Dummy variable – cooperation with research institutions and other firms	Dichotomous
<i>Output</i>		
Innovation	Process/product/market/organisational innovation	Dichotomous
<i>Performance</i>		
Growth in sales	Evolution of sales growth between 1998 and 2004	Interval
Growth in employment	Evolution of job creation rate between 1998 and 2004	Interval
Location	Rural vs. urban	
Size	Small, medium and large firms	
Sector	Primary, secondary and tertiary	
Funding	The existence of external funding (supporting programmes and other sources of funding)	

Source: Authors' CIS database.

Simultaneous Equation Model to Demonstrate Relation between Innovation and Performance of a Firm

To distinguish the presence of feedback relations that exist between the periods of the innovation's process, a model that utilized three simultaneous equations was used with the utilization of the SURE approach to gauge the boundaries of the relapse. The table below sums up the results of the assessment.

Having utilized the particular form of the SURE method created by Zellner (1962) to break down the three conditions, the conclusions drawn were as follows:

1. The condition that reflects 'complete investment in innovation' is impacted by innovation's output (for example development in process,

item, market, as well as association) and by the company's presentation (as estimated by development in turnover of sales)

2. The condition reflecting 'output of innovation' is impacted by innovation's input, as estimated by the complete use of innovation and related (re)training, by the process of innovation (for example response to participation and encouraging groups of people) and by the company's exhibition (as estimated by development in deals turnover)
3. The condition reflecting the firm's performance is affected by the innovation's output (for example innovation in process, item, market, and association) and by the variable of presentation connecting with work creation.

Table 3 Results of the estimation of the simultaneous equation model

	<i>Innovation input</i>	<i>Innovation output</i>	<i>Growth in sales</i>
Total investment in innovation	–	3,069.814*** (1.83)	–
Training for innovation	0.0610** (2.82)	0.243* (4.12)	–
Cooperation	–	0.197* (3.43)	–
Innovation output	–	–	0.632* (5.65)
Growth in sales	0.0382* (3.46)	0.167* (5.65)	–
Employment growth	–	–	0.212*** (1.84)
Size	0.098** (2.86)	0.313* (3.31)	–
Funding	–	0.134** (2.24)	–
Constant	0.0174* (2.56)	–	0180*** (0.72)
χ^2	76.54	26.31	28.72
Probabilty $> \chi^2$	0.0003	0.0049	0.0071
Adjusted R^2	0.7510	0.6540	0.7180

Note: *t*-Statistics always appear between round brackets.

Significance level at which the null hypothesis is rejected *1%, **5%, ***10%.

Only statistically significant results are presented in this table.

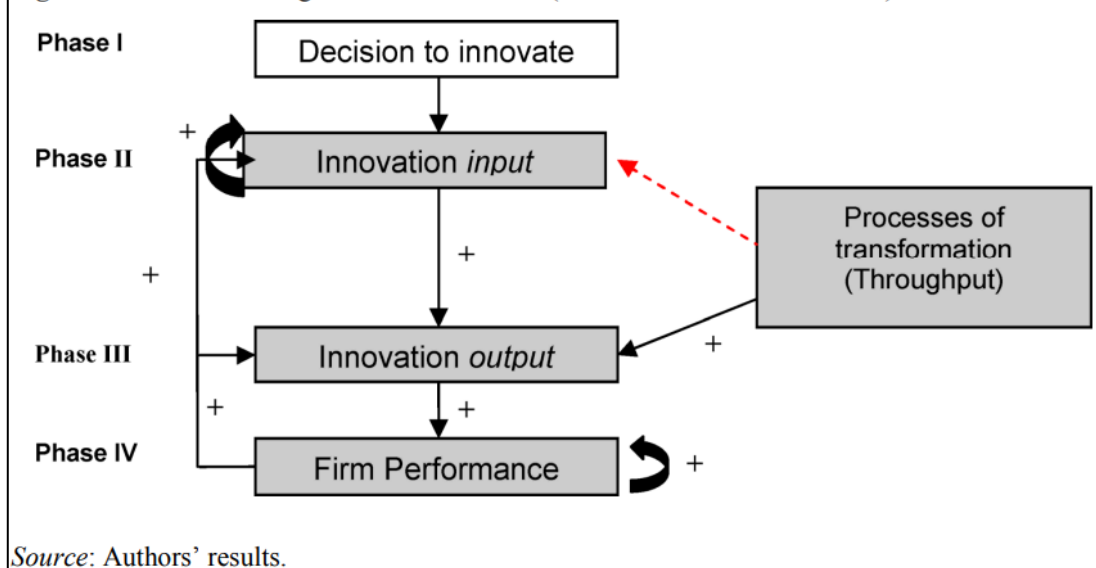
Model estimated by the SURE method.

Source: Authors' CIS database.

These conclusions tell us that feedback exists between the different periods of innovation (input, output, and performance), in this way affirming one of the communications proposed in the research model (1), specifically that innovation influences emphatically on Portuguese firms' exhibition as well as the other way around.

It should be stressed that rather than certain investigations (for example Rothwell and Dodgson,

1994, on the North of Europe), firm size arose here as a genuinely critical variable in the relapse conditions. For Portugal, be that as it may, these investigations have delivered to some degree various outcomes with creators, for example, P. Conceição (2003), and Marques and Monteiro-Barata (2006) revealing no such connection between firm size and development. This vagueness - or rather this distinction in results for various nations - requires further examination, a few ideas of which are given in the next section.

Figure 2 Results of the global research model (see online version for colours)

Conclusion and Proposal for Future Work

The outcomes summed up in the figure below affirm the speculations of the study, it shows that innovation concerning Portuguese firms decidedly affects their market and monetary execution as well as the other way around and that there is the existence of positive feedback between the input of innovation, output of innovation, and performance periods of the different processes innovation that have been attempted by the firms.

Getting to know the exact relationship that connects innovation and a firm's execution isn't just significant for the administration of different organizations, but it is also significant for arranging and strategizing at the national level.

This study has explained this interrelationship for a small amount of national economy with characteristics that are quite structural and with its specific verifiable speed and direction of development and may consequently give a premise to correlation with different cases. In everyday terms, since innovation is seen as a determined pioneering system, therefore, it is an important wellspring of the upper hand, firms shouldn't just heighten their endeavors in such a manner, but may likewise utilize firms with effective execution of innovation to benchmark the general shapes and explicit detail of their development procedures.

Collectively planned collaboration between the different partners in a framework of innovation allows a nearer match to be laid out between the needs of innovation in an organization and the comparing institutional help design as well as strategy climate. According to this viewpoint, states ought to:

1. Promote expanded and more escalated data and information dividing among firms and different partners in the innovation framework, subsequently permitting institutional also, strategy support for development to be all the more handily assessed, got to, and moved along.
2. Support business overall and business new companies specifically by working with admittance to take a chance with capital, one of the critical components to conquering the development boundary.
3. Decrease the expenses of protecting novel thoughts and adjust the current lawful system to make it more helpful for the business double-dealing of advancement.

It is practically unfathomable that in a profoundly serious and globalized business environment, firms can create practical development without the need for innovation. Nevertheless, while different types of well-performing organizations enhance to various degrees and with different types of achievements, many firms with evident potential for development seem to do minimal more than make do without improving by any

means. If structure and solidifying seriousness an essential point, development is an essential basis for an organization and nation the same. According to this viewpoint, every one of the corporate and institutional partners in the development framework should be continually mindful of the significance of planning their exercises and drives on the off chance that organizations situated inside public wildernesses are to profit from a dynamic and versatile creative climate.

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