

# Technological Innovation and Quality Management of Human Resources in a National Health Institute

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## Abstract

The work responded to the objective of establishing the influence of technological innovation in quality management of human resources in a National Institute of Health. The research approach is quantitative, because it uses data collection and analysis to answer questions. research. The type of study is basic, it is a set of systematic and empirical processes that are applied to the study of a phenomenon; the non-experimental, cross-sectional and causal correlational design, the hypothetical-deductive method. The sample was census. The reliability coefficient for the variable Technological innovation in the health professional was 0.925 and the coefficient with the quality management variable was 0.955, interpreted as high reliability of the variables. The investigation concluded that: Technological innovation significantly influences quality management of human resources in a National Institute of Health, Lima 2021, because a Nagelkerke of.884 was found; so it is established that technological innovation significantly influences 88.4%.

**Keywords:** Technological Innovation, Quality Management, Innovation Strategy, Innovation Culture, Value Chain Innovation.

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## INTRODUCTION

Currently, neonatal intensive care units are in great demand, due to the increase in premature births, a shortage of trained personnel and poor remuneration. In Europe, it is necessary to consolidate the health system, considering basic principles of quality management since difficulties in commitment, participation, with difficulties of good governance and public health of all public policies were evidenced [1].

In Peru, there are difficulties in technological resources and innovation, resulting in management problems and, definitively, a technological improvement system is required. Nowadays, in this pandemic, technological innovation in health is even more important if it is a neonatal ICU, since all this entails having to have different types of resources for its operation, both properly trained human and financial resources for its operation. maintenance and equipment [2].

At the institutional level, the National Institute of Health is an institution with complexity level III-2 according to the categorization of the Ministry of Health (Minsa). It is the reference center at the national level in having a neonatal intensive care unit with incubators, which often exceeds its care capacity since, being a reference center, it cannot deny care to any pregnant woman at risk. of premature birth, having to resort to renting mechanical ventilators, in addition to the lack of trained personnel and remuneration below market demand. With this pandemic, another covid-19

neonatal intensive care unit was opened, where only the children of mothers with a positive IgM result are treated, which we consider to be a technological innovation.

Technological innovation represents the technical change that an organization brings. They are implemented to achieve new products, materials or processes. The demand for the use of mechanical ventilation and all the equipment in neonatal ICUs is expensive and even more so if you do not have insurance. Regarding quality management, it is a series of advances that all associations plan, order and manage the work associated with the employees they form. Human resources are important due to the development of the workforce committed to the institution, likewise, they create labor relations strategies and establish strong and satisfactory teamwork.

Nowadays, with this pandemic, it has been seen who are really committed to their profession, even though there are few intensivists who really work in critical units. A critical unit is further restricted in this pandemic; family members had to receive a medical report by phone. There are some exceptions for your entry, but always maintaining a biosecurity protocol.

## Technological Innovation

Technological innovation is measured using science and technology (S&T) indicators. These indicators include

resources devoted to R&D, patents, technology balance of payments, and international trade in R&D-intensive industries. The importance given to S&T indicators increased with the call for a comprehensive analysis of the economy that not only incorporates economic indicators, but also those that represent the creation of knowledge [3].

Technological innovation processes do not follow a set sequence, but instead arise from complex adaptive systems involving many actors and institutions operating simultaneously from local to global scales. Barriers arise at all stages of innovation from the invention of a technology to its selection, production, adaptation, adoption and retirement [4]. Technological innovation implies the development of new thoughts, elements, administrations and procedures that will improve technological solutions [5].

The importance of technological innovation is a vital part of all work that must be carried out and even more so if it is within an employer that seeks to be innovative and competitive that, through the most managed technology, can be obtained within the model of work of each employer. By innovating technologically, agencies enjoy privileges and benefits: (a) improvements in their manufacturing; (b) increased consequences; (c) generation of more experience; (d) ease of methods; (e) better fluent and easy verbal exchange; (f) efficiency and performance and (g) economic savings in costs [6].

The dimensions of technological innovation, for the functions of this research, were taken as a reference to the Catalan Test, which is a procedure for business innovation developed from the Catalan Institute of Technology [7,8]. The rapid innovation capacity of society consists of the following dimensions:

Regarding the dimension of the innovation strategy, understood by the development, usefulness of goals surely oriented to the merger and agreement of the entire association, as well as to the adherence of the appropriate foundation for one's own. Regarding the measurement, deployment of the innovation method, which will measure the value or degree that the incorporation and agreement approach has been implemented, with the degree of order and disposition in the implementation of the techniques. With regard to the size of the innovation subculture, the impartiality of sources, and the organizational form that an employer has, it is very important to expand and order the work environment that supports testing and making decisions. Regarding the measurement of novelty in the succession of costs, the price series of a provision is one of the maximum properties that a company has, innovative processes must be considered immediately in each of these approaches. With regard to measurement due to invention, the novelty in debt analog brings organizational blessings valued both in cash and in the user's pride or the way the buyer views the organization. The importance of the invention is weighted within the signs of performance [8].

### Quality Management of Human Resources

It was defined as the truth of progressing, planning, producing and sustaining a fine profit. This rent must be the most affordable, the most suitable and, in general, is good for the consumer [9].

It remains a long way to ensure that each patient receives the maximum adequate set of diagnostic and healing services to achieve superior physical care, considering all the elements, the information of the affected person and the medical service, achieving the satisfactory result with the minimum possibility of side effects. iatrogenic and the maximum pride of the patient with the development [10].

It is defined as the effect of a valuation progress in which the buyer relates his assumptions to his feelings. Fine sizing is done through the disagreement of the work awaiting the user and that acquired from the agency [11]. It is the addiction evolved and practiced when using a corporation to interpret the wishes and desires of its protégés and dedicate to them, in consistency, an attainable, beneficial, timely, safe and reliable supplier, even in unforeseen conditions, in this way the regular feels included, individually cared for and attended efficiently and surprised with an extra price than expected [12].

Deming's philosophy focuses on continuous improvement within the excellence of products, offers, reducing uncertainty and variability within the design, manufacturing, service processes, under the leadership of the directors. The Deming cycle PDCA (Plan, do, check and act), also famous with the Deming circle. It is a tactic of permanent and satisfactory improvement in four movements, widely used in large management systems [13]. Quality control models: EFQM type (European Foundation For Quality Management). The European Foundation for great management is synthesized in the satisfaction of the client and the personnel, through a management that motivates the skill and maneuver of the society through the good use of the assets and a magnificent direction of the crucial developments to achieve noticeable effects.

There are three integrated factors: actions of eminence, principles and the REDER box of good judgment, interact with each of them. The valuations that encourage the use of this type are (a) add price to the customer; (b) create a sustainable future; (c) expand organizational breadth; (d) imagination and novelty; (e) management with a look, idea and probity; (f) control quickly; (g) achieve achievements through business experience and (h) sustainable consequences over time [14].

Integrated quality management systems (IMS), incorporating forms and standards of character, delivered to unique regions of organizational growth, identified as management standards included, fuse standards and ideals tailored to the location of high quality control, trust, environment and evidence of facts, among others. The integration can be partial if the most practical or extra complicated branches are integrated with as many branches as ISO 2018 systems are related [14].

The importance of world-class human resource management. It can be guided by the following: (a) Competition is growing and consequently it is important to promote an aggregate price; (b) competitors match each other in exceptional quality and price; (c) customers are increasingly concerned, they are looking for personalized treatment and a fast supplier; (d) if a disillusioned customer recounts the terrible experience, it is possible that he will tell different humans about his bad happiness and (e) if a regular accepts a suitable service, it is foreseeable that he will influence others [15].

## METHODOLOGY

The perspective of the study was quantitative, it used the collection and study of data to answer research questionnaires. The method was hypothetical-deductive, because it is the process that the observer continues to carry out a scientific praxis. The research was of the basic type, also called fundamental [16]. The level was causal correlational, because it allows two variables to be causally related to each

other: one independent (technological innovation) and another dependent variable (quality management). The levels of investigation depended on the depth of data collection, sampling, and other components of the study. The study population consisted of 80 health specialists from the National Institute of Health, special leveling and diversity hierarchy III-2. The technological innovation variable was measured with the Catalan Test questionnaire, which is a test of business innovation increased by the Catalan Institute of Technology [7], it consists of 26 items with five dimensions: innovation strategy, deployment of the innovation strategy, culture of innovation, innovation in the value chain and innovation result. For quality management, the Servqual Model questionnaire was adapted, it favors executing the calculation of the performance attribute, understanding the assumptions of the users and how they estimate the exercise. It has been validated by experts; It contains 20 items and its five dimensions: reliability, sensitivity, security, empathy and tangibles.

## RESULTS

**Table 1:** Distribution of levels of the technological innovation variable and its dimensions

levels	Technological innovation		innovation strategy		Deployment of innovation strategy		culture of innovation		Value chain innovation		Innovation result	
	F	%	F	%	F	%	F	%	F	%	F	%
Bass	5	6.3	twenty-one	26.3	8	10.0	twenty	25.0	19	23.8	8	10.0
Medium	29	36.3	19	23.8	32	40.0	twenty	25.0	twenty-one	26.3	28	35.0
Tall	46	57.5	40	50.0	40	50.0	40	50.0	40	50.0	44	55.0
Total	80	100,0	80	100,0	80	100,0	80	100,0	80	100,0	80	100,0

In table 1, technological innovation perceived low levels of 6.3%; 36.3% with a medium level and 57.5% perceived a high level. The innovation strategy received a 26.3% low level ; 23.8% perceived medium level and 50%, high level. The deployment of innovation strategy, 10% perceived low level; 40%, medium level and 50%, high level. Regarding the

culture of innovation, 25% perceived a low level; 25%, medium level and 50%, high level. Regarding the innovation of the value chain, 23.8% perceived a low level; 26.3%, medium level and 50%, high level. Regarding the result of innovation, 10% of those surveyed perceived a low level; 35%, medium level and 55%, high level.

**Table 2:** Distribution of the levels of the quality management variable and its dimensions

levels	quality management		reliability		Sensitivity		Security		Empathy		Tangible	
	F	%	F	%	F	%	F	%	F	%	F	%
Inadequate	10	12.5	10	12.5	12	15.0	9	11.3	13	16.3	12	15.0
Regular	24	30.0	23	28.7	twenty-one	26.3	24	30.0	twenty	25.0	twenty-one	26.3
Appropriate	46	57.5	47	58.8	47	58.8	47	58.8	47	58.8	47	58.8
Total	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0	80	100.0

In table 2, on quality management, 12.5% perceived an inadequate level; 30%, a regular level and 57.5%, an adequate level. Regarding reliability, 12.5% perceived an inadequate

level; 28.7%, a regular level and 58.8%, an adequate level. Regarding sensitivity, 15% perceived an inadequate level; 26.3%, regular level and 58.8%, adequate level. Regarding

security, 11.3% perceived an inadequate level; 30%, regular level and 58.8%, adequate level. Regarding empathy, 16.3% perceived an inadequate level; 25%, regular level and 58.8%,

adequate level and, in terms of tangible levels, 15% perceived inadequate level; 26.3%, regular level and 58.8%, adequate level.

**Table 3:** Adjustment of the model that explains the incidence of technological innovation in quality management

Fitting Information for Pseudo R Squared Models					
Log Likelihood -2	Chi squared	gl	Next.	Cox and Snell	.749
128,860				Nagelkerke	.884
18,345	110,515	7	.000	McFadden	.735

The likelihood of the logistic model was significant since  $\chi^2 = 110.515$ ;  $p < 0.05$ . Establishing that the proposed model is significant. As for R-squared, a Nagelkerke of .884 was found; so it is established that technological innovation significantly influences 88.4% in the quality management of human resources in a national health institute, Lima, 2021.

## DISCUSSION

In the study on the general hypothesis, it was found that technological innovation influences the quality management of human resources in a national health institute, Lima 2021, since a Nagelkerke of .884 was found; so it is established that technological innovation significantly influences 88.4%. I know He referred that public institutions have to be able to accommodate themselves to the demanding situational novelties and the developing demands of the citizens, locating better methods to respond more correctly, containing rates, improving the offer and results of public offers [17]. The factors that determined the success and durability of product and process innovation had been identified, namely: regulations, procedures and rules; organizational redesign or innovation; the improvement of capacities, motivations and opportunities for innovation; control of hazards and uncertainties; management understanding; financing in R&D&i activities and uninterrupted creation of the latest technology. Each of these items has an effect on innovation achievement and/or resistance by a single amount.

It was found that technological innovation perceived low levels of 6.3%; 36.3%, medium grade and 57.5%, high grade. The innovation strategy received a 26.3% low degree; 23.8% observed a medium grade and 50%, a high grade. In Peru, there are difficulties in technological resources and innovation, resulting in management problems and the development of technological innovation strategies is definitely required [2].

It is established that the influence of technological innovation intervenes in a valuable way in quality management. The strategic direction research was carried out : Projection of technological innovation and administrative management in small companies Real links in the midst of those that alter and technological innovations turned out that this training reveals that more than half of the institutions inherent in the study are half-societies and 40% advance oriented occupations, desirably including promotion and project values [18 ].

Investing amounts of property that is revealed in business growth.

Technological innovation develops through phases in the financial, political, social and cultural environment. Irrefutably, where they have given paths of progress in connection with the study of the economy and technological innovation, their association has not been evidenced. The main challenges that stand out are the awareness of managers, actors and decision makers so that they can carry out market research in technological innovation processes [19].

Likewise, indicators of final effectiveness of the pupils and teachers were exposed with the intention of establishing the correlation through both variables. The product of the study demonstrates the gain in the field of competition and highlights areas of advantage that favor an optimal choice of candidates [20]. In this sense, technological innovation is the reciprocity between trade occasions, the supportive understanding of the company and its talents, involving the creation, development, use of the new product and its expressive technological changes [21].

Regarding quality management, 12.5% was achieved, observing an inadequate degree; 30% distinguished a regular grade and 57.5% noted an adequate grade. It is necessary to consolidate the health system, considering basic principles of quality management since difficulties in commitment, participation, with difficulties of good governance and public health of all public policies were evidenced [1].

In quality management, the planning stage is very important and this study has limitations. It was found that quality management in the gynecology department has a defective exercise plan, reduced intellect of the workers in the organization of the unit, they are unaware of the capacity, purpose and purposes of the establishment; expresses an inefficient bureaucratic administration, fragile distribution and does not accommodate the surpluses requested by clients; the progress of choosing and valuing people are friendly as nothing competent and tangible [22]. There is an organizational environment where it is noted as fairly fair, honest and the influence of personal occupation; therefore, it was defined as the action of advancing, tracing, producing and sustaining an income of excellence. The result must be more accessible to the economy, being more beneficial and appropriate for the client [9].

## CONCLUSIONS

Innovation significantly influences the quality management of human resources in a national health institute, Lima, 2021, because a Nagelkerke of .884 was found, so it is established that technological innovation has an impact of 88.4 %.

Training in quality management represents a great effort for the institution and the significant allocation of economic resources, undertaking this type of program will bring many benefits to improve the quality of care and that the staff is valued within the institution so that It serves to apply instruments in different critical areas of the health organization. It is necessary for the company to develop and improve, contributing to the satisfaction of the workers, respecting interpersonal relationships and discovering each employee's abilities and potential.

It is necessary the quality management training program arises from the need to promote knowledge, quality, productivity, profitability, patient satisfaction and use of the principles of quality management. This will depend, to a great extent, on the training, coordination, and motivation of the personnel required to address the internal and external context of the institution, interpersonal relationships with stakeholders, process management, and leadership.

That is why the training plan arises that considers theory and practice, in which teamwork strategies will be contemplated to achieve the objectives and cover the critical areas where the planning of the team position for the Obtaining the interests of critical services. Through the analysis of information, the production of improvements that contribute to the growth and competitiveness of institutions.

It is suggested that training be carried out on technological innovation development strategies and, in this way, innovation policies, success factors, productivity of the environments be established, as well as the deployment of innovation strategies and development of management of the knowledge, sources of information and assessment.

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