
Multimed 2025; 29:e3046

Original article

Glossary of terms and definitions on technology transfer applied to public health

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SUMMARY

Technology transfer constitutes a subsystem of science, technology and innovation that ensures the applicability of the results of scientific research, hence the importance of understanding the terminology associated with its comprehensive management, for this purpose a glossary of terms was developed. Terms and definitions on technology transfer applied to public health. The research was carried out at the University of Medical Sciences of Holguín, during the period 2023-2024, through a descriptive study. Using empirical methods and techniques such as key informant interviews and document review, the theoretical methods used were analysis-synthesis, historical-logical, induction-deduction, and systematization. A structured alphabetical glossary was obtained that groups together 100 terms and definitions related to the technology transfer. In particular, they used some terms that were created by the authors to focus their contextualization to the health sector. The glossary facilitates the understanding of the scientific and technological terminology associated with the management of the technology transfer. Its format allows for quick and easy handling, and it can be used by students and professionals in the health field and other related fields.

Keywords: Glossary; Technology transfer; Science; Technology; Innovation.

ABSTRACT

Technology transfer is a subsystem of science, technology and innovation that ensures the applicability of the results of scientific research, hence the importance of understanding the terminology associated with its integral management, for this purpose a glossary of terms and definitions on technology transfer applied to public health was developed. The research was carried out at the University of Medical Sciences of Holguín, during the period 2023-2024, through a descriptive study with the use of empirical methods and techniques such as interviewing key informants and documentary review. The theoretical methods of analysis-synthesis, historical-logical, induction-deduction and systematization



were used. A glossary structured in alphabetical order was obtained that groups 100 terms and definitions related to technology transfer in an organized and contextualized manner. In particular, some terms that were created by the authors were used to focus their contextualization on the health sector. The glossary facilitates the understanding of scientific and technological terminology associated with the management of technology transfer. Its related format allows for quick and easy handling, since it can be used by students and health professionals and other specialties.

Keywords:Glossary; Technology transfer; Science; Technology; Innovation.

SUMMARY

Technology transfer is a subsystem of science, technology and innovation that guarantees the applicability of the results of scientific research, the importance of understanding the terminology associated with its comprehensive management, for which a glossary of terms and definitions on applied technology transfer was developed. to public health. The research was carried out at the University of Medical Sciences of Holguín, during the period 2023-2024, through a descriptive study using empirical methods and techniques such as interviews with key informants and documentary review. Foram used the theoretical methods of analysis-synthesis, historical-logical, induction-deduction and systematization. Obtain a glossary structured in alphabetical order that groups 100 terms and definitions related to technology transfer in an organized and contextualized way. In particular, some terms that are created by authors are used to focus their contextualization in the health sector. The glossary makes it easier to understand the scientific and technological terminology associated with the management of technology transfer. Its format allows for quick and easy handling, so it can be used by students and professionals in health and other related specialties.

Keywords:Glossario; Transfer of technology; Science; Technology; Innovation.



Received: 07/24/2024

Approved: 03/19/2025

Introduction

Technology transfer (TT) is considered a key factor for increasing innovation in organizations, a crucial source of economic and social development and the transformation of modern society. (1)The Cuban Science, Technology and Innovation System has among its main objectives to promote the generation, assimilation and application of knowledge and technologies (2) In this order of ideas, it is necessary to promote a comprehensive culture on the management of TT.

Developing this activity requires knowledge of the elements that distinguish this process. In this sense, glossaries are working documents that provide specialized information on a specific topic, easily accessible and in alphabetical order, giving the reader the option of understanding technical or unfamiliar terms with a precise and coherent explanation.

The evolution of terminology as a science in the 20th century brought with it the development of more complex glossaries. In 1938, the first specialized terminological work of an international and professional nature was published: the International Electrotechnical Vocabulary in London by the International Electrotechnical Commission. (3) The current trend in glossaries seeks greater comprehensibility through the use of less complex nominal groups. The difficulties of scientific language are not rooted in terminology, but in grammar, specifically in lexical density. (4)

Despite the consolidation of the subsystems of science, technology and innovation (STI) There are still gaps in the understanding of the terminology related to this activity. In this context, the authors of this study felt the need to develop a glossary of terms and definitions on technology transfer management in the Cuban health sector, to contribute



to the development of this process, with the quality and requirements demanded by the Ministry of Public Health.

Methods

A technological development study was conducted from February 2023 to February 2024 at the University of Medical Sciences of Holguín. The objective was to develop a glossary of terms and definitions related to technology transfer management applied to the health sciences. Theoretical methods of analysis and synthesis were used to select the terms and definitions that comprise the glossary and to describe the relationships between them to arrive at conclusive synthetic results. Historical-logical methods were used to determine the background, characterize, and conceptualize the object of study in the Cuban health system.

Empirical methods and techniques such as key informant interviews, document review, and expert opinion were employed. Interviews with 30 key informants from the Science, Technology, and Innovation Department of the University of Medical Sciences of Holguín and managers from the Territorial Delegation of Science, Technology, and Environment facilitated the identification of the most frequently used terms in the health field related to TT, as well as those that denoted the greatest level of complexity.

The document review focused on the regulatory documents of the STI System and Cuban science and technology policy. Indexed databases were reviewed, including: ScienceDirect, Springer Link, Google Scholar, and Dialnet were analyzed the methodological documents of the ICU subsystems of the University of Medical Sciences of Holguín.

To verify the usefulness and relevance of the developed glossary, the criteria of specialists were used. The questionnaire applied considered the concept general information of the glossary, its format, content, and the validity and effectiveness of the terms and



definitions used. The design of the glossary was based on the Gapper Sherry methodology, which takes into account the determination of the nature of the glossary, the definition of the content and the format. (5)

Terms with similar definitions were grouped, and the most up-to-date ones and those whose content most accurately reflected the research objective were selected. In some cases, criterial assumptions from several authors were combined to obtain a more complete and understandable definition. Terms most appropriate to the Cuban context were included, and other international terms were conceptualized based on the authors' systematization of this area of knowledge. Ethical aspects of scientific research were taken into account in the development of the research.

Results

Glossary on technology transfer applied to public health.

The work consists of 25 terms and definitions. Some terms have been specifically contextualized to the health sciences, for better understanding and use by professionals in this field.

Aa:

Technology absorption: is the organization's ability to identify, assimilate, transform and exploit knowledge that comes from the environment.

Technology adoption: process through which an individual, organization, or society selects and successfully uses a technology.

Specialized advice: It is a type of care focused on improving the understanding and mastery of basic content to promote the learning process and achieve certification by level.

Technology assimilation: A process carried out to incorporate into daily practice the use of a technology not previously used in the country or province. This technology may be



original or not, indigenous or imported, and must produce benefits for health and the economy.

Technical and service assistance: It is the provision of technical advice and/or specialized services outside of what is covered by intellectual property rights or industrial secrets.

DC:

Technology dissemination channels: son the mechanisms used to disseminate technological products to potential clients or recipients.

Coordinated collaboration: It is reflected in the vertical and horizontal integration, intersectorality, interinstitutionality, transdisciplinarity and solidarity that are essential to achieve the applicability of technologies.

Transfer channels: son the means or vehicles, formal or informal, through which knowledge and technology are transferred.

Technology consulting: This is a consultancy dedicated to teaching organizations how to use technologies to be better equipped to face the challenges that arise.

Ee:

Transmitter: is the provider, supplier or generator of the technology.

Technological assessment: It is the study aimed at examining the broader social consequences of the introduction of a new technology, the expansion or extension of an existing technology, or the impact of a previously unevaluated technology use.

Ff:

Feasibility: Technical and economic assessment of the economic and social objective that must be addressed and the possible ways to achieve it, calculating the cost of alternative ways to obtain the result and their contribution, that is, investing an expense to obtain a benefit.

Gg:

Generalization: process of assimilation and implementation by the Central State Administration Agencies, Territories, Companies and other State Entities, of those



scientific and technical results already proven and useful, generated in the country or outside of it, which contribute to maintaining or increasing the efficiency, effectiveness, quality and competitiveness in the fulfillment of productions and services.

Technology transfer management: It is manifested in the creation and development of strategies and systems for managing human, material and financial resources that allow for the rational and effective implementation of the productions of science, technology and innovation in social practice.

Technology transfer coordinating group: It is responsible for directing, controlling and evaluating the management of technology transfer based on the integration and joint work of the social actors that comprise it.

II:

Implementation of technologies: It is the process of incorporating technology into routine practice in the recipient's real environment.

Introduction of scientific results: It is the process of implementing scientific and technological results in a given entity to verify their usefulness in practice, with a view to their subsequent generalization.

Joint research: A research modality where those involved not only share information, methodologies and results, but also research teams and financial resources, and must also agree on protocols and objectives for joint work.

Rr:

Receiver: is the one who receives the technology, is the user or client.

Technology transfer networks: They are information systems formalized around groups and/or individuals for the dissemination of technology and knowledge opportunities among their members.

Transferable result: It is that scientific production that in the process of introduction to social practice demonstrate usefulness, relevance, feasibility in addition to responding to the problem bank already addresses the priorities established in the health sector.



Tt:

Health transfer workshop: A scientific activity of a training and participatory nature that aims to transfer the results of science, technology and innovation from a provider organization to a recipient organization for use in teaching, healthcare, management and research settings in the health sector.

Technology: It is the set of knowledge and information specific to an activity that can be used systematically for the design, development, manufacturing, marketing of products or the provision of services, including the application of techniques associated with management.

Transfer: to transfer or carry something from one place to another. To cede to another person the right, dominion, or authority one has over something.

Technology transfer: It is the action of transferring knowledge in the form of machinery, equipment or intangibles, required for the manufacture of a product, the application of a procedure, the provision of a service or the introduction of knowledge into social practice.

Discussion

This glossary on technology transfer applied to public health was developed taking into account documents with legal support from the science, technology and innovation system in Cuba. The main epistemological reference that guided the research was Decree Law 7/2021. (2) Several articles and scientific reports issued by renowned decision-makers in this area of knowledge in the country were also considered. The dictionary of the Royal Spanish Academy, in its updated version, was the starting point for the initial understanding of each term. (6)

The definitions were adjusted to the scientific and health context. To cite some examples, Macía et al. (7) through their studies on pScientific-technological policy and institutional management facilitated the understanding of the terms associated with the management



and regulatory framework of STI. Fornet (8) contributed valuable terms focused on the management of scientific results in science, technology and innovation projects, which was useful to the authors to outline the cycle of scientific research, with emphasis on the generalization or transfer of these scientific results.

Quality is a premise of all health processes, therefore the Standard was considered ISO 9000 on the Quality management systems. Fundamentals and vocabulary. (9) Díaz-Canel (10) defines terms such as multi-actorality and coordinated collaboration, which, in the opinion of the authors, consolidate and strengthen the scope of STI in the country, hence the need for their inclusion. Other authors such as Morales (11) and Ocaña (12), when dealing with issues associated with scientific concepts for the development of STI, were taken into account to adopt new terms and focus them on territorial health systems.

The development of glossaries is due to various reasons, for example, in health emergency situations, glossaries are created to increase the level of knowledge of the general population and favor their ways of acting, such is the case of the Covid-19 pandemic, from which several terminological glossaries were generated. (13) Bilingual glossaries of terms frequently appear in the scientific literature and in the field of health, those that respond to contents of basic biomedical sciences and health sciences are regularly used. (14) However, it is not common to find a glossary of terms and definitions on technology transfer with the singularity of being applied in the context of public health.

Glossaries can be found as appendices in books, manuals, master's and doctoral theses, to clarify terminology and even to make new proposals for definitions based on the systematization of the authors and their position regarding terms and definitions that have been the subject of analysis and consensus. (15) This option is relevant when addressing terms of complexity and scientific novelty.

This work contains definitions created by its authors, which were registered with the National Copyright Center (Registration: 1731-10-2022). This research result is primarily aimed at professionals and students in the medical sciences, including science,



technology, and innovation managers, presidents and members of chapters of Scientific Societies, and information science managers.

Conclusions

The glossary's structure allows for quick and easy use, as it harmoniously integrates terms and their meanings with precision and consistency, in accordance with current Cuban legislation. Its application to public health facilitates understanding of the scientific and technological terminology associated with the management of this process.

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Conflicts of Interest

No conflicts of interest are declared.



Authorship contribution

Conceptualization: Elianis Ocaña Samada, Andria Torres Guerra.

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