



## Technology transfer, essence of the Linkage with Society. Case of La Concordia - Ecuador

Transferencia de tecnología, esencia de la Vinculación con la Sociedad. Caso Sede La Concordia – Ecuador

### Evelyn Eugenia Alcívar Soria

Master in Business Administration, Bachelor in Business Administration. Teacher at the Technical University "Luis Vargas Torres" of Esmeraldas, Ecuador, evelyn.alcivar@utelvt.edu.ec, ORCID 0000-0001-5822-3678

### Alberto Efraín Prado Chinga

Master in Business Administration, Engineer in Business Administration. Professor at the Universidad Técnica de Chile. "Luis Vargas Torres" of Esmeraldas, Ecuador, alberto.prado@utelvt.edu.ec ORCID 0000-0002-3723-0729.

### Julio César Caicedo Aldaz

Master in Teaching and Master in Environmental Management, Agronomist Engineer. Professor at the Technical University "Luis Vargas Torres" of Esmeraldas, Ecuador, julio.caicedo@utelvt.edu.ec, ORCID 0000-0002-6373-1981.

### Ibañez Jácome Sixto Santiago

Master in Business Administration, Engineer in Public Administration. Lecturer at the Technical University "Luis Vargas Torres" of Esmeraldas, Ecuador, ibañez.sixto@utelvt.edu.ec ORCID 0000-0002-3953-5980.

## Abstract

The objective of this research was to analyze the contribution of the activities of the students who took the community service subjects in 2021 to the strengthening of technology transfer in the La Concordia canton of the Santo Domingo de Los Tsáchilas province and its area of influence. Its contribution to the training processes and therefore to the link with society is shown at the career level. The leading role of directors, teachers and students of the university institution in collaborating in the development of the linking activities reflected in the study of student intervention in the canton of La Concordia is recognized. As a result of this documentary analysis, we have that 300 students and 43 teachers participated, providing 49 training courses, between the academic periods 2020-2s and 2021-1s, in the midst of the Covid-19 pandemic.

**Keywords:** transfer, technology; bonding; society.

Received 2022-01-02

Revised 2022-03-11

Accepted 2022- 05-04

Published 2022-05-04

Corresponding Author

Evelyn Eugenia Alcívar Soria

evelyn.alcivar@utelvt.edu.ec

Pages: 85-108

<https://creativecommons.org/licenses/by-nc-sa/4.0/>

Distributed under



Copyright: © The Author(s)

## Resumen

El objetivo de esta investigación fue analizar el aporte de las actividades de los estudiantes que cursaron las asignaturas de servicio comunitario en el año 2021 al fortalecimiento de la transferencia tecnológica en el cantón La Concordia de la provincia de Santo Domingo de Los Tsáchilas y su área de influencia. Su aporte a los procesos formativos y por ende a la vinculación con la sociedad se manifiesta a nivel de carrera. Se reconoce el papel protagónico de directivos, docentes y estudiantes de la institución universitaria en la colaboración del desarrollo de las actividades de vinculación reflejadas en el estudio de la intervención estudiantil en el cantón La Concordia. Como resultado de este análisis documental, tenemos que participaron 300 estudiantes y 43 docentes, impartiendo 49 cursos de capacitación, entre los periodos académicos 2020-2s y 2021-1s, en medio de la pandemia del Covid-19.

**Palabras clave:** transferencia, tecnología; vinculación; sociedad.

## Introduction

Higher Education Institutions (HEIs) are social institutions whose mission must be achieved through three fundamental processes: the training of professionals and researchers; the generation and dissemination of knowledge; and the linkage with society, processes that have been present since the origin of universities and their way of fulfilling them has varied over time (Rueda, et al., 2020). These processes have been present since the origin of universities and their form of fulfillment has varied over time as society has changed.

In colonial times, when the first three universities were created in Quito: the University of San Fulgencio (1619-1786), the University San Gregorio Magno (1622-1769) and the University Santo Tomás (1683), the processes of linking with society were created with a sensitivity to social demand (Castro, et al., 2017; Bestard & López, 2017 cited by Molina, et al., 2022).. As can be seen, these universities had a strong link to religious power.

The Cordoba Reform, which was initiated by the "Cordova movement", so called because it was initiated by the students of the University of Cordoba in June 1948, is considered an important milestone in the Latin American university, since it broke the strong bond of religious power, giving way to university autonomy, student

participation in university government, teaching qualification processes, and with regard to linkage, it stimulates and encourages the university to go beyond the limits of the teaching-learning process of careers and pressures and become involved in research and analysis of social problems, including cultural dissemination. (Tünnermann, 2008).

In 1997, the United Nations Educational, Scientific and Cultural Organization (UNESCO) issued general criteria on universities and their contribution to society. These pronouncements are taken into account by governments.

In Ecuador, the legal framework incorporates the regulations governing university activities in:

The Constitution of the Republic of Ecuador published in the Official Gazette No. 449 of October 20, 2008:

Art. 280.- The National Development Plan is the instrument to which public policies, programs and projects shall be subject; the programming and execution of the State budget; and the investment and allocation of public resources; and to coordinate the exclusive competencies between the central State and the decentralized autonomous governments. Its observance shall be mandatory for the public sector and indicative for the other sectors. (Constituent Assembly, 2008)

This is relevant since it is necessary that all state institutions articulate their actions.

Art. 351.- The higher education system shall be articulated with the national education system and the National Development Plan; the law shall establish the coordination mechanisms of the higher education system with the Executive Function. This system shall be governed by the principles of responsible autonomy, co-government, equal opportunities, quality, relevance, comprehensiveness, self-determination for the production of thought and knowledge, within the framework of the dialogue of knowledge, universal thought and global scientific and technological production. (Constituent Assembly, 2008)

The Organic Law of Higher Education (LOES) published in the Supplement to Official Gazette No. 298 of October 12, 2010:

Art. 13.- Functions of the Higher Education System, paragraph a) Guarantee the right to higher education through teaching, research and its link with society, and ensure increasing levels of quality, academic excellence and relevance. (Constituent Assembly, 2008).

Art. 107.- Principle of pertinence. - The principle of pertinence consists of ensuring that higher education responds to the expectations and needs of society, to national planning, to the development regime, to the prospective of scientific, humanistic and technological development worldwide, and to cultural diversity. To this end, the institutions of higher education shall articulate their teaching, research and activities of linkage with society, to the academic demand, to the needs of local, regional and national development, to the innovation and diversification of professions and academic degrees, to the trends of the local, regional and national occupational market, to the local, provincial and regional demographic trends: to the linkage with the current and potential productive structure of the province and the region, and to the national policies of science and technology. (Constituent Assembly, 2008)

The Academic Regime Regulations issued by the Higher Education Council (CES), published on November 28, 2013, currently repealed: Article 82.- Linkage with society. - The linkage with society refers to continuing education programs, network management, cooperation and development, international relations, diffusion and distribution of knowledge that allow the democratization of knowledge and the development of social innovation. Higher education institutions must have a model of linkage with society that ensures the integration of the three substantive functions of higher education: teaching, research and linkage with society; for the management of knowledge according to their domains, lines of research, current academic offerings and community needs at local, national and regional levels; responding to the principle of relevance.

The Academic Regime Regulations published in the official gazette of the CES on March 21, 2019, in Art. 4.- Substantive functions specifies that the substantive functions that guarantee the achievement of the purposes of higher education are a) Teaching, b) Research; and, c) Liaison.

The linkage with society, as a substantive function, generates capacities and knowledge exchange according to the academic domains of the IES to guarantee the construction of effective responses to the needs and challenges of their environment. It contributes to the relevance of educational activities, improving the quality of life, the environment, productive development and the preservation, dissemination and enrichment of cultures and knowledge.

It is developed through a set of plans, programs, projects and initiatives of public interest, planned, executed, monitored and evaluated systematically by HEIs, such as: community service, provision of specialized services, consultancies, continuing education, network management, cooperation and development, dissemination and distribution of knowledge; which allow the democratization of knowledge and the development of social innovation. (Higher Education Council, 2019)

Under this legal framework, the planning of the Linkage with society at the Universidad Técnica Luis Vargas Torres de Esmeraldas (UTLVTE) meets these precepts and declares as its mission "To promote sustainable development of society through programs of service to the community; articulating teaching, research and linkage, for a holistic and comprehensive development of the communities involved" (Universidad Técnica Luis Vargas Torres de Esmeraldas, 2020). (Universidad Técnica Luis Vargas Torres de Esmeraldas, 2020). Based on the above, the present study aims to analyze the contribution of the activities of the students who took the community service courses in the year 2021 to the strengthening of technology transfer in the canton of La Concordia in the province of Santo Domingo de Los Tsáchilas and its area of influence, through quantitative research and methods: synthetic analytical and semantic observation through a descriptive exploratory analysis of the activity of linking with society.

The region where the community of La Concordia is located has great potential for growth and development. Initially an unexplored and remote region, ignored by the economic and cultural centers of the nation, it is now one of the richest agricultural and livestock regions, with a production that supplies national and foreign consumption, and in the area of commerce it occupies an important position as a center of contact and transit between the Andean and coastal regions of the country. (Bonilla, et al., 2022).

This research has taken as input processes generated in the linkage project developed at the Technical University Luis Vargas Torres, Santo Domingo, "Center for Technology Transfer and Entrepreneurship Support for the socio-economic development of the population of the canton of La Concordia".

## Methodology

In this study, quantitative research was applied to quantify the outreach activities of the UTLVTE Santo Domingo de Los Tsáchilas Campus during the year 2021, the results, impact, achievements and quality of the planned outreach work. The historical method was applied to review the antecedents in the area of outreach to society. (Martínez, 2012).

The analytical-synthetic method, used for the analysis of the documentary review, as well as to synthesize the extensive information analyzed, for this purpose diagrams, tables among others were established. (Baena Paz, 2014).

The systematic observation technique was carried out through observation sheets and needs reports, which facilitated the interpretation of the current reality and the projection of desired future scenarios. The number of technology transfer activities and training courses was 49 for the 2020-2s and 2021-1s academic periods.

## Results

Linkage with society as a substantive function of the Higher Education System.

According to Ecuadorian regulations, the academic regime issued by CES, covered by the LOES and in compliance with the Constitution of the Republic of Ecuador, establishes that the following are substantive functions that guarantee the achievement of the purposes of higher education: teaching, research and linkage with society (CES, 2019).

The linkage with society, as a substantive function, generates capacities and knowledge exchange according to the academic domains of HEIs to ensure the construction of effective responses to the needs and challenges of their environment. It contributes to the relevance of educational activities, improving the quality of life, the environment, productive development and the preservation, dissemination and enrichment of cultures and knowledge.(Higher Education Council, 2019)

It is developed through a set of plans, programs, projects and initiatives of public interest, planned, executed, monitored and evaluated systematically by HEIs, such as: community service, provision of specialized services, consultancies, continuing education, network management, cooperation and development, dissemination and distribution of knowledge; which allow the democratization of knowledge and the development of social innovation. (Higher Education Council, 2019)

According to the Council on Higher Education (2019) the linkage with society is articulated with the substantive function of teaching, for the integral formation of students, complementing theory with practice in the teaching-learning processes, promoting spaces for experiential experience and critical reflection. It is articulated with research, by enabling the identification of needs and the formulation of questions that feed the lines, programs and research projects; and, by promoting the social use of scientific knowledge and knowledge.

The aforementioned, agrees with Soleimani, et al. (2016) who argues that it is necessary for teaching, research and linkage to be related to each other, creating and maintaining a bidirectional communication between them. Education must be based on research, research must be formed according to the needs of society to transfer it through linkage. This makes us rethink university work in the face of an increasingly demanding society. In this sense, the role of research is to support the linkage, and at the same time support the teaching activity. (de Aparicio et al., 2017).

The LOES, article 107 on the principle of pertinence indicates that the principle of pertinence consists of higher education responding to the expectations and needs of society, to national planning, to the development regime, to the prospective of scientific, humanistic and technological development worldwide, and to cultural diversity. To this end, institutions of higher education will articulate their teaching, research and outreach activities with society, to academic demand, to the needs of local, regional and national development, to innovation and diversification of professions and academic degrees, to local, regional and national occupational market trends, to local, provincial and regional demographic trends: to the link with the current and potential productive structure of the province and the region, and to national science and technology policies. (Asamblea Nacional República del Ecuador, 2018).

Malagón (2006)) states that the relevance of the linkage activity constitutes the phenomenon through which the multiple relationships between the university and the environment are established.

In the study conducted by Polaino and Romillo (2017) at the University of Otavalo, model of linkage with the community, they indicate that the relationship of students, professors and society contribute to the development of the environment since the knowledge acquired by students is put into practice in the field through the development of projects, trainings and professional services. In this sense, it is very necessary to explain what environment means since article 50 of the Academic Regulations issued by the CES, on the link with society, indicates again that this refers to the planning, execution and dissemination of activities that guarantee the effective participation in society and social responsibility of the institutions of the Higher Education System in order to contribute to the solution of the needs and problems of the environment from the academic and research field. (Council on Higher Education, 2019).

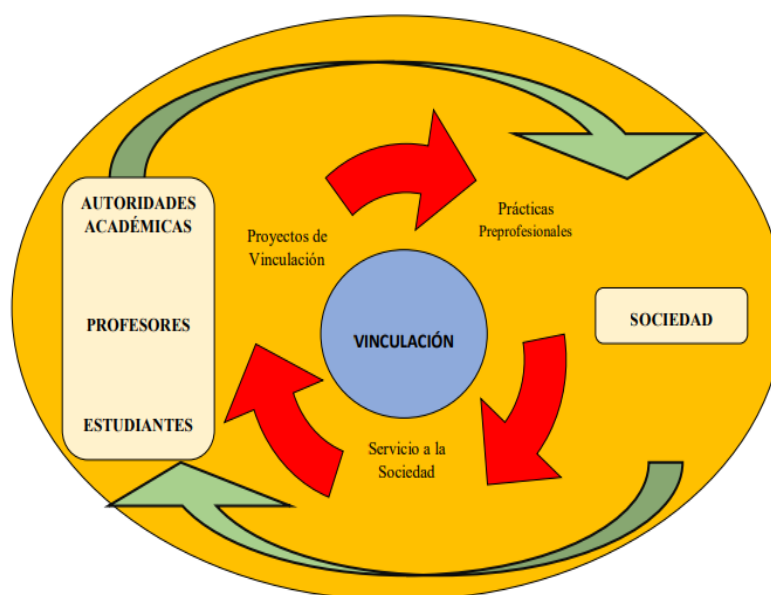
From the social responsibility of the Universidad Luis Vargas Torres de Esmeraldas (UTLVTE), the Directorate of Relationship with Society, in the Institutional Plan of Relationship with Society 2020-2024, institutional purposes section declares as mission:

To promote a sustainable development of society through programs of service to the community; articulating teaching, research and linkage, for a holistic and integral development of the intervened communities.

And establishes an integral management model, in which its components (processes) are interrelated, organized to contribute solutions to the problems of the community; emphasizing the active participation of the actors of the UTLVTE (students, professors and academic authorities), these processes are: projects linked to society, pre-professional practices and service to society. (Luis Vargas Torres Technical University of Esmeraldas, 2020)..



**Figure 1.** Management model of the Partnership Plan, (Luis Vargas Torres Technical University of Esmeraldas, 2020).



In which, the projects of linkage with society will be articulated to the academic domains, approved lines of research and research projects approved by the UTLVTE; must be consistent with the graduate profiles of the careers of the respective faculty; and must maintain the interdisciplinary, multidisciplinary and transdisciplinary criteria, promoting synergy between faculties and substantive functions of the Universidad Técnica Luis Vargas Torres de Esmeraldas.

The pre-professional practices are subdivided into two (2) components: labor practices and community service practices, which according to the curricular readjustments in the UTLVTE are a subject, where, according to the Academic Regime issued by the CES, labor practices are of a professional nature in real contexts of application; and, community service practices are focused on the attention to people, groups or contexts of vulnerability.

The service to society includes all the actions directed towards the generation of participative instances in which the different members of the university community are involved for the conformation of processes focused on improving the capacities of the civil actors of the community. These sub-processes will be directed to the transfer of technology and knowledge, free access to professional advice, use of information and communication technologies, which allow innovation and entrepreneurship alternatives.

The linkage with society is the process through which the University transfers knowledge to society, this is one of the substantive functions and responsibility of HEIs. However, the simple generation of knowledge does not ensure that it can be disseminated to drive innovative activity and economic growth. Precisely, knowledge becomes an important engine for economic development only when universities disseminate it and stakeholders apply it. (Rueda et al., 2020). For Necochea-Mondragón et al. (2013). universities, since the end of the 20th century, began to be considered as providers of useful knowledge to be exploited in practical terms by industry. From this perspective, the scientific advances obtained throughout the twentieth century led the university to deal more objectively with its role as a researcher, orienting part of its activities to meet economic demands (Bezerra, 2012). When the university takes the knowledge it develops to society, it is carrying out technology transfer processes, with the purpose of solving or satisfying the needs of the community.

In a simple way, the term technology transfer is defined as the process of moving technology from one entity to another, taking into account a basic condition, that the transfer is successful if the receiving entity can effectively use the technology to obtain business benefits (Necochea-Mondragón, et al., 2013)..

In other words, the linkage with society is the result of the technology transfer carried out by the university; in other words, at the moment the university carries out knowledge transfer, it is simultaneously carrying out a linkage with society.

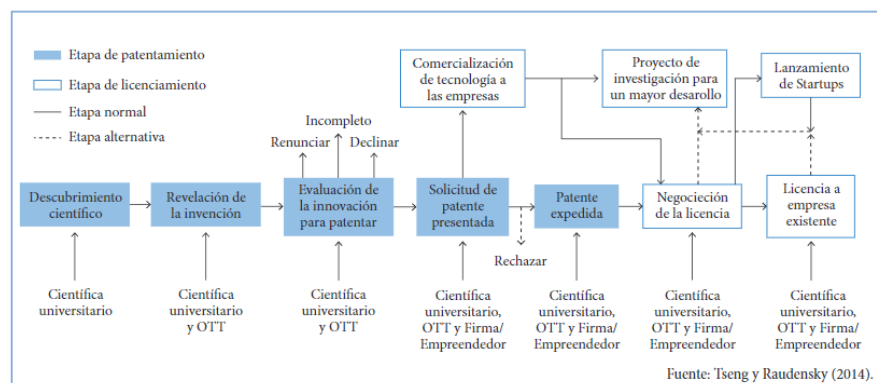
According to Solleiro (1990) and Chiavetta et al (1998), cited above, technology transfer processes are materialized through a wide range of modalities. (Martínez & Soto, 2007)According to Solleiro (1990) and Chiavetta et al (1998), technology transfer processes are materialized through a wide range of modalities, among which the following are

the most common: technical support and provision of services by the university; provision of specialized technical information and "alert" services; training programs; cooperation in the training of human resources; financial support to students doing industry-related research; continuing education; personnel exchanges (stays and sabbatical periods); joint organization of seminars, conferences, colloquiums, among others; personal contacts: participation in advisory councils, exchange of publications, among others; specialized consulting; recruitment programs for recent graduates; support for the establishment of chairs and special seminars; incentives and awards for researchers, professors and students; access to special facilities; support for basic research; joint technological development; technology transfer .

Martinez and Soto (2007) state that in order for the technology transfer process to take place in universities, it is possible to start with specialized services and training programs, based on their available capacities, i.e., resources such as: teachers, students, courses, classrooms, ICTs, etc.; and later on, to enter into consulting and technical assistance contracts based on the institutional academic domains. To then move on to the higher phases related to research.

As can be deduced, the technology transfer (TT) process also involves research. For Rueda (2020), the TT process in universities is as follows:

**Figure 2.** TT process in universities, according to Rueda, et al. (2020)



This process shows that for the institution to be able to develop successful TT processes, it must have sufficient research and a solid group of researchers with a high competitive level, since the main input for TT to exist are the R&D results generated by its researchers.

Linkage activities should be planned, coordinated, directed, controlled and strengthened with projects, allowing the participation of students, teachers, researchers, and governmental and non-governmental organizations depending on the project and its environment that contribute to the development of a locality or region depending on its scope (Mendoza, 2017).

Maldonado and Proaño (2015) cited by Santana et al. (2018) argue that the canton of La Concordia is undoubtedly one of the most important sectors of the country, not only for its important productive wealth, especially in the agricultural and livestock fields, which generates an appreciable income of foreign currency for Ecuador; but for its strategic location that projects it to become in the medium and long term, a road junction comparable to the city of Santo Domingo, which will increase its already existing and significant commercial activity.

La Concordia was founded on October 17, 1955 and became a canton on November 26, 2007 with the publication in the Official Gazette No. 219 as Province of Esmeraldas. Subsequently, on February 5, 2012, the population of La Concordia by popular consultation, decided to belong to the province of Santo Domingo de Los Tsáchilas.

The canton of La Concordia consists of 3 rural parishes: Monterrey, La Villegas and Plan Piloto; 1 urban parish, Parroquia La Concordia, cantonal head. It is located northwest of the country, kilometer 40 of the Santo Domingo- Quinindé road, has approximately 29,003 inhabitants in the urban capital and 42,924 inhabitants throughout the canton and has a land area of 325 km<sup>2</sup>. (GAD Municipal La Concordia, 2016).

The sector of La Concordia is surely one of the most important in the country, not only for its important productive wealth, especially in the agricultural and livestock fields, which generates an appreciable income of foreign currency for Ecuador; but also for its strategic location that projects it to become in the medium and long term, a road junction comparable to Santo Domingo, which will increase its already existing and significant commercial activity. (Santana et al., 2018)

The Linkage Project of the Santo Domingo de Los Tsáchilas Campus, reformulated and approved in June 2021, entitled Center for

Technology Transfer and Entrepreneurship Support for the socioeconomic development of the population of the canton of La Concordia, proposes:

General Objective:

Strengthen the university presence and portfolio of career services through the implementation of a technology transfer center and support for entrepreneurship, which will promote the socioeconomic development of the population of the canton of La Concordia.

Specific Objectives:

- Enable physical and virtual spaces that facilitate dialogue and technology transfer with the productive sector and vulnerable sectors.
- Develop didactic materials for training vulnerable and productive sectors and the community in general.
- Strengthen productive capacities and skills in the use of ICTs through training and technical assistance.
- Disseminate and promote the results obtained in research and outreach projects.

In this context, the UTLVTE Santo Domingo de Los Tsáchilas - La Concordia campus's social outreach project coordinates activities with the pre-professional internships (labor and community service) of the different careers, with the aim of contributing to the transfer of technology in the communities or localities within its radius of action.

At present, there are Business Administration, Public Administration, Information Technology, and Accounting and Auditing careers, in which students take the subjects at the following levels:

**Table 1** - Level at which students take pre-professional internship subjects.

Career	Internships	Level	Community service internships	Level
Business Administration	Strategic Business Management: Pre-professional Internship 1	6th	Pre-professional internship 3: Link with the community.	8th
	Financial Management II: Pre-professional Internship 2	7th		
Public Administration	Management audit (pre-professional internship 1 of linkage with society).	6th	Public Management I (pre-professional internship 3 of linkage with society).	8th
	Design and management of social projects (pre-professional internships 2 of link with society).	7th		
Information Technology	Pre-professional Internships	9no	Community Service Internships: (Community Outreach)	7th
Accounting and Auditing	Pre-professional internships	7th	Community service practice	6th

Table 1 shows that students take the pre-professional internship subjects from the 6th level onwards, where they have already acquired technical knowledge of the profession.

**Table 2 - Participation of students in training processes.**

No	Career	2020-2s	2021-1s	Total students	% Student participation
1	Business Administration				31%
	Public Administration	0			12%
	Information Technology	28			22%
	Accounting and Auditing				35%
	<b>Total</b>				100%

Table 2 shows that the Accounting and Auditing career has the highest participation of students in the training processes.

*Beneficiaries of training courses, by career.*

No	Career	2020-2s	2021-1s	Total beneficiaries	Beneficiaries
1	Business Administration	589	213	802	27%
	Public Administration	0			
	Information Technology	498	342	840	28%
	Accounting and Auditing	884	289	1173	39%
	<b>Total</b>		1050	3021	100%

Table 3 shows that the Accounting and Auditing career had a greater number of beneficiaries, due to the articulation with Decentralized Autonomous Governments of the sector.

**Table 4.** *Training courses given in the Business Administration career.*

PERIOD	Course No.	NAME OF THE TRAINING COURSE	No BENEFICIARIES	%
2020-2S	1	Elaboration of Business Plan		4%
		Customer service in public entities	132	16%
		Microsoft Excel, an entrepreneur's ally tool	101	13%
		Strategic human talent management		9%
	5	Customer service as an entrepreneur's strategy		10%
		Advice on operating permits for commercial establishments - Business Contingency Plan		4%
		Associativity and Popular and Solidarity Economy key factors for the entrepreneur		8%
		Digital Marketing Plan Development		9%
		Processing of dairy products: cheese and yogurt		
	2021-1S	1	Safety and risk prevention in commercial premises	
		Human talent management and entrepreneurship		4%
		Canvas and the business plan		4%



	Customer service as a strategy allied to entrepreneurship		9%
5	Smoking as a preservation technique	45	
<b>TOTAL BUSINESS ADMINISTRATION CAREER</b>		802	100%

As shown in Table 4, in the Business Administration career, in the two academic periods, solutions were offered to the training needs in topics related to customer service, human talent management and others.

**Table 5.** Training courses given in the Business Administration career.

PERIOD	Course No.	NAME OF THE TRAINING COURSE	No BENEFICIARIES	%
2021-1S	1	Citizen participation in the elaboration of public ordinances		
		Management leadership in public entities		73%
		Public Servants Organic Law (LOSEP)		20%
<b>TOTAL CAREER PUBLIC ADMINISTRATION</b>				<b>100%</b>

Table 5 shows that in the Public Administration Career, training was provided in the 2021-1s academic period, in which most of the beneficiaries (73%) received the course Management Leadership in Public Entities.

**Table 6.** *Training courses given in the Information Technology career.*

PERIOD	Course No.	NAME OF THE TRAINING COURSE	No BENEFICIARIES	%	—	
2020-2S	1	Use of computer tools				
		Digital marketing		9%		
	5	Microsoft Excel intermediate level				
		Use of educational computer platforms		5%		
		Preventive maintenance of desktop computers				
		Data networks		8%		
		Database analysis and design		4%		
		Introduction to software development		4%		
		Microsoft Excel advanced level				
		Introduction to web development				
2021-1S	1	Corrective and preventive maintenance of desktop computers				
		Software maintenance and optimization - Windows 10	42	5%		
	5	Use of Microsoft office tools				
		E-commerce and digital marketing		4%		
		Digital platforms as strategic tools for educational processes	42	5%		
		Use of online tools for the design and creation				

	of dynamic presentations		
	Android system operation and mobile device security		
	Safety protocols in the use of social networks		5%
	<b>TOTAL CAREER INFORMATION TECHNOLOGY</b>	840	100%

Table 6 shows the wide range of training courses provided to citizens in the areas of information and communication technology.

**Table 7.** Training courses given in the Accounting and Auditing career.

PERIOD	Course No.	NAME OF THE TRAINING COURSE	No BENEFICIARIES	%
2020-2S	1	Tax Update	86	
		Cost analysis for decision making		11%
		Credit and Collections		
		Accounting For Non-Accountants		10%
	5	Financial accounting for decision making	86	
		Financial evaluation of investment projects		
2021-1S		Bank and commercial cashier	253	22%
	1	Training Accountants		4%

	Training Accountants		
	Training Accountants		5%
	Training Accountants		
5	Training Accountants		
	Tax and Financial Education for Entrepreneurs		
	Training Accountants		5%
	TOTAL CAREER ACCOUNTING	1173	100%

Table 7 shows the information collected through the reports of each course regarding the number of beneficiaries. The training courses in the Accounting and Auditing career emphasized the training of accountants, processes that achieved a high school-university articulation.

**Table 8.** Consolidated data.

Detail	Totals
Training courses	
Direct beneficiaries	3021
Student beneficiaries / Facilitators	
Beneficiary Teachers / Tutors - Facilitators	

After analyzing the results obtained in the training processes carried out by students and teachers of UTLVTE La Concordia with the support of the authorities, in the academic periods 2020-2s and 2021-1s, times of pandemic covid-19, it is determined the contribution to strengthening technology transfer, since through training productive capacities and skills in the use of ICTs were strengthened to the population of the canton of La Concordia and its area of influence.

In the study conducted by Rueda et al. (2020) whose objective was to determine whether the linkage practices of universities were really linkage with society, shows that of the 20 activities, 8 are not linkage

activities (pre-professional practices and internships; networking among universities; graduate follow-up; job placement; student and faculty mobility; international relations, sports activities, and research assistantships. Of the remaining 12, 2 are exclusively outreach activities (social action; and participation in social and cultural life) and 10 are simultaneously outreach and technology transfer activities (continuing education; community services; training; consultancy; provision of specialized services; technology transfer; research-linkage; creation of spin-offs; technical assistance; and application for and obtaining of patents). Leading us to conclude that of the total number of activities, most are technology transfer, but let us analyze the beneficiary public of these activities.

According to Ecuadorian public policies and those of some Latin American countries, as established in Art. 53, community service practices, whose nature is to serve people, groups or contexts of vulnerability Higher Education Council (2019) in Art. 53, community service practices, whose nature is the attention to people, groups or contexts of vulnerability, which could cause HEIs to attend a single actor of the social environment. According to the Ecuadorian public policies such as those established by the Higher Education Council (2019) The beneficiaries of linkage and technology transfer activities should be directed to people, groups or contexts of vulnerability: the elderly, pregnant women, children, indigenous communities, which could cause HEIs to serve only one actor in the social environment.

This assessment is harshly observed by Rueda et al. (2020) who argues that if universities focus on the social sector, leaving industry aside, there will be a divorce between academia and the productive apparatus, a link that in another society would allow an accelerated advance of the economy. If the Linkage with Society implies the interaction of the University with its environment, micro, small, medium and large private companies, state companies or organizations, non-governmental organizations and civil society must be attended.

## Conclusions

Technology transfer or knowledge transfer allows universities to grow in terms of quality of services and links with society.

The students of the Santo Domingo de Los Tsáchilas branch of UTLVTE, as responsible citizens of society, contribute to the transfer of technology, meeting the training needs of the community while developing their professional skills in interaction with reality and its actors. The active participation of students, professors and academic authorities contribute to the fulfillment of the universities' mission in an entrepreneurial society.

Forty-nine training courses were analyzed, taught by 43 teachers and 300 students of the careers offered by UTLVTE La Concordia, in the academic periods 2020-2s and 2021-1s, which benefited 3021 people in administrative, accounting, public and ICTs, thus significantly strengthening the transfer of technology in the canton of La Concordia and its area of influence.

## Reference

Constituent Assembly (2008). *Constitution of the Republic of Ecuador*.

Baena Paz, G. (2017). *Research methodology*.

Bonilla, M., Alcívar, E., Prado, E., & Quiñonez, B. (2022). Social Systems in the Dynamics of Development of the Agricultural Community of La Concordia-Ecuador. *History Research*, 10(1), 45-53. <https://doi.org/10.11648/j.history.20221001.15>.  
<https://doi.org/10.11648/j.history.20221001.15>.

Council of Higher Education (2019). *Reglamento de Régimen académico*.

De Aparicio, X., Chininin, M., & Toledo, O. (2017). EL ROL DE LA VINCULACIÓN EN LA INTEGRACIÓN DE LAS FUNCIONES SUSTANTIVAS DE LA UNIVERSIDAD METROPOLITANA DEL ECUADOR. 9. <http://scielo.sld.cu/pdf/rus/v9n4/rus05417.pdf>

GAD Municipal La Concordia (2016, November 8). *Geography - General Data*.  
<http://www.laconcordia.gob.ec/laconcordia/index.php/la-ciudad/geografia/datos-generales>

Malagón, L. (2006). *The University-Society linkage from a social perspective*. Retrieved May 10, 2022, from <http://www.scielo.org.co/pdf/eded/v9n2/v9n2a07.pdf>

- Martínez, H. (2012). *Research methodology*. Cengage Learning. [https://scholar.google.com/ec/scholar?q=Mart%C3%ADnez+Ruiz,+H.+\(2012\).+Metodolog%C3%ADa.+Cengage+Learning+Editors&hl=en&as\\_sdt=0&as\\_vis=1&oi=scholart](https://scholar.google.com/ec/scholar?q=Mart%C3%ADnez+Ruiz,+H.+(2012).+Metodolog%C3%ADa.+Cengage+Learning+Editors&hl=en&as_sdt=0&as_vis=1&oi=scholart).
- Martínez, M., & Soto, A. (2007). Modalities of technology transfer in the university-productive sector linkage: Motivations and obstacles. *Revista de Ciencias Sociales*, 13(2), 290-302. [http://ve.scielo.org/scielo.php?script=sci\\_arttext&pid=S1315-95182007000200008&lng=es&nrm=iso&tlng=es](http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S1315-95182007000200008&lng=es&nrm=iso&tlng=es).  
[http://ve.scielo.org/scielo.php?script=sci\\_arttext&pid=S1315-95182007000200008&lng=es&nrm=iso&tlng=es](http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S1315-95182007000200008&lng=es&nrm=iso&tlng=es)
- Molina Chalacan, L. J., Jalón Arias, E. J., Albarracín Zambrano, L. O., & Yanchapaxi González, F. A. (2022). Transferencia tecnológica educativa desde vinculación Uniandes en Quevedo, en los años 2017 a 2021. In *Revista Conrado* (Vol. 18, Issue 85). <https://conrado.ucf.edu.cu/index.php/conrado/article/view/2276/2205>
- Necoechea-Mondragón, H., Pineda-Domínguez, D., & Soto-Flores, R. (2013). A Conceptual Model of Technology Transfer for Public Universities in Mexico. *Journal Technology Management & Innovation*, 8(4). <https://www.scielo.cl/pdf/jotmi/v8n4/art03.pdf>.  
<https://www.scielo.cl/pdf/jotmi/v8n4/art03.pdf>
- Polaino, C. J., & Romillo, A. de J. (2017). Linking with Society at the University of Otavalo, Ecuador. *Formacion Universitaria*, 10(3), 21-30. <https://doi.org/10.4067/S0718-50062017000300004>.  
<https://doi.org/10.4067/S0718-50062017000300004>
- Rueda, I., Acosta, B., & Cueva, F. (2020). Las Universidades y sus prácticas de Vinculación con La Sociedad. *Educación y Sociedad*, 41. <https://doi.org/10.1590/es.218154>
- Santana, A., Guamán, R., Alcívar, E., & Cedeño, L. (2018). Tourism Feasibility Study in the canton of La Concordia. *Revista*, 5, 28-38. <http://revistainclusiones.org/pdf57/2%20VOL%205%20NUM%204%202018RAMIROANDREA%20OCTUBRECIEMBRERV%20INClu.pdf>.  
<http://revistainclusiones.org/pdf57/2%20VOL%205%20NUM%204%202018RAMIROANDREA%20OCTUBRECIEMBRERV%20INClu.pdf>

204%202018RAMIROANDREA%20OCTUBREDICIEMBRERV%  
20INClu.pdf

Soleimani, M., Tabriz, A. A., & Shavarini, S. K. (2016). Developing a model to explain the process of technology transfer at entrepreneurial university. *Industrial Engineering and Management Systems*, 15(4), 298-306. <https://doi.org/10.7232/iems.2016.15.4.298>

Tünnermann, C. (2008). *La Reforma de Córdoba: fecund womb of university transformation*. <http://biblioteca.clacso.edu.ar/ar/libros/grupos/reforAboit/03tunn.pdf>

Luis Vargas Torres Technical University of Esmeraldas (2020). *Institutional Plan of Linkage with Society UTLVTE 2020 - 2024*. <http://direccioninvestigacionutelvt.mex.tl/marcolegal#ul-id-0-7>