TEC | Tecnológico de Costa Rica

Strategic Plan
2017-2021

CONTENTS

Presentation

Strategic planning has been a key success factor for the achievement of institutional impact initiatives. In previous years, planning has ensured the accomplishment of these initiatives.

Since the implementation of the 2011-2016 Strategic Plan, the Institution has experienced a series of significant changes, such as the opening of new majors, increase of new and regular students, growth in the number of graduates, greater investment in infrastructure and equipment for the development of academic activities and support to the academy, greater commitment to the systematization and implementation of ICTs in the different institutional processes, increased number of researchers and research projects, better training of personnel in their different branches of growth and professional improvement, increased number of doctors in faculty, among many other tangible achievements.

Because of all this growth, the current administration has considered that the strategic vision must prevail. Recently, efforts were intensified to initiate the process of strategic formulation where there has been a high participation of the different sectors of the Institution. In this spirit, an institutional diagnosis was developed by the School of Business Administration, which, through the work coordinated with the Office of Institutional Planning (OPI acronym in Spanish), was analyzed and focused on the institutional reality with the development of several strategic formulation workshops with the participation of the Rector, Vice-Rectors, Directors of Academic Centers and Regional Office, institutional authorities as well as collaborators of the academic, student, administrative, and external sectors of the institution.

Once these meetings were settled, which in turn constituted an external and internal diagnosis, the Administration began to identify those strategic lines that had to be addressed in the next five years and which would be key to the achievement of the guiding ideas for the Costa Rica Institute of Technology (TEC acronym in Spanish).

These strategic lines were grouped according to the thematic axes that emerge from the current National Plan for Higher Public Education (PLANES acronym in Spanish) inclusive for the 5 state universities in the country. Those thematic axes are: Teaching, Research, Extension and Social Action, Management and Regional Development.

Once these lines were defined, the Institutional Council, through its Planning and Administration Committee, reviewed and analyzed the strategic planning proposal and prioritized those projects that it considered feasible and opportune to follow over the next 5 years.

This institutional effort will stand as a basis for strategic planning in its different stages, which will be operational through the Tactical Plans defined according to the ideals set out herein and through the Operational Annual Plans (PAO acronym in Spanish) for the period between 2017 and 2021. All is done with proper annual monitoring and evaluation to contribute to the comprehensive development of our country and consolidating the prestige of our Institution.

Methodology Overview

The Strategic Plan was prepared taking into account as institutional normative referent the Regulation of Institutional Planning of the TEC, which contemplates the different phases of the process and the characterization of its components.

About Institutional Diagnosis

Responsible for coordinating the institutional planning process, the OPI developed the Environment Analysis stage in collaboration with the School of Business Administration as facilitator.

Initially, the work focused on the identification of strategic elements, specifically for the strategic axes of institutional interest, in accordance with the 2016-2020 PLANES, to obtain the institutional diagnosis as the first stage of the Strategic Plan.

This diagnosis was elaborated in a participative way during the months of March and April of 2016. For its development, previous meetings on coordination and articulation of efforts were held among the Rectory Council, OPI, and the School of Business Administration. There were also seven workshops where the inputs for the construction of the institutional diagnosis were obtained, with the participation of more than 200 people (institutional authorities, academics, and support staff to the academy, students, graduates, and representatives of social and productive sectors).

Three methodological guides were developed for the workshops. One guide was used for the Regional Development axis, another for people outside the institution, and the remaining one for the workshops where the other strategic axes were addressed.

The guides included the inputs for the discussion and orientation of the workshop (institutional mission, institutional vision, institutional goals and principles, institutional policies, knowledge and transversal axes) and the work methodology. The methodology consisted of the analysis and assessment of the strategic axes and SWOT elements according to the scale and generating questions for each of the following factors:

1.	Identification and assessment of key factors
	Validation of strategic axes
	Identification of key academic factors
	Assessment of key academic factors
	Documentation

2.	Identification and assessment of SWOT elements
	Strengths-Weaknesses-Opportunities and Threats
	Identification
	Assessment
	Strategic Actions
	Goal and indicator
	Connection with policies
	Documentation

In the case of the joint validation workshop between the Institutional Council and the Rectory Council, a work template was used where the findings of the six previous workshops were summarized and integrated.

As a general result a set of strengths, opportunities, weaknesses and threats were evaluated and classified. As an outcome of this, a group of strategic actions were originated and assessed to determine a percentage of prioritization according to the impact on factors, financial resources, promptness, and institutional preparation.

In addition, a questionnaire to learn about the students perception of the institution was applied to students from the main Campus, the San Carlos Regional Campus and the Academic Center in San José.

This survey was developed and validated by the students who provided the sample frame determined by the number of participating leaders in the different student federations.

The questionnaire included:

General information

Assessment of the academic offer

Assessment of TEC resources and services

Overall level of satisfaction with TEC

Strengths, weaknesses and suggestions relevant to the institution

About the Prioritization of Strategic Initiatives

In order to guide the selection of strategic actions, the Office of Institutional Planning continued with the organization and coordination of the workshops for the prioritization of the actions resulting from the environment analysis and pre-selected those over 50% to be prioritized by the Institutional Council and the Rectory Council.
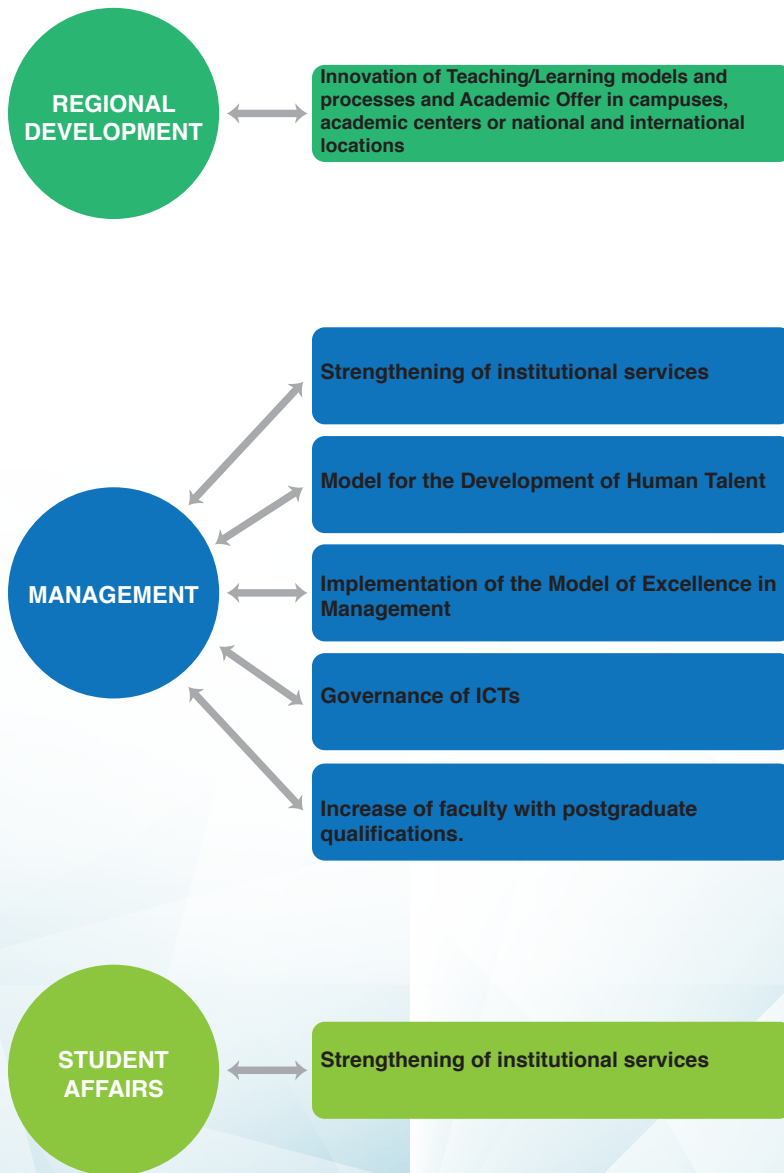
By means of the "Multivote on Floating Table" method (participants carry out a process of prioritization by rotating), a distribution of the thematic axes and related actions was carried out to proceed to voting. From the product of both workshops, a set of significant actions resulted, between high level actions and complementary.

The Strategic Formulation phase considered what was established in the Institutional Planning Regulation and Article 7 of Agreement 2990 of the Institutional Council of the session held on September 21, 2016, which considers that the Strategic Plan will be developed through projects. As a result of the strategic planning workshops, the administration identified 13 strategic projects to which their respective managers were assigned.

On the other hand, the Institutional Council, through its Planning and Administration Committee, prioritized those projects considered feasible and opportune to carry out during the current plan, which will be mentioned later on in this document. The initiatives ordered by strategic axis and strategic line are detailed as follows:

Figure 1. Initiatives according to the Strategic Axis

TEACHING

- Innovation of Teaching/Learning models and processes and Academic Offer in campuses, academic centers or national and international locations
- Command of a foreign language for students and faculty
- Strengthening of the use of Digital Technologies
- Accreditation of graduate and postgraduate programs

RESEARCH, EXTENSION, AND SOCIAL ACTION

- Strengthening of internationalization
- Strengthening of extension
- Strengthening of visibility and academic productivity

REGIONAL DEVELOPMENT

Innovation of Teaching/Learning models and processes and Academic Offer in campuses, academic centers or national and international locations

MANAGEMENT

- Strengthening of institutional services
- Model for the Development of Human Talent
- Implementation of the Model of Excellence in Management
- Governance of ICTs
- Increase of faculty with postgraduate qualifications.

STUDENT AFFAIRS

Strengthening of institutional services

In accordance with the provisions issued by the Planning and Administration Committee of the Institutional Council, and according to the agreement of Ordinary Session No. 2990, Article 7, of September 21, 2016 "Strategic Projects of the 2017-2021 Strategic Plan", the following projects are proposed to be formulated under the Project Management methodology, during the effective period of the Strategic Plan:

1. Project to Strengthen the Use of Digital Technologies
2. Project to Strengthen Extension
3. Project to Strengthen Institutional Management to Attract and Generate Resources
4. Project to Implement the Model of Excellence in Management

The remaining list of projects will be addressed through the Annual Operational Plan for the years 2017 to 2021. These projects are:

5. Innovation in the teaching / learning models and processes and academic offer in campuses, academic centers, or national and international locations
6. Command of a foreign language for students and faculty
7. Strengthening internationalization
8. Accreditation for graduate and postgraduate programs
9. Strengthening of institutional services
10. Model for the Development of Human Talent
11. Governance of ICT
12. Increase in faculty with postgraduate qualifications
13. Strengthening visibility and academic productivity

Strategic Plan Proposal

In the following section, the main strategic elements of TEC are presented such as: mission, vision, principles and goals, values and institutional policies.

Mission

The mission identifies the university's current products / services, the types of beneficiaries it aids, and the technological and business capabilities it has. It is the business or raison d'être of TEC.

At its Session No. 1956, Article 12, of September 18, 1997, the Institutional Council stipulated the Mission of the TEC as detailed below:

"To contribute to the comprehensive development of the country through the training of human resources, research and extension; keeping scientific, technological and technical leadership, academic excellence, and strict adherence to ethical, humanistic and environmental standards from the perspective of a state university of quality and competitiveness at a national and international level."

Vision

The vision provides details on technology, the beneficiary's approach, the geographic coverage, the product or service markets to be encompassed, the capabilities expected to be developed, and the type of management expected to be achieved in the future.

The Representative Institutional Assembly (AIR acronym in Spanish) approved the following vision of the TEC at the Ordinary Session No. 89-2016 of April 27, 2016:

"The Costa Rica Institute of Technology will maintain the contribution to the forging of a more supportive and inclusive society; committed to the pursuit of social justice, respect for human rights and the environment, through the solid training of human talent, the development of research, extension, social action and relevant scientific-technological innovation, entrepreneurial initiative, and close links with different social actors."

Values

The III Institutional Congress approved, as part of the institutional academic model that the TEC considers as institutional and individual values all those arising from the institutional identity, the social commitment, and the people of TEC community.

The following values were highlighted:

Institutional Scope
a. Commitment to democracy
b. Freedom of speech
c. Equal opportunities
d. Institutional autonomy
e. Academic freedom
f. The pursuit of excellence
g. Participatory planning
h. Teamwork culture
i. Effective communication
j. Permanent evaluation
k. Permanent connection to society
l. Commitment to environmental protection and safety of the people
m. Commitment to human development
n. Accountability

Individual Scope
a. Respect for life
b. Liberty
c. Ethics
d. Solidarity
e. Responsibility
f. Honesty
g. Sincerity
h. Transparency
i. Respect towards all the people
j. Cooperation
k. Integrity
l. Excellence

Goals and Principles

In Article 2, the Organic Statute establishes the purposes of the Institution. In Article 3, it defines its principles.

Figure 2. Goals and principles of TEC

Goals

To train professionals in the technological field who fuse the mastery of their discipline with a clear awareness of the socio-economic, cultural and environmental context in which technology is generated, transferred, and applied; which allows them to participate critically and creatively in national productive activities.

To generate, adapt and incorporate in a systematic and continuous way, the technology necessary to rewardingly use and transform resources and productive forces for the country.

Stimulate the improvement of the Costa Rican community through sponsorship and the development of cultural programs.

To contribute to the improvement of the quality of life of the Costa Rican people by projecting its activities to the attention and solution of the country's priority problems, to promote a fairer society.

Principles

The pursuit of excellence in the development of all its activities

The permanent connection with the Costa Rican reality as a means to focus its policies and actions towards the needs of the country

The exclusive right of the institutional community constituted by faculty, students and administrative collaborators to have their own government and to exercise it democratically, both for the establishment of its deliberating and directing bodies and for the determination of its policies

The responsibility of TEC individuals and bodies for the consequences of their decisions and actions

The full legal capacity of the institute to acquire rights and undertake obligations in accordance with the Political Constitution and the laws of Costa Rica

The permanent evaluation of the results of the work of the institution and each of its members.

Academic freedom, understood as the right of faculty to propose academic programs and develop those already established in accordance with their own philosophical, scientific, political, and religious convictions

Equal opportunities for the admission and permanence of students in the institution

Freedom to express the philosophical, scientific, political, and religious ideas of the members of the Institute community within a context of respect for all people

Axes of Strategic Knowledge

The Strategic Knowledge Axes approved by the AIR at its Ordinary Session No. 01-2012, extends its validity in the AIR at its Ordinary Session 92-2017 of April 26, 2017. These are: Axes of Strategic Knowledge (water, food, culture, energy, habitat, industry, health) and Transversal Axes (technology, sustainability, innovation, entrepreneurship), described in the document Strategic Knowledge Axes for TEC.

These axes are areas of knowledge or objects of study through which the Institution aims to achieve its mission, drawing towards them activities and resources. They must respond to the national and international reality, prioritizing the needs of the Costa Rican society.

To achieve impact and relevance in society, the TEC must direct its efforts to the development of fields of knowledge that contribute to solve the national problems involving the confluence of disciplines.

They are detailed as follows:

Figura 3. Ejes del Conocimiento Estratégico

WATER

It includes actions related to water as a source of energy, human consumption, sanitation technologies, and economic activities such as food production, environmental services, health, and industrial uses. In addition, it covers prevention and management of natural disasters caused by water.

FOOD

It includes actions related to the generation and use of knowledge and technology aimed at the production, conservation, transformation, distribution and consumption of the different types of food required by society, with an adequate management of food sovereignty processes and promotion from a business, social, and environmental point of view.

CULTURE

This axis includes academic activities, strategies, pedagogical resources and other means, taking as its basis the role of culture in the stimulation and promotion of development and the full and conscious exercise of critical, reflexive and assertive thinking about science and technology with social responsibility, as well as the strengthening of the university-society dialogic relationship in the holistic context of the Costa Rican culture. Culture is understood as the production of symbolic capital, the production of images, concepts, theoretical tools and values, feelings, emotions, heritage, among others, that allow a humanistic construction of the production and use of tangible and intangible utilitarian commodities. Institutional activities related to social action and university volunteering are also considered in this area.

ENERGY

This axis includes the academic activities related to the technologies of generation, transmission, distribution, storage and efficient use of energy, with emphasis in the use of renewable energies.

HABITAT

It includes activities related to living spaces where living beings interact and develop their activities, as well as the environment and networks that articulate and connect these spaces. It emphasizes the interaction between human activities, established ecosystems and abiotic factors (climate, temperature, air quality, and others), seeking to ensure adequate residence and perpetuation of species. It considers both the urban space (cities, their complex systems, networks and interactions), as well as the rural environment, productive areas and protected zones.

INDUSTRY

It covers the economic sector associated with the production of goods or services within an economy, including the four sectors of modern industry: the primary sector that deals with the extraction of raw materials (agricultural, forestry, mining industry, among others), the secondary in charge of processing the resources from the primary industries (refineries, construction, manufacturing, among others); the tertiary covers the supplying of services (engineering, tourism, medicine, among others), and the quaternary involves research in science and technology to address the three previous sectors.

HEALTH

This axis focuses on the capabilities, efforts and resources of the Institute to provide technological support to human and veterinary medicine. This axis combines principles and tools of science and technology for the creation of knowledge, goods, and services applied to problems posed by the complex current situation of health. It ranges from the knowledge of cellular processes and molecular mechanisms to the use of biosensors, genomics, proteomics, biomechanics, nanotechnology, bioinformatics and purification of biopharmaceuticals, biological signal processing and care through the development of biomaterials, prostheses, telemedicine, robots, and other assistive devices, measurement and clinical monitoring.

Transversal Axes

The main characteristic of the Transversal Axes is that they must be present in all academic activities (research, teaching, extension) drawn from the Axes of Strategic Knowledge.

Figure 4. Transversal Axes

Technology

It deals with the realization, use, and knowledge of tools, methods, procedures or systems to solve a problem or serve some purpose, using scientific knowledge. It is the ability to systematize knowledge for its use by society as a whole.

Sustainability

Due to the human activity, natural resource management is a dynamic process that guarantees the existence of all the species, satisfying basic needs and improving the quality of life of the people, without destroying the ecological base nor altering vital support systems (economic, environmental, and social).

Innovation

It refers to the creation of better or more effective products, processes, and services, production methods, forms of organization, technologies or ideas that are accepted by markets, governments and society in general.

Entrepreneurship

It is defined as the process of identifying, developing and materializing a vision, which may be an innovative idea, an opportunity or a better way of doing things.

General Policies

At the Ordinary Session No. 88-2015 of October 22, 2015, the General Policies of the Institution were approved for a period of five years.

1. Academic programs in the areas of science and technology will be developed in accordance with the strategic knowledge axes, the institutional goals and principles, and with what is established in the Organic Law of the TEC.

2. The necessary budgetary resources will be allocated for the planning, execution, control, and successful evaluation of the academic programs, student life and support to the academy according to the strategic knowledge axes.

3. The global vision, the culture of communication, environmental sustainability, internationalization processes and the consolidation of entrepreneurship in academic programs will be stimulated.

4. Academic processes, student life and support to the academy will be planned and implemented to favor the positive impact on integral health and the environment.

5. Faculty development in pedagogical aspects of their disciplines will be enhanced to reach academic excellence from a humanistic and multidisciplinary perspective.

6. Training and improvement of personnel will be increased to achieve excellence from a humanistic perspective that contemplates the commitment to equality, the environment, and a culture of peace.

7. Research, extension, social action and technological development projects will unfold, innovative and with scientific, technological and social impact, according to the goals, principles, institutional values and the strategic knowledge axes.

8. Strategies will be developed to improve access, student life, comprehensive training and academic success for ITCR students, striving for equal conditions in vulnerable and low socio-economic populations.

9. The processes of research, extension and technological development integrated into teaching-learning at the graduate and postgraduate levels will be promoted.

10. The permanent link with the alumni will be maintained with the purpose of giving feedback to the institutional work and encouraging their successful incorporation into the labor market.

11. The provision of services to third parties will be developed as a way of connecting to society and as an additional source of financing, according to the goals and principles of the Institution, without being detrimental to academia or the environment, and not representing unfair competition to third parties.

12. The allocation of resources for extension and social action will be strengthened to achieve greater institutional projection in the socio-cultural, productive and organizational spheres.

13. Joint work will be strengthened in strategic areas with the universities that make up the Public University Higher Education System.

14. Training and improvement of the institutional community will increase in formulation, sustainable development, and project management, social action and service rendering.

15. Institutional processes will be developed with excellence, based on continuous evaluation involving direct users.

16. The resources allocated to the Institution will be used in a timely, efficient, rational and transparent manner, and national and international fund raising will be promoted to favor the development and impact of the work of the Institution in society.

17. Actions will be developed in different regions to expand access to higher education and contribute to the comprehensive development of the population, with attention to the needs of vulnerable groups in socially disadvantaged situations.

Strategic Objectives

The Rectory Council at Session No. 21-2016, Article 5, dated June 6, 2016, endorsed the Strategic Objectives that will be an input to the 2017-2021 Strategic Plan. Shown below are the objectives classified by core topics (according to PLANES- 2016-2020).

Figure 5. Strategic Objectives (Strategic Plan)

Core topic	Institutional Objectives
Teaching	1. To strengthen existent academic programs and promote the opening of new options in the fields of technology and related sciences at graduate and postgraduate levels.
Research, Extension and Social Action	2. To improve the generation and transference of innovative scientific, technological and technical knowledge to contribute to the development of the socio-productive sector.
	3. To consolidate the connection of the Institution with society within the framework of a sustainable development model for the joint creation of solutions to the needs of the country.
Student Affairs	4. To guarantee to the student sector an environment and conditions that favor equitable access, permanence, academic success, comprehensive training, graduation, and future insertion into the socio-productive sector of the country.
Management	5. To have agile, flexible and suitable processes and services for the development of the institutional work.
	6. To develop human talent towards effective management and continuous improvement.
	7. To optimize the development and use of information technologies and communication, equipment and infrastructure to facilitate institutional management.
	8. To generate feasible and sustainable actions and projects to promote the attainment of resources complementary to FEES.
Regional Development	9. To implement articulated actions in the different regions of the country to expand coverage and access to State Higher Education, thus contributing to the comprehensive development of the country.

Strategic Projects

Project to Strengthen the Use of Digital Technologies

This project aims to contribute to the growth and development of the different institutional programs through the development of digital technologies.

Project to Strengthen Extension

This project aims to achieve a joint construction of knowledge and a more effective synergy in pursuit of development, quality of life improvement, and feedback on the academic work, through the connection of ITCR with society.

Project to Strengthen Institutional Management for the Attraction and Generation of Resources

It is intended to provide the institution with the capacity to attract, generate and manage additional resources to the Special Higher Education Fund (FEES) for the operation in the different areas of university management (Teaching, Research and Extension).

Project to Implement the Model of Excellence in Management

Implement a model of excellence in management adapted to the characteristics and needs of the institution that allows it to fulfill its mission more efficiently and effectively

Innovation of teaching / learning models and processes and academic offer in campuses, academic centers or national and international locations

This project aims to promote the restructuring of existing academic options, changes in teaching / learning model and processes, which will promote the offer with innovative approaches in academic centers and campuses.

Command of a foreign language for students and faculty

It is intended that this project will boost the differentiating characteristics of graduates from the Costa Rica Institute of Technology.

Strengthening of Internationalization

This project aims to strengthen different initiatives of international participation and organization, in the different areas of university management (Teaching, Research and Extension).

Accreditation for Graduate and Postgraduate Programs

To encourage accreditation processes at the national and international levels to assess the quality and performance of programs.

Strengthening Institutional Services at TEC

It is intended to implement different initiatives that improve institutional student services at the different campuses and academic centers.

Model for the Development of Human Talent

This project promotes a plan for the training and development of the personnel, at the different campuses and academic centers.

Governance of ICTs

It is intended to implement an Information Technology Plan for the management of services, automation of institutional processes, and implementation of projects on information technologies, among others.

Increase of faculty with postgraduate qualifications

This project promotes a training plan to graduate doctors for all campuses and academic centers.

Strengthening of Visibility and Academic Productivity

It intends to implement several follow up strategies to projects for the generation of publications in journals and indexed conferences in mainstream directories, for the promotion of intellectual protection and technology transfer and also to promote the integration of teaching-research-extension.

* Acronyms

TEC:	Tecnológico de Costa Rica - Costa Rica Institute of Technology
CI:	Consejo Institucional - Institutional Council
FEES:	Fondo Especial para Educación Superior - Special Fund for Higher Education
ViDA:	Vicerrectoría de Docencia - Vice-Rectory of Teaching
VIE:	Vicerrectoría de Investigación y Extensión - Vice-Rectory of Research andExtension
OPI:	Oficina de Planificación Institucional - Institutional Planning Office
PLANES:	Plan Nacional de la Educación Superior Universitaria Estatal - National Plan for Higher Public Education
PAO:	Plan Annual Operativo Operational Annual Plans
AIR:	Asamblea Institucional Representativa - Representative Institutional Assembly