

Analysis of the missions of the largest educational system in Latin America: Tecnológico Nacional de México

Analisis de las misiones del sistema educativo mas grande en América Latina: Tecnológico Nacional de México

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Contents

- [1. Introduction](#)
 - [2. Literature review](#)
 - [3. Methodology](#)
 - [4. Results Analysis](#)
 - [5. Conclusions and future lines of research](#)
- [Bibliographic References](#)

ABSTRACT:

This research focuses on the analysis of the main dimensions that integrate the mission of the Technological Institutes that integrate the Tecnológico Nacional de México (TNM). For this purpose, an 18-dimensional matrix of elements that integrate the mission was designed and a qualitative technique of content analysis was used for the analysis of the missions of the 256 Technological Institutes. An indicator that is an average, called "percentage of presence", was also elaborated. The results indicate that the highest "presence percentages" are held by the Decentralized Technological Institutes (DTIs). In addition, the dimensions that have high presence percentages are "services" and "technology".

Keywords: Tecnológico Nacional de Mexico (Technological National of Mexico), Mission, Federal Institutes of Technology, Decentralized Technological Institutes.

RESUMEN:

Esta investigación se centra en el análisis de las principales dimensiones que integran la misión de los Institutos Tecnológicos que integran el Tecnológico Nacional de México (TNM). Para este propósito, se diseñó una matriz de elementos de 18 dimensiones que integran la misión y se utilizó una técnica cualitativa de análisis de contenido para el análisis de las misiones de los 256 Institutos Tecnológicos. También se elaboró un indicador que es un promedio, llamado "porcentaje de presencia". Los resultados indican que los "porcentajes de presencia" más altos están en manos de los institutos tecnológicos descentralizados (DTI). Además, las dimensiones que tienen altos porcentajes de presencia son "servicios" y "tecnología".

Palabras clave: Tecnológico Nacional de México, Misión, Institutos Federales de Tecnología, Institutos Tecnológicos Descentralizados.

1. Introduction

The objective of this paper is to analyze the main elements that integrate the mission of the 256 Technological Institutes (ITs) that are part of the TNM. In Mexico, there are several

public and private universities. Within the public universities, is the Tecnológico Nacional de México (TNM) created by presidential decree on July 23, 2014 (Gamino- Carranza, Acosta-González & Pulido-Ojeda, 2016) and replacing the General Directorate of Higher Education Technology (DGEST). The TNM is an autonomous and decentralized entity of the Federal Government of Mexico (Decree 23 of July of 2014).

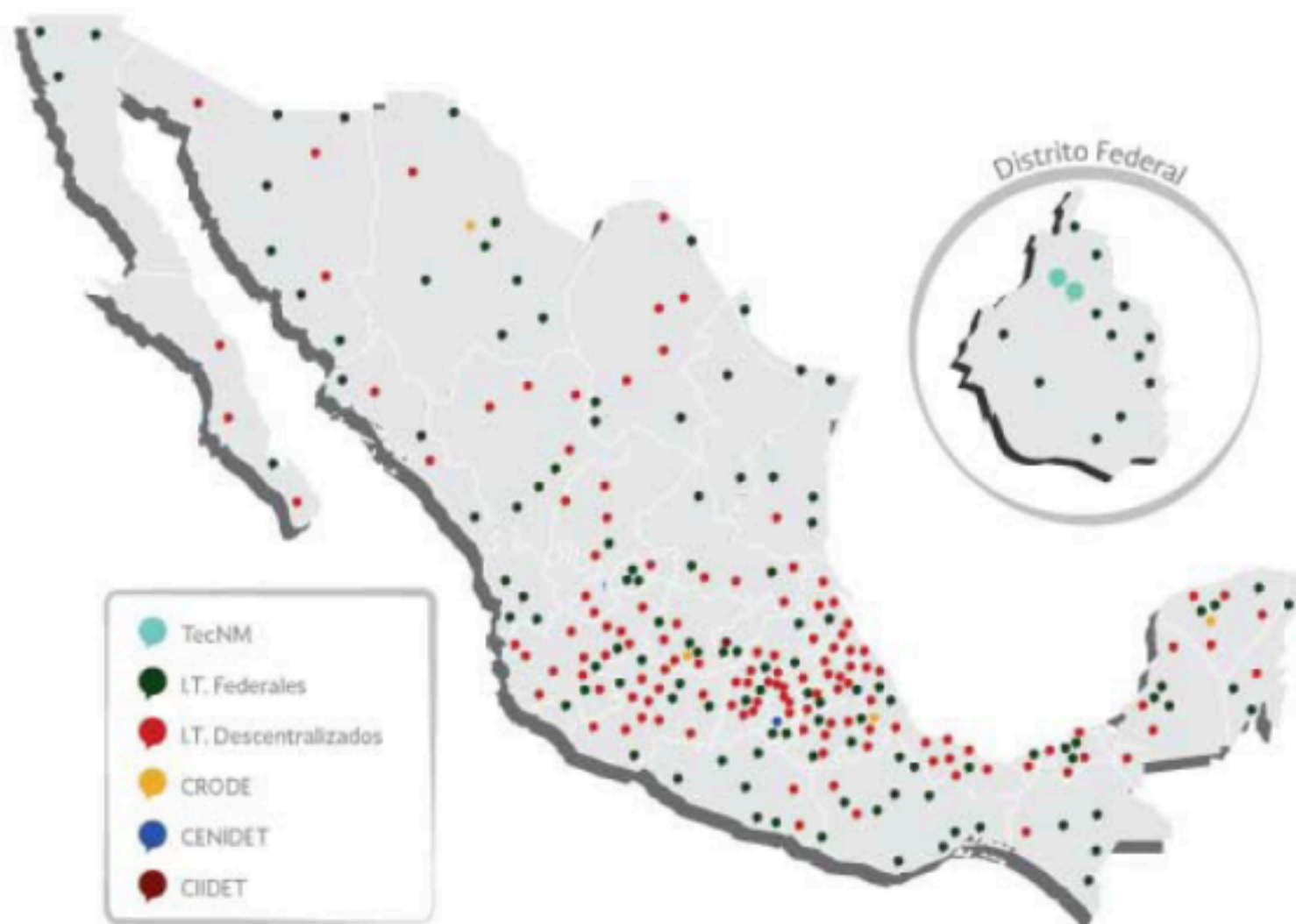
The TNM groups the 256 ITs of both Federal and Decentralized origin. Also, TNM has around 521,105 students and offers coverage in the 32 States of Mexico. (TNM, 2017). The educational offer is composed of 43 Degree programs, 154 Master's programs and 32 PHD programs. In addition, it has a workforce of 28,135 professors (12,729 full-time). Considering the above TNM is one of the main institutions of higher education in Mexico and Latin America.

An important fact in the history of ITs was the creation in 1990 of the Decentralized Technological Institute, DTIs hereinafter (TECNM, 2017). Which operate under a different scheme than the FTIs, in which the States of Mexico actively participate in their administration and financing where each one of them operates. Hence, it was possible to handle the demand of students in all the regions of the country more effectively.

In this vein, the backbone of the TNM is the 256 ITs divided into 126 Federal ITs and 130 decentralized for a total of 256 ITs. The Federal Technology Institutes (FTIs). The FTIs were the founders of the current TNM. The first ITs were founded in the states of Chihuahua and Durango in 1948, given the above, the FTIs are the oldest, with more staff and more student population, besides they are different from the DTIs since its administration concerns 100% to the Federal government.

Figure 1

Geographical location of ITs that integrate TNM.



Source: Programa Institucional de Innovación y Desarrollo 2013- 2018.

The Figure 1 shows that location of all of the ITs across Mexico. As we can see the ITs are established in the 32 States that are part of Mexico, most of them in the Central and South

part of the country. In this regard, the TNM is the most extensive educative system in Mexico where students of remote regions have the opportunity to obtain technical and professional education.

In this regards, the analysis of TNM as an integrated system is important. The TNM as a system has been little studied, however some studies have been found (Gamino- Carranza, Acosta-González & Pulido-Ojeda, 2016; Villarruel-Fuentes, Pérez-Santiago, Alarcón-Silva, 2015) but none of these emphasizes their coordinated strategies as an integrated system. In addition, TNM as an organization presents important challenges such as: diversity, geographical distance, environment and educational needs of each region of the country.

This study analyzes the presence of some of the dimensions in the literature that impact on the formulation of strategies in a higher education institution. In order to achieve this goal, a content analysis will be carried out on the mission of FTIs and DTIs.

This research has several practical implications, first the deepening of the strategies allows to carry out more effective tactics to reach the objectives proposed in the TNM. Second, the analysis of the elements included in the missions is vital to understand where the resources of the TNM are headed. Finally, this work can help establish a better coordination and conjunction in the 256 ITs that integrate the TNM.

This paper is structured as follows, first a review of the literature is presented. Second, the methodology to obtain information for this paper is developed. Third, an analysis of the results is presented after analyzing the information obtained. Finally, the main conclusions derived from this research are presented.

2. Literature review

Strategic planning is one of the main administrative tools. During the 1960s, it emerged as a concept (Ansoff, 1965), since then, companies began to apply formal strategies to achieve their objectives (López-Salazar, 2005). However the increase of volatility of the environment of business have made that the process of strategic planning more difficult (Grant, 2003).

Different authors have defined strategic planning. One of the main definitions of strategic planning indicates that it is a process whereby leading members of organizations anticipate the future and develop procedures and operations to achieve it. Other authors define it as the art of formulating, implementing and evaluating the decisions that involve achieving objectives, through the involvement of different functional areas of the organization (David, 2009). This is a practice that establishes the connection between media, patterns (strategies) and goals, objectives and results. Therefore, information on internal and external factors that may affect them is required. This helps strategic planning improve the decision-making process.

Ansoff (1965) states that the strategy includes not only determining the organization's basic goals and objectives in the long term, but also emphasizes the courses of action and allocation of the organization's resources in order to accomplish the objectives. According to the previous concept mission, vision, strategy and action are the four key elements in the strategy, being the mission and vision key in the processes of strategic planning in organizations (Hax & Majluf, 1984).

All companies need to know the best way to achieve their objectives. Therefore, the mission is a set of immediate actions for the concrete development of tactics that follow the scope of strategic planning, for short-term purposes and goals (Rey & Bastons, 2017; Aguilar & de la Maza, 2002). This suggests that the temporality of the mission is in a short period of time, it affects the immediate and direct actions of organizations. Likewise, it is understandable that the mission is something that allows the organizations to reach their vision. Likewise if a mission is elaborated in a correct way, this can unify the decisions of an organization (Davis, Ruhe, Lee & Rajadhyaksha, 2006).

Some studies have been carried out studying the mission. One of the first studies in this respect was Pearce & David (1987), where they demonstrated that there is a relationship between mission and company performance. Bart, Bontis & Taggar (2001) studied 83 companies from the United States and Canada and also identified a positive relationship

between mission and performance. There are studies that have focused on a specific sector (Anzai & Matsuzawa, 2014; Dwyer, 2003). In addition, other research has focused on finding specific aspects of the mission (Lopez-Morales, 2016, Robledo-Ardila, 2013, Williams, 2008).

Recently Penco, Profumo and Scarsi (2017) carried out a study analyzing the mission statement of 44 cruise lines. In their analysis include three different perspectives, the inclusion of stakeholder group, mention of the specific mission component and goals included in the mission statements. The results suggest that it is possible to identify four clusters of firms that present similar content in their mission statements, and that cruise companies tend to reserve a major attention to customers.

It is also important to note that the different works that have been done analyzing the mission with a content analysis. We identified studies in companies from Canada, Colombia, Latin America, Japan and the United States. From these analyzes only the works of Anzai and Matsuzawa (2014) and Davis, Ruhe, Lee & Rajadhyaksha (2006) were focused in the educative sectors.

3. Methodology

In order to achieve the objective of this research, a review of the mission of the 256 ITs that are part of the TNM was carried out. Once defined the set of ITs to be studied, a qualitative technique of content analysis was applied, consisting of the knowledge approach that allows interpreting reality through the categories that are extracted from the metatext (Moraima & Auxiliadora, 2008).

According to the above, the information will be collected through the missions published by the institutional websites of the 256 ITs that form the TNM. Several studies have used content analysis as a method of study applied in web-sites (Sharafi-Farzad, 2010; Capriotti & Moreno, 2007). The text analysis of each IT allowed identifying, in the first instance, the elements considered by each IT.

Content analysis for different dimensions associated with education identified in the literature (Nejati, Shafaei & Salamzadeh, 2011, Daraei Kang & Norton, 2006 Anzai & Matsuzawa, 2013) were considered. Subsequently, with the dimensions considered (see Table 1), an evaluation matrix was elaborated in order to analyze the information and thus, locate the presence or absence of the different dimensions proposed in the matrix in the different activities of the Technological Institutes.

In order to complete the matrix, the number 1 was assigned to the presence of the dimension and the number 0 to the absence of that dimension. Once the matrix was completed, the percentage (average) presence of each dimension and of each Technological Institutes included in the analysis was obtained.

Subsequently an analysis of the proposed dimensions was carried out. In total, 18 dimensions were considered: students, services, location, technology, consolidation, philosophy, transparency, employees, internationalization, linkage, extension, teaching, research and quality, as well as inclusive, peace, prosperity and global responsibility, which are considered within the National Development Plan (PND) (2017). Based on the above, we analyzed the websites of FTIs. For this analysis, the percentage of presence (average) of the dimensions and of the 117 Technological Institutes studied was calculated.

In the literature, there are different points of view about the components of the organizations' mission, but there is an agreement that the mission includes more attitude elements than specific details of the organizations' actions, tactics and strategies (Dwyer, 2003). This is because a very specific mission limits the field of action of organizations and may even generate paralysis in situations not foreseen.

Table 1
Importance of the dimensions of the matrix

Dimension	Importance.

1.- Students	They are the <i>raison d'être</i> of educational institutions
2.- Services	Education is an intangible personal benefit; therefore, it is a service.
3. Trouble	The Technological Institutes are present in the 32 States of the Mexican Republic.
4. Technology	The Federal Technological Institutes train mainly professionals of diverse engineering.
5. Consolidation	Consolidation is a relevant factor in organizations of any rubric.
6. Philosophy	Elements that identify what the company is and what it wants to achieve.
7.-Transparency	As it is the technological institutes that receive federal budget, it is important to manage these resources honestly.
8.-Employees	The teaching and teaching support staff is a fundamental part of the provision of services.
9. Internationalization	Educational organizations should not be isolated from the globalized world.
10. Linkage	Basic function of the university.
11. Extension	Basic function of the university.
12.- Teaching	Basic function of the university.
13. Research	Basic function of the university.
14.- Quality	Guiding axis of the National Development Plan.
15.- Inclusive	Guiding axis of the National Development Plan.
16.- Peace	Guiding axis of the National Development Plan.
17.-Prosperity	Guiding axis of the National Development Plan.
18.- Global Responsibility	Guiding axis of the National Development Plan.

Source: Own elaboration.

Table 1 presents the importance of the dimensions used in the matrix to perform the content analysis. The selection of dimensions was based on three aspects. First, within these dimensions are included some that have been used in other studies that have used content analysis (López-Morales & Ortega-Ridaura, 2016; Dwyer, 2003; Pearce & David, 1987), such as: students, services, location, technology, consolidation, philosophy, transparency, employees and internationalization.

Second are the main functions of the university, which are: research, linkage, extension and teaching (González-Cuevas, 1997). Finally, given the Federal nature of the Technological Institutes, the four main axes of the National Development Plan 2013-2018 (National Development Plan, 2017), which are quality, inclusive, peace, prosperity and global

responsibility, are also part of the matrix.

Table 2
Keywords used in the dimensions.

Dimension	Keywords
1.- Students	Students, Young people, Community, Student.
2.- Services	Activities, Functions, Forming Professionals.
3. Trouble	Area, Region.
4. Technology	Information technology, Science, Development, Science, Technological Development.
5. Consolidation	Development, Ensure, Strengthen.
6. Philosophy	Values, Principles.
7.-Transparency	Legality, Openness.
8.-Employees	Person, Workers, Community.
9. Internationalization	Abroad, World, Projection on.
10. Linkage	Link, Cooperation On, Secure.
11. Extension	Promotion, Participation, Integral Development.
12.- Teaching	Teaching, Education, Pedagogical practices.
13. Research	Science, knowledge, methodology
14.- Quality	Efficiency, Service.
15.- Inclusive	Inclusion, Inclusive, Society
16.- Peace	Peace, Harmony
17.-Prosperity	Wellness, Prosperity
18.- Global Responsibility	Social Responsibility, Sustainability, Socially Responsible, Community.

Source: own elaboration.

Table 2 shows some of the main words related to each of the 18 dimensions used in the matrix for content analysis. It is important to note that the content analysis was not only based on these words, we also analyzed the global meaning of the mission even though the words did not appear. Additionally, Table 2 served to reduce subjectivity and have a frame of reference for analysis.

4. Results Analysis

Below are the percentage of presence of each dimension as well as of each IT included in the

present study.

Table 3
Percentage of presence per dimension

Dimension	Presence of Presence FTIs	Presence of Percentage DTIs
1.-Students	23.9%	48.4%
2.-Services	58.9%	64.6%
3.-Localization	30.7%	49.2%
4.-Technology	58.1%	61.5%
5.-Consolidation	1.7%	22.3%
6.-Philosophy	14.5%	43%
7.-Transparency	5.9%	0.7%
8.-Employees	3.4%	7.6%
9.-Internationalization	31.6%	3%
10.-Linkage	22.2%	27.6%
11.-Extension	24.7%	24.6%
12.-Teaching	10.2%	37.6%
13.-Research	21.3%	30%
14.-Quality	46.1%	57.6%
15.-Inclusive	31.6%	39.2%
16.-Peace	0.85%	19.2%
17.-Prosperity	0.85%	35.3%
18.-Global Responsibility	51.28%	42.3%
Presence of Percentage:	24.3%	34.1%

Source: Own elaboration, based on matrix of dimensions.

Table 3 shows the percentage of presence of FTIs and DTIs, each dimension used in the matrix. In the first instance, the dimension that appears most is "services" in DTIs with 64.6%. It also identifies that DTIs have higher percentage of presence than FTIs, in several cases accounting for almost double the percentage. On the other hand, in the dimensions of "transparency" and "internationalization" the percentages are higher in the Federal IT. Below are some examples of the missions of ITs analyzed.

Table 4
Missions of ITs of Tecnológico Nacional de México.

FTIs	DTIs
Orizaba	Los Cabos
Strengthen educational services through coverage, equity, promotion and inclusion, for the integral training of students by promoting innovation, science and technology; to consolidate the linkage with relevance in the different strategic sectors, modernizing the institutional management with transparency and accountability in a sustainable environment.	To train professionals of excellence with a mystique of work, productivity and creativity, capable of responding to the challenges of national modernization within its globalization process.
Durango	Cd. Acuña
To train professional citizens of the world, at the undergraduate and graduate levels, with a broad social and human sense, who promote culture, human values and scientific knowledge, prepared with academic excellence, with a mystique of work, productivity and creativity, committed to the challenges demanded by state, regional, national development and the challenges of globalization, to be a world-class institution.	To train competitive professionals with qualities of leadership and constant improvement, able to face and overcome the changing work environment, relying on advanced technologies and teaching methods.
Instituto	Chicontepec
To be an institution of technological higher education promoting social change through the relevant and equitable training of professionals with integral quality.	Promote and foster comprehensive training of excellence capable of promoting sustainable development at regional and national level, through the development of technologies and application of techniques, with a humanistic and critical thinking that contributes to raising the quality of life of society in general.
Veracruz	Cananea
Train professionals in technologies capable of mastering, generating and disseminating cutting-edge scientific and technological knowledge, from a humanist perspective, with a commitment to work, respect for the environment, capable of responding effectively to national needs and challenges with quality, productivity and a global vision ".	To offer high quality technological higher education services that, through the integral training of competitive professionals and the generation of knowledge, will contribute to sustainable development at the regional level, under the principle of equity and transparency.
Morelia	Huetamo
Contribute to the integral development of society, through the training of professionals at the undergraduate and postgraduate levels that affect scientific, technological, economic and social development; at regional, national and international	To offer high quality technological higher education services that, through the integral training of competitive professionals and the generation of knowledge, will contribute to sustainable development at regional level, under

levels; Linked to the productive sector; in compliance with the governing laws.

the principle of equity and transparency.

Source: own elaboration.

Table 4 presents examples of the missions of the ITs studied subdivided into Federal and decentralized. As can be observed in these examples, the missions of the IT do not show a relation to the mission of the TNM. One IT was selected for each region of the country using a random criterion. It is important to note that missions in many cases do not present update dates, which may be a factor in influencing the misalignment it presents with regard to the TNM mission. The elements considered in these missions may no longer be important for IT news.

Table 5
Percentage of presence in FTIs

FTI	Percentage of Presecence.	Number of FTIs
Orizaba	61.1 %	1
Durango, Hermosillo, Mérida	55.5 %	3
El Salto, Minatitlan, Oaxaca	50%	3
Cd. Victoria, Valle Etna, Matamoros, Tijuana,	44.4%	4
Bahía de Banderas, Cd. Madero, Milpa Alta, Morelia, Norte de Nayarit, Nuevo León, Pabellón de Arteaga, Parral, Reynosa, Valle de Oaxaca.	38.8%	10
Tláhuac, CENIDET, CRODE Celaya, Conkal, Cuautla, El llano de Aguascalientes, Iguala, Los Mochis, Nogales, Ocotlán, Pachuca, Querétaro, San Juan del Río, Tlanepantla.	33.3%	14
Tecnológico Nacional de México (Dirección General), Campeche, Agua Prieta, Boca del Río, Chihuahua, Cd. Guzmán, Culiacán, Iztapalapa III, Linares, Mexicali, Piedras Negras, Saltillo, Sur de Nayarit, Tepic, Valle del Yaquí, Veracruz.	27.7%	16
Aguascalientes, Altiplano de Oaxaca, Apizaco, Atitalaquia, Celaya, Chihuahua II, Chiná, Ensenada, Gustavo A. Madero II, Huatabampo, Iztapalapa, Jiquilpan, Zona Maya, Lázaro Cárdenas, León, Lerma, Nuevo Laredo, Pinotepa, Salina Cruz, San Luís Potosí, Tláhuac III, Tuxtepec, Úrsulo Galván, Zacatecas.	22.2%	24
CIIDET, Acapulco, Cerro Azul, Chetumal, Cd. Cuauhtémoc, Cd. Valles, Colima, Comitán, Comitancillo, Frontera Comalapa, Guaymas, Gustavo A. Madero, Huejutla, Istmo, La Paz,	16.6%	20

San Marcos, Tláhuac II, Toluca, Torreón, Valle del Guadiana.		
Cancún, Chilpancingo, Cuenca del Papaloapan, La Laguna, Roque, Tehuacán, Tlaxiaco, Tuxtla Gutiérrez, IT Zacatepec, Zitácuaro.	11.1 %	10

Table 6
Percentage of presence in decentralized technological institutes

DTIs	Percentage of Presence	Number of DTIs
Uruapan, Zacapoaxtla	88.8	2
Talá, Cuauhtitlán- Izcalli	83.3	2
Ixtapaluca	72.2	1
Villa-La Venta	66.6	1
Sur de Guanajuato, Tacambaró, Teposcolula, Tequila, Teziutlán, Tlaxco, Valladolid, Zacatecas Norte, Zapopan, Ecatepec, San Felipe del Progreso	61.1	11
San Luis Potosí, San Miguel el Grande, Santiago Papasquiario, Sierra Norte de Puebla, Tepeaca, Tepexi de Rodríguez, Zacatecas Occidente, Zaplotanejo.	55.5	8
Lagos de Moreno, Lerdo, Misantla, Nochistlán, Tamazula de Gordiano, Zacatecas Sur, Huixquilucan, Oriente del Estado de México, Tianguistenco.	50%	9
Alvarado, Macuspana, Venustiano Carranza, Xalapa, Chalco, Valle de Bravo.	44.4%	6
Región Carbonífera, Centla, Región de la Sierra, Costa Chica, Libres, Perote, Sur del Estado de Yucatán, Tierra Blanca, Chimalhuacán, Jocotitlán.	38.8	10
Acayucán, Cajeme, Calkini, Cd. Serdán, Champotón, Comalcalco, Huatusco, Jerez, Jesús Carranza, Juan Rodríguez Clara, de la Huerta, de la Montaña, Región de los Llanos, de los Ríos, de los Reyes, de Mascota, Múzquiz, Naranjos, Poza Rica, Progreso, Puerto Peñasco, Purepecha, Puruandiro, San Pedro de las Colonias, Santa María del Oro,	33.3%	26

Villa de Guerrero.		
Zamora, Apatzingan, Arandas, Atlixco, Cd. Constitución, Chicontepec, Coalcomán, Cocula, El Grullo, El Dorado, Escárcega, Huachinango, Huetamo, Loreto, Nuevo Casas Grandes, Oriente del Estado de Hidalgo, Panúco, Pátzcuaro, Puerto Vallarta,	27.7%	19
Cintalpa, Ebano, Felipe Carrillo Puerto, Guasave, Motúl, Río Verde, Salvatierra.	22.2%	7
De los Cabos, Alamo Tepache, Cananea, Coatzacoalcos, Cosamalopan, Choapas, Monclova, Mulegé.	16.6%	8
Cd. de Hidalgo, Cd. Acuña, Irapuato.	11.1	3
Guanajuato, Huichapan, San Andrés Tuxtla.	5.5	3
Acatlán de Osorio, Chapala, Fresnillo, Mante, Martínez de la Torre, Occidente del Estado de Hidalgo, San Martín Texmelucan, Sierra Negra de Ajalpan, Tamanzunchale, Tantoyuca, Tlatlaquitepec, Zongolica, Coacalco, Jilotepec.	0	11

Source: own elaboration.

Tables 5 and 6 show the percentage of presence of FTIs and DTIs. The DTIs that have a higher percentage of presence are those of Uruapan and Zacapoaxtla with 88.8%, in the case of the Federal IT is the IT of Orizaba with 61.1%. In general terms, decentralized ITs have higher presence rates than the Federal ITs. These results may mean that decentralized ITs are developing their mission more consciously.

Table 7
Regional Percentage of Presence FTIs.

Region	States of Mexico	Percentage of Presence
CENTRAL REGION	CDMX, EDOMEX, Guerrero, Hidalgo, Morelos, Puebla y Tlaxcala	22.44%
NORTHEASTERN	Coahuila, Durango, Nuevo León, San Luis Potosí y Tamaulipas	28.96%
NORTHWEST	BCN, BCS, Chihuahua, Sinaloa y Sonora	25.73%
WEST	Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro y Zacatecas.	24.76%
SOUTHEAST	Campeche, Chiapas, Oaxaca, Quintana Roo, Tabasco, Veracruz y Yucatán	22.22%

Table 8
Regional Percentage of Presence DTIs.

Region	States of Mexico	Porcentaje de Presencia
CENTRAL REGION	CDMX, EDOMEX, Guerrero, Hidalgo, Morelos, Puebla y Tlaxcala.	36.2%
NORTHEASTERN	Coahuila, Durango, Nuevo León, San Luis Potosí y Tamaulipas.	27.3%
NORTHWEST	Baja California Sur, Baja California, Chihuahua, Sinaloa y Sonora	24.6%
WEST	Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro y Zacatecas.	37.7%
SOUTHEAST	Campeche, Chiapas, Oaxaca, Quintana Roo, Tabasco, Veracruz y Yucatán.	33.9%

Table 7 and 8 show the percentages of presence by region of the country. The States of the central region have the highest presence percentages with 36.2%. Likewise, the Northwest states have the lowest percentage of presence with 24.6%.

Table 9
FTIs Percentage of presence by State.

State	Percentage of Presence
1.- Durango	40.74 %
2.- Nayarit	33.33 %
3.- Nuevo León	33.33 %
4.-Aguascalientes	31.48 %
5.-Baja California	31.48 %
6.-Tamaulipas	31.48 %
7.-Yucatán	31.48 %
8.-Jalisco	30.55 %
9.-Sinaloa	30.55 %
10.-Sonora	30.55 %

Source: own elaboration.

Table 10
Percentage of presence by State of the country DTIs.

Estado	Porcentaje de Presencia
1.-Tlaxcala	61.1%
2.-Oaxaca	58.3%
3.- EDOMEX	45.7%
4.-Jalisco	41.4%
5.-Tabasco	41.2%
6.-Durango	40.7%
7.-Michoacán	36.3%
8.-Guerrero	35.1%
9.-Puebla	34.9%
10.-Campeche	31.4%

Source: own elaboration.

Tables 9 and 10 show the percentage of presence by States. In this case also the DTIs present higher presence percentages. Also in both tables only the State of Jalisco is the one that is present in both tables, this is an indicator of the difference that exists between both IT. The DTIs show missions more complete and adjusted to the current reality.

Table 11
Percentages of total presence.

Dimension	Percentage of IT presence Federal / IT Decentralized
1.- Students	35.54
2.- Services	59.7%
3. Localization	39%
4. Technology	57.8%
5. Consolidation	12.1%
6. Philosophy	28.5%
7.-Transparency	3.1%
8.-Employees	5.4%

9. Internationalization	16%
10. Linkage	24 0.2%
11. Extension	23.8%
12.- Teaching	23.8%
13. Research	25%
14.- Quality	50.3%
15.- Inclusive	34.3%
16.- Peace	10.1%
17.-Prosperity	18.3%
18.- Global Responsibility	44.9%
Average Presence Percentage:	28.4%

Table 11 presents the overall results where FTIs and DTIs are included. The results indicate that the dimension with a greater presence percentage in all ITs of the TNM is "Services" with 59.7% followed by "Technology" with 57.8%. The lowest value obtained were "Transparency" with 3.1% and "Employees" with 5.4%. The major results are related to the technological objective of education, which is a service and with the main essence of the TNM, which is to train technology specialists.

Table 12
Comparative presence percentage between Federal and Decentralized IT

Dimensión	Porcentaje de presencia IT Federales /IT Descentralizados
1.-Students	35.54
2.-Services	59.7%
3.-Localization	39%
4.-Technology	57.8%
5.-Consolidarion	12.1 %
6.-Philosophy	28.5%
7.-Transparence	3.1%
8.-Employees	5.4%
9.-Internationalization	16 %

10.-Linkage	24.2%
11.-Extension	23.8%
12.-Teaching	23.8%
13.-Research	25 %
14.-Quality	50.3%
15.-Inclusive	34.3 %
16.-Peace	10.1 %
17.-Prosperity	18.3%
18.-Global Responsibilitu	44.9 %
Average percentage of presence:	28.4 %

Source: own elaboration.

Table 12 shows a comparison between the 10 main percentages of FTIs and DTIs. The results show that within the first 4 presence percentages there is no Federal IT. The DTI of Uruapan and DTI of Zacapoaxtla are those that have the highest percentage of presence of all the TNM with 88.8%. In second place are the DTI of Talá and Cuautitlan Izcalli, with 83.3%.

The FTI with the highest presence percentage is the IT of Orizaba with 61.1%. Also among the highest presence percentages were 25 FTIs and 76 decentralized DTIs, which is an indicator that decentralized have missions that are more aligned with the matrix of the study of missions and have clearer and more present dimensions in their mission.

5. Conclusions and future lines of research

The objective of this paper is to analyze the mission of the 256 Federal and decentralized IT that form the TNM. The overall results obtained show mainly higher percentages of the presence of decentralized DTIs compared to FTIs. In addition, specifically in the dimensions, it was found that the dimensions that are most considered are "services" (59.7%), "technology" (57.8%) and "quality" (50.3%). These dimensions are mainly related to the main activities of the TNM which is education (service), focus on engineering (technology) and quality.

On the other hand, dimensions such as "peace" included in the PND of the Government of Mexico only reach 0.85% in the FTIs and 19.2% in DTIs. In this context, there is also the dimension of "transparency", closely related to federal institutions, with 5.9% in FTIs and 0.7% in DTIs. Likewise, the dimensions where FTIs obtained the highest presence percentages are: "internationalization", "extension" and "transparency".

As for the number of FTIs and DTIs present in the presence percentages, the number of DTIs with 76 versus 25 FTIs is much higher. In addition, in terms of the division by states there is little coincidence, only the ITs of the State of Jalisco are present among the first 10 States with higher presence percentages in FTIs and DTIs (Table 8 and 9). However, the trend remains, that is, DTIs have a higher percentage of presence (41.4%) than FTIs (30.5%).

As for the division by region, the FTIs of the Northeastern States have the highest percentage of presence with 28.96% and in the DTIs the Western States show the highest

percentage with 37.7%. In second place are the States of the Center with a 36.2%. It is important to note that in this division by region DTIs also had higher presence rates in their missions.

According to the literature, the results of this work are contrary to studies where the mission is clear and related to the company's activities (Bart, Bontis & Taggar, 2001; Bart & Baetz, 1998; Pearce & David 1987). Also, the results are similar to other studies where the "services/customers" play an important role in the mission (Peyrefitte, 2012; King, Case & Premo, 2010; Peyrefitte & David, 2006).

The greatest percentage of presence in the dimensions of the mission studied in DTIs is probably not by chance. DTIs were most recently created and have different work dynamics than FTIs. This may have influenced the definition of much clearer strategies that relate mostly to the mission, the basis of any organization's strategy.

It is important to note that the percentage of presence of the federal government's PND guiding axes, inclusive, peace, prosperity and global responsibility, are higher in "global responsibility" with 51.28% of FTIs and 42.3% in DTIs. In addition, global DTIs are those with a higher percentage of presence, for example in "peace" and "prosperity", the figure is 0.85% in FTIs 19.2% and 35.3%, respectively. This may be due to a more up-to-date FTI mission as it is a group of smaller institutions than FTIs.

As future research lines derived from this work should be considered that some of the dimensions are not contemplated within the mission, however show signs in the institutional web pages of each institute, which gives rise to a broader analysis and not only focused on the missions but on other elements that show the activities of the company. It is also important to analyze the visions of the ITs in order to determine the congruence of the mission and the vision, important axes of the strategy of these elements. It is also important to know if the ITs perform in practice the activities proposed in their mission. Finally, it is important that the TNM can integrate the 256 ITs that train them to work in a coordinated and non-isolated way.

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[Index]

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