

5. THE MICK EXPERIENCE TO BENEFIT OTHER CITIES AND REGIONS.

5.1 *Methodological proposal for other cities and regions interested in fostering their development based on Knowledge.*

For the fostering and strengthening of the “Monterrey: International City of Knowledge” Program, the competitive and sustainable development focused on an economy based on science, technology and innovation, as well as in the search to improve the education of human capital and quality of life of its inhabitants, **the Government of Nuevo León**, in venture and coordination with the productive and academic sectors (under the triple axis concept model) and the participation of society, **has been implementing a series of laws, public policies, strategies, programs and the institutionalization of some collaborative networks since 2004.** Due to the importance of these actions, it was considered strategic to study, cluster, evaluate and formalize them in the development of a methodology that could be used by those leaders and key actors of other cities and regions interested in fostering their economic and social development based on Knowledge.

From the experience gained in the integration of the 2nd Phase of the MICK Master Plan and considering previous research on strategies and public policies related to economic, social and technological development in cities and regions of Knowledge, as well as the actions and processes implemented successfully in the 1st Phase of the MICK Program, **a holistic, systemic, and inclusive methodology has been designed. It can be useful and replicated easily in benefit of other cities and regions that take the whole development strategy based on the creation and application of knowledge (in its broadest meaning).**

This methodology should be strengthened and updated continuously to improve its implementation, and above all, its economic, social, environmental, educational, urban, cultural and artistic impact. Likewise, those responsible for the public policies or the company, academic and social leaders **interested in fostering and implementing this methodology can do so with the support of the Tecnológico de Monterrey since it is one of the objectives pursued by the Government of Nuevo León and the Inter-American Development Bank (IADB)**

To design this methodology, **it was considered what had been done in the 1st Phase of the MICK Program.** It was taken into account its achievements in the implementing process, the main activities, strategies, public policies, programs, projects and the public, private and mixed institutions which have led Nuevo León and its Metropolitan Zone to achieve important advancements in its development based on Knowledge in only a few years.

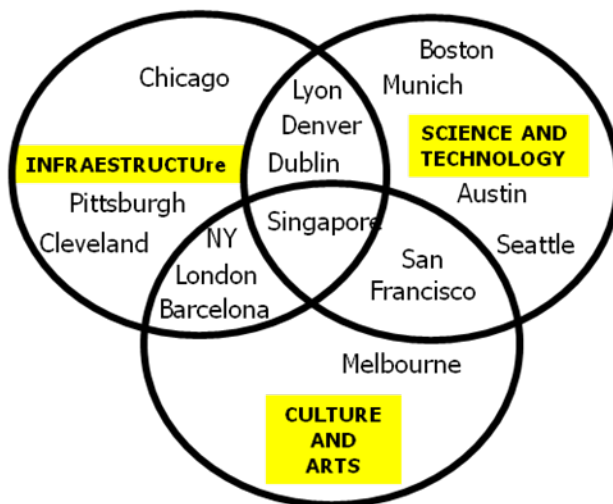
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It has also been enriched with some of the best practices studied in different Knowledge Cities, internationally renowned for their success, as well as recommendations from international organisms in regards to their economic and social development based on Knowledge, very specially the one of the Inter-American Development Bank (IADB), the World Bank (WB), and the Organization for the Cooperation and Economic Development (OCED).

The proposed methodology has certain foundations, specifications and processes or steps to follow. These have been summarized in a general fashion in the following paragraphs:

- It aims at being easily and practically replicable, by leaders or key actors in other cities or regions at the national and international levels, interested in fostering their development based on Knowledge.
- It considers the main existing factors (positioning) around the development of cities and regions of Knowledge at the international level, above all, with those factors related to the main public policies, programs, institutions, indicator system and projects which should be implemented.

City ranking in the Knowledge Era



Source: Report of Montreal, Knowledge City (November 2003)

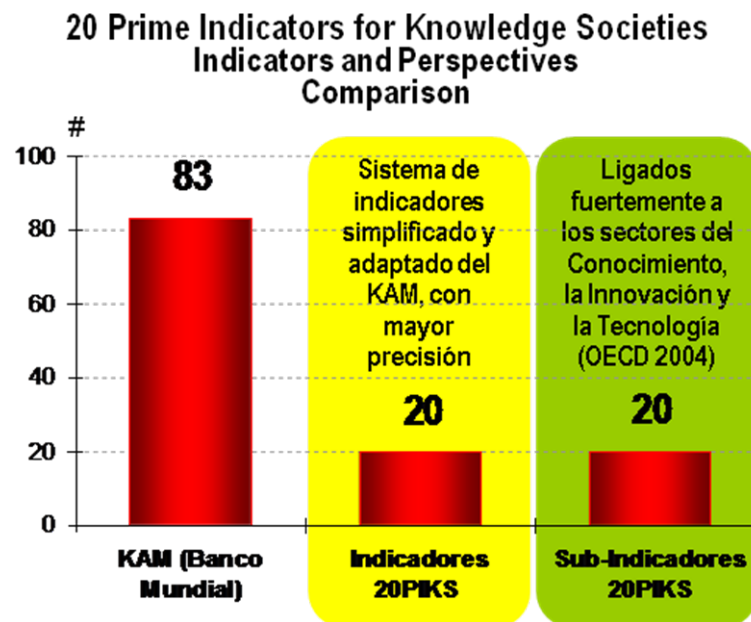
The ranking of a Knowledge City, with international renown, is based on the combination of **3 factors** in the areas of **Infrastructure, Science and Technology and Culture and Arts**.

- **Infrastructure:** Characterized by large scale public and private investment to give the city international renown. For example: Forums, International Exhibitions, Olympic Games, Financial Centers, Convention Centers.
- **Science and Technology:** Characterized by having **institutions, productive activities and R+D+i** focused on sectors **specialized in high technology** such as Biotechnology, ICT's, Aeronautics, etc.
- **Arts and Culture:** Those that place **emphasis on citizen participation in community welfare activities** and which **apply technology for the development of the arts**.

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- It suggests using a **measurement and indicator system** developed by the Tecnológico de Monterrey teamwork, called “**20 Prime Indicators for Knowledge Societies**” (“**20 PIKS**”). In general, this system considers (with additions and simplifications) 83 variables developed by the **World Bank**, known as **Knowledge Assessment Methodology (KAM)**. The “20 PIKS” measurement system considers and chooses the most representative and important variables to be used for monitoring a city or region within the context of a Knowledge economy or society. Then they are compared with the parameters of other internationally renowned cities or regions in order to evaluate its performance and results (benchmark)

The **20 PIKS** also characterize for having a proposal of **additional indicators to those in KAM, as well as a series of sub-indicators** which are considered strategic for the objective of advancing more efficiently and more focused on the main goals, not only in economic, but also in social terms, in the regions that place a bid for their development based on Knowledge.



Source: ITESM. Self-elaboration.

The Tecnológico de Monterrey team considers this last point as a very important one. In the research and documentation done for the 2nd Phase of MICK, it was observed at an international level the trend to widen too much; that is, to overdiversify the focus on strategies, programs, indicators, etc. This could make those responsible for designing, implementing and following-up the whole development plans based on Knowledge lose efficiency and impact on the results.

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- The proposed methodology is **flexible enough** and considers **the particular characteristics of each city or region** for the strategic plan of a city or region's program of knowledge. It can be implemented from **the factors and priorities identified in the diagnosis of strengths, opportunities, weaknesses and threats (SWOT)** or other similar analyses, done by each city or region when starting to update the fostering of their development based on Knowledge. The methodology also considers the **levels of priority and importance each one of the suggested indicators and sub-indicators has in the measurement and follow-up system (20 PIKS)**.
- An important matter was also that the methodology included a series of general proposals for public policies, programs, projects and institutions, etc. through a **list of driving factors** ("check list"). These factors should be linked to the suggested indicator system (20 PIKS) **to allow orientation and facilitation in the integration processes of the first strategic plan (Strategic Plan 1) that each city or region looking for Knowledge-based development should make**.

Summarizing the **replication methodology** suggested as part of the objectives of the 2nd Phase of MICK, **the following components are pointed out:**

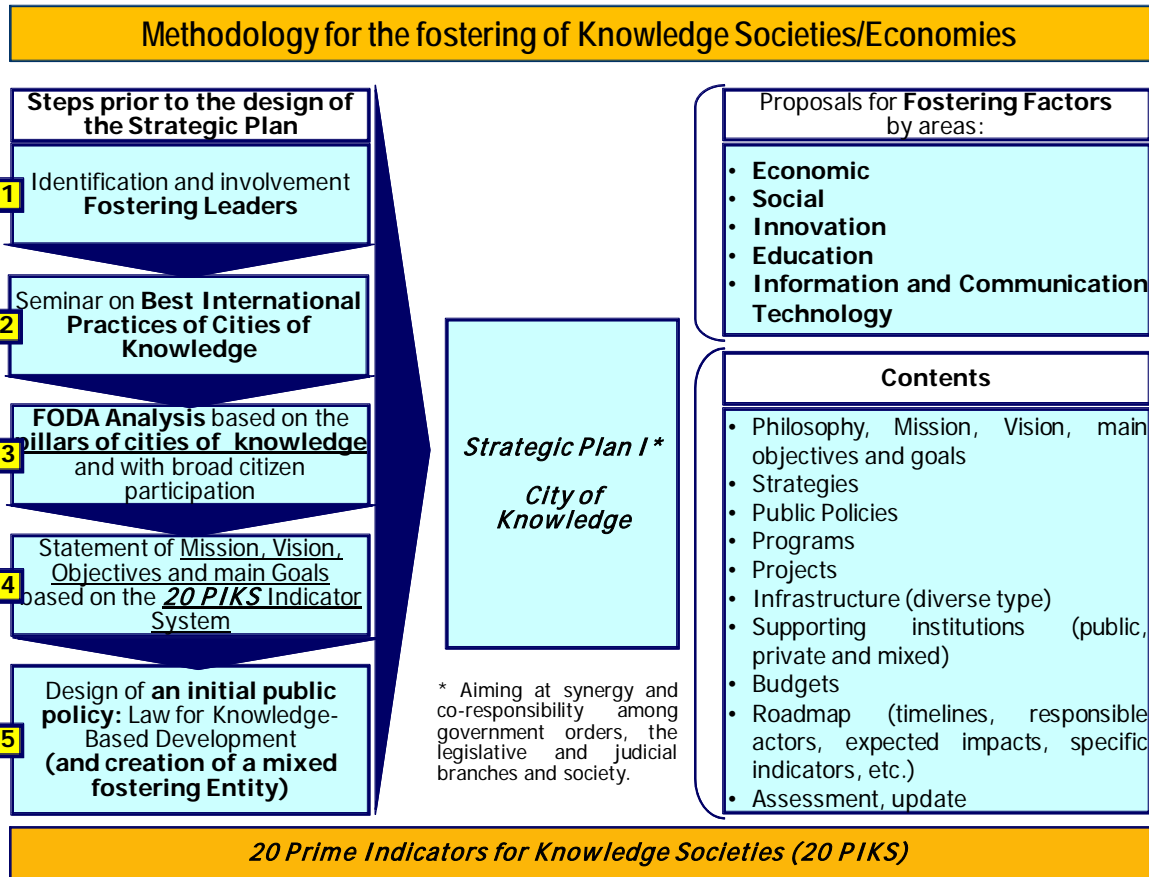
- **The first activity suggested is to identify the most important leaders with the right profiles** (including social acknowledgement, credibility, vision, honorability, among others) coming **not only from the public sector but also from the business one, universities, and some social or civil organizations of high credibility**. These identified leaders or key actors should be motivated and engaged in participating actively. They will be the **driving leaders** of the program of the city or region of Knowledge.
- **The second activity suggested is to organize a seminar for the driving leaders and discuss the best practices of international cities or regions of Knowledge**. It should be given by experts in each one of the main pillars or areas in which the strategic plan of an economy or society based on Knowledge should be divided. This pursues the objective of creating amongst driving leaders better understanding and sensitivity to the topic. It should be useful for their leadership, planning and implementation tasks. Further information can be found in the diagram-summary about the general replication methodology proposed by the Tecnológico de Monterrey team (page 6).
- **The third activity, strategic itself, is to lead analytical sessions to determine the strengths – opportunities – weaknesses - threats (SWOTS) of each one of the areas or pillars included in the development of a city or region of Knowledge**. It is important to identify the most suitable actors participating in each area as well as to appoint experienced coordinators for

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each one of them. **This will allow getting fundamental and essential material for the elaboration of Strategic Plan 1 (first phase).**

- Coming from the above activities, **the fourth is to carry out a global exercise (with the driving leaders and the support of experienced and capable coordinators using the material) to make the first general planning of the program. It should contain vision, mission, general objectives, and main goals, based on the suggested indicator system (20 PIKS).**
- The conclusions of this exercise should be **the main material for a work group**, made up of the right mix of leaders and experts (knowledgeable and capable in the corresponding topics, engaged and interested in supporting, willing and capable of working, opened to other ideas and with a healthy balance between theory and practice) can **design the first public policy, which in this case should be a proposal of Bill for Development Based on Knowledge of a specific city or region. Later, Strategic Plan 1 should be made.** Further information can be found in the diagram-summary about the general replication methodology (page 6).
- To ease the work related to the SWOT activities, the first general approach leaders and actors should follow is to propose the Bill, but above all, to support the preparation of **Strategic Plan 1** of the city/ region of Knowledge. **It is suggested to use the list of driving factors in a “check list” form in each of the 20-PIKS areas (economic, social, innovation, education and information technologies and communication.)** This is of utmost importance for the project to take off. For further information, please see the proposal of driving factors. (page 9).

Following is a summary presenting the general methodology developed and proposed by the Tecnológico de Monterrey team.



5.1.1 Indicator System and Information System

In regards to the indicator, measurement and follow-up system or the **20 Prime Indicators for Knowledge Societies (20 PIKS)**, it is necessary to highlight some considerations:

- It is an indicator system representative of the economic, social, innovation, education, information technologies and communication areas. It is based on some of the indicators suggested by the World Bank in the *Knowledge Assessment Methodology (KAM)*.
- Additionally, a group of indicators and sub-indicators are suggested. These measure more accurately the evolution of the city or region toward Knowledge. It allows focusing on the most important and relevant topics that foster a Knowledge Society in a whole and systemic way.
- It is suggested to make a link of the **20 PIKS** with the main strategies, public policies, programs, projects and actions of most impact in the development of other cities or regions internationally renowned for fostering development based on Knowledge. This should be a reference.

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- **It is necessary to define goals throughout time (“road map”), with the indicators and sub-indicators proposed in the 20 PIKS.**
- **Last but not least, it is necessary to develop a whole information and intelligence system that allows evaluating its advances and impact in a reliable and timely fashion. For further information, please see the deliverable *Creation of the Whole Information and Intelligence System of Nuevo León (SPNL)***

5.1.2 Budgetary Resources

Another rather important point, part of the suggested methodology, is the allocation of budget to support the main strategies, programs, projects, etc, linked to the fostering of a city or region of Knowledge. It is an issue of great importance to achieve the set goals.

It is also necessary to promote that **the areas of more impact grow**, always looking for a healthy balance with the implementation of the systemic general objective of becoming a city or region of Knowledge. Thus, it is possible to avoid that the neglect to one area jeopardizes the integrity of the project in the medium and long runs. This requires an adequate balance among the economic, the social, the environmental and the cultural without losing the essence of the project whose axis is the people.

All the aforementioned and suggested is the base or foundation to achieve an initial master plan including the main strategies, public policies, programs, projects, infrastructure, institutions and resources to be implemented to advance in accordance with the indicator system. This system displays the goals pursued in different contexts and times in order to achieve an adequate system of following-up, monitoring, providing feedback and updating the program to increase results and impact.

5.1.3 Strategic Objectives

To achieve further success in the application of the methodology, it is necessary that the strategic objectives pursue the following:

- **Create and distribute richness**, considering an international context of fierce global competition.
- **Improve life quality and conditions of all society members** with a strong commitment to environmental sustainability and the social inclusion and mobility.

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- **Include the necessary and indispensable initial participation of leaders with strength, vision, credibility, good image and commitment that foster development based on knowledge.**
- **Build on the basis of participation and joint work of leading actors; that is, government; the productive and academic sectors; and the participation of society whenever possible.**
- **Include the necessary cooperation, synergy, co-responsibility of the three orders of government** (state, federal and municipal in the zone of influence of the project), specially in the alliance achieved between the state government and the corresponding municipalities. It is only through co-responsibility and collaboration that the best results are achieved. Implementing a project to foster a Knowledge society or economy in which the three orders of government do not work together will lead to a lot less impact. Also, it is indispensable the commitment of the Congress to promote and approve laws and amendments that are needed. The participation of the Judicial Power is necessary to provide an environment of certainty, legality, and efficiency that a Knowledge society demands.
- **Integrate universities, the business sector and researchers as fundamental aspects of development.**
- **Pay special attention to investment of economic resources to implement Strategic Plan 1** (and the following in accordance with the update of the Knowledge Program) since making **good plans and setting ambitious goals without the support of enough budget will stop goals from being achieved; and thus, everything will have been just good will.**
- **Communicate the advantages and benefits of a city or region of Knowledge in a simple way and with concrete aspects of citizens**, as a fundamental point to **socialize** the project and reach more success in the implementation when a greater number of citizens participate.
- **Do whatever is possible of doing to get mass media to participate, the state** (government) and private, as a fundamental factor in the development of a society and region of Knowledge.

5.1.4 Driving Factors List

This section presents a list of driving factors , or “check list”, elaborated by the Tecnológico de Monterrey team, The list, linked to the **20 PIKS** (indicator system) helps orient and facilitate better the elaboration processes of Strategic Plan 1 for the city or region that wants to develop based on Knowledge.

GENERAL METHODOLOGY TO FOSTER CITIES/ REGIONS OF KNOWLEDGE (GMFCK)

ECONOMICS AREA

- To promote a **Bill Fostering Investment and Employment**, providing better support and incentives to productive projects in the sectors of Knowledge (according to the ODCE Classification).
- Promote a **Bill for Development Based on Knowledge**, whole and systemic. It should also set up a mixed entity (decentralized public organism) for the operation and follow-up of the program.
- Implement a **support and incentive program that makes seed capital and risk capital flow**. The capital should be invested in projects of entrepreneurs and in those of technology-based and innovative companies.
- Elaborate a **Regional Plan of Infrastructure for Competitiveness and Development**. It should consider for its financing, plans of public-private association, giving priority to the logistics, scientific and technological parks, urban mobility, TIC's, and protection and care of the environment, among others.
- Design and implement a **Program of Technological Companies: Finding Opportunities**. It should promote an entrepreneurial culture which requires a society and an economy of Knowledge for its strengthening and evolution.
- Design and launch a **Program of Capital for Innovative Companies**. It should support the growth of the GDP, employment and other economic variables through the sectors of Knowledge (according to the ODCE classification).
- Promote entrepreneurial collaboration through clusters of chain of value and regional systems of innovation, mainly in the strategic innovation and high-tech sectors picked out by the region.
- Design and implement a **Whole Information and Intelligence System** to strengthen the quality of the information for the public and private decision-making processes.
- Design and implement a **Whole Financing System** for the region of Knowledge which increases the coverage and makes people, companies and institutions have access to credit.
- Create an **Agency of Efficient Use of Energy** to support the region's competitiveness and sustainable development to benefit the productive sector, homes, government, institutions and society.

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- Determine, negotiate and get the **budgetary parts that allow the successful implementation of Strategic Plan 1**. Monitor its impact on the city / region of Knowledge besides promoting that it has an annual increase in real terms. (inflation considered).
- Identify and promote that all **the main reforms and federal programs** that support the project of development based on Knowledge of the city or region are carried out
- **Link Strategic Plan 1** of the city / region of Knowledge **with the support programs and federal and international funds that can boost their results**.
- Promote the implementation of **programs of social entrepreneurial responsibility and the corporate government of companies**.
- Promote programs of **development of export offer of products and services** (according to the ODCE classification) **and its promotion in the most convenient international markets**.

SOCIAL AREA

- Design and implement, based on technical diagnosis, a **Plan for Sustainable and Competitive Urban Mobility**.
- Have enough budget and **give priority to environmentally sustainable and competitive public transportation**.
- Promote **institutional reforms** that promote adequate metropolitan coordination, from planning up to efficient management of the basic services for citizens.
- Promote a program of **Sustainable and Healthy City** to guarantee all citizens a healthy and sustainable urban environment.
- Promote a program **A New Urban Way of Living Together** to guarantee all inhabitants a decent life through mixed neighborhoods, well-equipped, with adequate zones of recreation and sports.
- Design and implement a program of **Urban Identity and Image** to strengthen the image of the city, its patrimony, variety and quality of cultural and recreational choices.
- Implement programs that **promote tolerance, inclusion and social mobility**.
- Implement programs of **addiction prevention and control**, assigning them a budget, infrastructure, efficient methods, human resources and adequate promotion and operation

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- Implement a program of **Construction and Rehabilitation of popular commercial centers, to legalize and dignify the small informal commerce** that has proliferated in the urban zones.
- Design **Programs to Strengthen Public Safety and Procurement of Justice**, based on the technological modernization and the professionalization of the human resource.

GOVERNMENT AREA

- Prepare a **Program** with goals, budgets, and people in charge of the **Effectiveness and Efficiency of the Government, Transparency and Corruption Fighting**.
- Implement a **Program of Regulatory Improvement**, based on simplification, use of TIC's, units of regulatory improvement specialized by dependence, together with specific commitments and result measurement in the achievement of set goals.

INNOVATION SYSTEM AREA

- **Increase as much as possible the Public, Private and Institutional Investment in I+D+I** (by making a plan with support, incentives and yearly goals, so as to generate intellectual property of high economic and social potential.)
- Support and encourage **the creation of more public and private I+D+I, Centers**, domestic and international, based on the productive vocation of the region.
- Implement a **Program to Strengthen the Regional Capacities to Foster and Promote Science and Technology (I+D+i)** and the decentralization responsible for the decisions and federal budgetary resources in these areas.
- **Give incentives for researchers to generate intellectual property** and do their jobs linked to the development of the region.
- Implement **Programs of Talent Retention and Attraction** to strengthen the I+D+i activities, including the fostering of entrepreneurial, academic, and cultural activities linked to Strategic Plan 1 (with incentives and a special area to operate the program).
- **Do Intelligence and Scientific, Technological and Market Prospective Studies** looking for specialty niches suitable for the development of the region..
- **Generate the links of the Public and Private I+D+i Centers with the entrepreneurial and social sector according to the vocation of the region.**

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- **Facilitate and encourage the spin offs of I+D+i Centers that could become independent projects in the economic and social areas.**
- Promote the creation of **Centers for the Promotion and Commercialization of Technology.** (These should take the best of anything local, national and international.)
- Support and encourage the creation of **Scientific and Technological Parks**, seeking a proper mix among companies, I+D+i centers, incubators and company accelerators and support and service centers.
- Support the **creation of Incubators and Innovative Company Accelerators and of Technological Base**, with suitable methodologies, technical assistance, and support in public and private resource management for their development.
- Promote **Events of high level on Science and Technology** focusing on different segments of the population.
- Create a Virtual Center for Innovation and Enterprising that makes information, technical assistance and support available to interested population.

EDUCATION AREA

- Make a **Plan**, with an integrated budget to increase the percentage of the population that graduates from college and graduate schools (preferably in the state to reduce brain drain).
- **Do Studies of Requirement Prospective of Technicians and Professionals of the region, Employability, and Opportunity of Independent Development.**
- Implement a **Program for Certification and Educational Evaluation** with broad participation of experts, involving parents as well.
- Increase the **budget of public education**, subjecting it to quality results, educational pertinence and that favors education in accordance with the vocation of the region.
- Negotiate and implement **Teacher Selection Programs** by means of contests.
- Design a **Plan**, with enough budget, to **foster Information Technologies and Communication** in the educational institutions (public and private).
- Implement a **Factory of Educational Contents** to support public and private education, promoting national and international ventures to count with the best material that permits efficiency and wide educational coverage.

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- Create an **Institute of Educational Credit** that supports education in general. It should have public and savings funding (by means of a guarantee fund) to multiply the economic resource allotted to education.
- Create an **Institute for Innovation and High Educational Studies** to support training, updating and use of educational technologies for teachers. Also, it should foster innovative educational methodologies.
- Promote constantly the updating of undergraduate programs and educational programs in universities and technological universities based on the vocation of the region and the international trends.
- Create and strengthen **Centers for Technical Education and for the Development of Skills**, with the right budgets, equipment, methodologies, and instructors.
- Implement an **Easy Math for Everybody Program** and improve its teaching at the basic and secondary educational levels.
- Implement a **Programming and Playing Program** to support knowledge and an early like for information technologies. It is widely used in a great variety of activities; and it is considered one of the tools to foster productivity, as well as one of the economic sectors or greater growth that creates better jobs.
- Implement a **Vocation Guidance and Educational Pertinence Program**.
- Implement a **Program for Education for Innovation and Enterprising**, as of elementary school, public and private.

INFORMATION TECHNOLOGY AND COMMUNICATION AREA

- Carry out a **diagnosis of requirements and a plan to foster infrastructure, programs and services related to TIC's** (with deadlines/goals/ people in charge/ budgets)
- Foster **e-government** both inside (for efficiency) and outside (for the services to citizens). It should promote transparency and efficiency in public administration.
- Foster a **Public Wireless Network** in parks, in public buildings, and above all in underprivileged neighborhoods. Set up digital stands that allow citizens to have access and do paperwork and public services, or have access to useful public information.
- Create and strengthen **public mass media** to encourage citizen participation, in science – technology – innovation – culture - values. Encourage the private mass media participation in these objectives as much as possible

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- Implement a **Computer and Internet for Everybody Program** that increases the percentage of use of TIC's in businesses, homes and schools.
- Promote the creation of a **Center for High Performance Computers** or Supercomputers to support big I+D+i projects and to improve public services that require great information processing capacity (such as the one in public security)
- Foster programs (at the federal and local levels) to have a more competed environment among the TIC's suppliers, aiming at achieving greater, better, more competitive access for the population, in conditions similar to those of developed countries.

5.2 Summary Chart

To conclude this chapter, the following chart summarizes the topics discussed.

Chaptar 5: The MICK Experience to benefit other cities and regions
Resumen Esquemático

