



## CHAPTER 2

# QHS METHODOLOGY FOR THE DEVELOPMENT OF SOCIETY<sup>1</sup>

**Rodolfo Martinez Gutierrez**  
Instituto Tecnológico de Tijuana

**ABSTRACT:** The expectation of growth and personal development in society is one of the different stereotypes and paradigms for different generations. From educational training, the individual learns that they must develop skills to succeed in life and, for this, they must prepare, interact socially, and achieve outstanding professional performance. The Fifth Systemic Helix (Quinta Hélice Sistémica [QHS] in Spanish) approach discussed in this chapter raises the activities developed in the different phases of the population, involving the phases of skills empowerment; Knowledge, skills, and attitudes. Which are developed at different levels of educational training, later the exercise of a profession, professional leadership in trade unions, associations, and business chambers. Until finally the process of sharing the experience of professional life with the new generations in the academic sector as a professor, as well as activities to advise public and private sector organizations, through systemic intervention models.

**Keywords:** QHS methodology, DCS methodology, job skills, knowledge attitudes, happiness

## 1. INTRODUCTION

The purpose of this article focuses on describing the virtuous circle of an idea, giving meaning to the principle “knowledge, generates knowledge”, and “we cannot give, what we do not have”, under this premise describes the phases of the gestation of an idea, its development, dissemination until putting it into practice as a model of articulation in daily life in society. This is the case of the QHS Methodology that is oriented to generate actions of articulation and integration of all sectors of society as a strategy to find solutions and eclectic proposal of multidisciplinary methods, which converge in the sum of specialized talent, the QHS Methodology; convenes

<sup>1</sup> **Como citar:** Martinez Gutierrez, R. (2026). QHS methodology for the development of society. En *Systemic development for sustainability: Case studies of QHS methodology and 2030 agenda in voluntary local reports (VLRs)* (pp. 19–44). Atena. <https://doi.org/10.22533/at.ed.727261102>

the voice of experts from the Academy, Companies, Associations, Consultants and Government, to jointly develop analysis of initiatives of the topics of interest in the ecosystem of society for its sustainable development.

The conception of the idea to develop the proposal of the QHS methodology was born when taking a doctoral class in global development studies in 2008, listening carefully to the Professor the theories of global development and international systemic competitiveness; this context, adds the characteristics of Generation X, work, and study as a challenge of the culture of effort to achieve goals to progress. Figure 1 presents the chronology of work and professional development as x-ray of the resume, occupational transitions, and systemic growth in society. theories of global development and international systemic competitiveness.

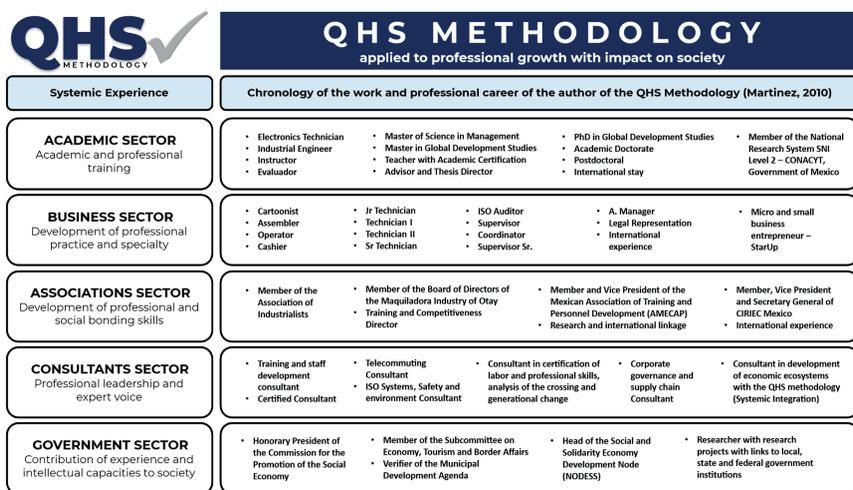


Figure 1. QHS Methodology applied to professional growth with impact on society.

The construction of a resume traditionally begins with academic training, from the early stages of educational training; when defining vocational guidance, type of professional career, the identification of the competences to be developed and their effects generated when carrying them out; the competence of knowing how to know; It is knowledge that develops understanding through theories and principles of the sciences. The competence of know-how; They are the development of skills that generate passion for identifying and recognizing the ability to have talent and their way of exercising them. The competences of knowing how to be; They are the behaviors, attitudes and universal values exercised during the professional exercise and finally the competence of knowing how to be happy; It is the identification of those activities that generate excitement, satisfaction, and pleasure to develop them.

There are 8 levels of competencies according to UNESCO raises the International Classification of Education Levels (ISCED), which generates a reference framework for complementary preparation through certifications through standards of work, professional and research skills, a strategy of updating through continuing education. For the formation and development of systemic competences in the professional career, there are certifications of competences in the academic sector, for the exercise as Professor and his different functions of specialization, for the professional practice in the companies, for members of business and social associations, for consultants in functions of different specialties and for employees of the public administration in the government. A certified person represents efficiency, effectiveness, productivity, and competitiveness.

The academic life of a professor and researcher is linked to the practice of creating research projects, developing articles, and publishing them in prestigious indexed journals with international ranking, participation in congresses, forums, and seminars to achieve positioning in the processes of evaluation of academic performance and research career of national and international competition, generating indicators of productivity and traceability of scientific bibliometric.

Figure 2 presents events and interviews of QHS Methodology, within the framework of bibliometric studies of original, recognized, appreciable and consistent research, for which it traces publications, theses, disclosures and all the evidence of the methodological contribution in society.



Figure 2. QHS Methodology Dissemination experiences in conferences and interviews

Section 2 referring to methods and materials addresses the phases of the systematic analysis of the key components that make up the QHS methodology, starting with the Academy Sector, analysis of the impact of academic training. Secondly, the Business Sector is addressed, The analysis of the impact of the work and professional trajectory. In the third place, the Associations Sector is addressed; Analysis of the impact on the development of collaborative networks. The fourth place is for the Consulting Sector; systematic analysis of the development of professional practice as a consultant. And finally, the fifth component is addressed, Government Sector, where the management and linkage with government institutions are addressed.

The great expectation of the citizenship with respect to their representatives in the government, is that these public employees are aware of the vote of confidence that was deposited in them, between the campaign discourse vs. the results of public management, therefore the motivational skills, promotion of dialogue, serenity, knowing how to delegate and the focus on results, They are factors of success as an employee and public servant, since the efficiency of government, is reflected in indicators of confidence in the performance of institutions, authority and public management, revealing the management competencies in the public administration of the public employee who represents his country.

## 2. METHODS AND MATERIALS

For the investigation of the bibliometrics on the academic, scientific and research productivity of the QHS Methodology, a chronological analysis of several means of publication and diffusion was carried out, achieving a complete vision of contributions in research, citations, references, and methodological applications in the different systemic sectors of society, considering the national and international context. In this order of ideas; the first articles in journals, congresses are registered between 2010 and 2012, evidence of 5 articles on the original topic where the contribution of the QHS Methodology was applied and generated; "Factors that determine the competitiveness of the maquiladora industry of the electronic sector in Tijuana, Baja California", subject of doctoral thesis, to obtain the degree of Doctor in studies of global development, at the Universidad Autonoma de Baja California Campus Tijuana, Baja California, Mexico (UABC-CONACYT), Graduate program at national level with international recognition, with guest professors from national and international universities.

In this sense, the proposed QHS methodology; reflected the different systemic skills that are developed in an innovative ecosystem with characteristics that distinguish the city of Tijuana, Baja California, Mexico. Known as the door to Latin America and where the Mexican homeland begins.

The dynamics of the border between the cities of Tijuana and San Diego, makes the city of Tijuana very attractive for transnational companies and with global operations that are established in industrial parks under the concept of foreign trade of assembly plants and factories called maquiladoras, taking advantage of the benefits of the Free Trade Agreement to export their products back to the United States.

At its historical peak, in 2001, there were about 820 of these maquiladoras in Tijuana. Generating worldwide fame in the industrial environment of Tijuana was called the World Capital of Televisions, by the world records of production of televisions and PC monitors that were manufactured. Currently, industry 4.0 has become the new parameter of development and installed capacity to the challenges demanded by international trade.

Likewise, the industrial vocation of the city of Tijuana is characterized by the great offer of industrial parks for the installation and foreign investment in the metropolitan areas of the cities of Tijuana, Tecate and Rosarito, Baja California. Contributing to the favorable conditions of the development of dynamic ecosystems of chains and formation of supply chains of the great value chain of foreign trade, customs and international logistics in the Cali-Baja mega region, which unites the States of California in the United States and Baja California, Mexico, generating clusters in Different sectors of industry, business associations, educational institutions of technical training specialized in training of human talent required in strategic sectors of companies, strategic training professional levels such as engineering, with soft skills for management in business leadership processes of local focus with global vision.

In the business world increasingly oriented to corporate governance practices, multiculturalism, electronic commerce, teleworking, business models under the scheme of Startup and Spinoff is increasingly common the total opening of transgenerational projects and initiatives with the purpose of achieving integration of all generations of society under one roof; from people in the Baby Boomer Generation (1945-1964), Generation X (1965-1981), Generation Y or Millennials (1981-1997) and Generation Z (1997-2010).

It is public knowledge that social networks are an efficient communication tool, feedback for businesses driven by generations that were born with the benefits of the internet in hand, or applications (Apps) that is increasingly common that represent new businesses of generational change in all senses of daily life in the world. Figure 3 alludes to the challenges of a systematic resume in academic training, forming a set of acquired knowledge, which are tools that help consolidate competencies in the discipline of professional practice. Academic training should not only be

the reception of data, information, and collection of degrees. It is a process of intellectual growth that allows us to develop analytical capacity and critical thinking or, for the resolution of challenges and problems in the trajectory of personal and professional life.

 <b>QHS METHODOLOGY</b> analysis of the systemic impact of the ACADEMY on Society	
<b>Systemic Experience</b>	<b>Success factors in academic training of the author of the QHS Methodology (Martinez, 2010)</b>
<b>ACADEMIC SECTOR</b> Academic and professional training	<ul style="list-style-type: none"> <li>Electronics Technician</li> <li>Industrial Engineer</li> <li>Instructor</li> <li>Evaluator</li> <li>Master of Science in Management</li> <li>Master in Global Development Studies</li> <li>Teacher with Academic Certification</li> <li>Advisor and Thesis Director</li> <li>PhD in Global Development Studies</li> <li>Academic Doctorate</li> <li>Postdoctoral</li> <li>International stay</li> <li>Member of the National Research System SNI Level 2 – CONACYT, Government of Mexico</li> </ul>
<b>Knowledge</b> Development and understanding of the theories and principles of the sciences	<ul style="list-style-type: none"> <li>As a Technician and Engineer, technical skills are developed in the operation of equipment, machines and the reasons for malfunction.</li> <li>Postgraduate studies contribute to the development of other complementary knowledge at the professional level; theories, philosophies of research sciences and frontier of knowledge</li> <li>Doctoral and postdoctoral studies open the door to open science, the generation of new models and contribution to the state of the art by discipline</li> </ul>
<b>Skills</b> Skills and passion for identifying what you like to know and do	<ul style="list-style-type: none"> <li>Logical ability and sense of problem solving, application of effective tools and techniques in processes and people</li> <li>Development of communication skills, expression, document writing, professional publications</li> <li>Leadership and Discipline Expert Judgment</li> <li>Development of management skills</li> <li>Development of models, methodologies, frontier of knowledge research, scientific publications, Director of Undergraduate and Postgraduate Theses</li> </ul>
<b>Attitudes</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>The knowledge and skills manage to represent a positive attitude in every individual, since it generates self-esteem in knowing and knowing how to do</li> <li>A professional degree represents for a person to develop skills for personal growth and if he additionally has a postgraduate degree, it ensures the possibility of a solid professional development</li> <li>Social awareness for the advancement of the Sustainable Development Goals of the UN 2030 Goals and how to contribute to the new generations</li> </ul>
<b>Happiness</b> Those activities that we decide to do for pleasure	<ul style="list-style-type: none"> <li>Be an innovative teacher and be aware of the importance of understanding the new generations their way of learning</li> <li>Develop research projects through Interinstitutional Academic and Research Bodies</li> <li>Publish articles, chapters and books</li> <li>Passion for innovation and development of collaboration networks for sectoral strengthening in Mexico and the World, seeking sectoral integration through the Fifth Systematic Helix (QHS Methodology)</li> </ul>

Figure 3. QHS Methodology analysis of the systemic impact of the Academy on Society

Researchers and decision makers in society in the world are between the transition of the Baby Boomers Generation and Generation X, precisely the author of the proposal of the QHS Methodology, is characterized with the profile of Generation X (1965-1981), in the year 2023 they represent 18.2% of humanity, They are generally conservative, faced economic difficulties, are a reflection of hard work, effort to achieve their goals in life, despite adversity, managed to mature at an early age, lived the digital revolution; cellular telephony, the evolution of the internet and computers. Believers in the culture of effort, desire for improvement and continuous improvement. Later and often in parallel it is common for young people to work in positions characterized for students, in companies that traditionally offer part-time, part-time, even for hours of service, in order to make flexible the learning opportunities of the new generations of professionals who require an opportunity to put into practice the knowledge acquired in the classrooms, Correlate theories vs the real world, apply tools for solving problems in organizations, there are extraordinary cases that vocation and natural skills exceed academic preparation, properly in issues of leadership, empathy, charisma, aspects of soft skills that are generally differentiating factors for a hiring and define personality types.

A question that every individual asks at some point in life is, how can I succeed in my work and professional development?

This question can have one or several answers according to the level of preparation we have vs our expectations of the position of responsibility or the hierarchical level we want to occupy, everything is related to capabilities, it is a matter of competitiveness, results, therefore, companies will evaluate the level, profile, experience, competencies vs. position, its objectives, and responsibilities in the short, medium, and long term. For this, it is important to evaluate job competencies to allow employers to better know the potential of potential employees; objectively determining the level of knowledge, skills, abilities, and attitudes to perform in the appropriate position. Is it the right person for the right position?

That is why identify and recognize the training needs vs. the positions and levels in which you want to move in the medium and long term, properly define a life plan and professional career, in Figure 4 an example of work and professional trajectory of the author of the QHS methodology, trajectory associated with sustained growth, is presented. characterized by the development of multiskills product study and work in parallel, although later as the professional career was consolidated was a context vice versa of working and studying as a strategy of professional updating.

 <b>QHS METHODOLOGY</b> systematic analysis of the impact of BUSINESS on society	
<b>Systemic Experience</b>	Success factors in the professional development of the author of the Methodology QHS (Martinez, 2010)
<b>BUSINESS SECTOR</b> Development of professional practice and specialty	<ul style="list-style-type: none"> <li>• Cartoonist</li> <li>• Assembler</li> <li>• Operator</li> <li>• Cashier</li> <li>• Jr Technician</li> <li>• Technician I</li> <li>• Technician II</li> <li>• Sr Technician</li> <li>• ISO Auditor</li> <li>• Supervisor</li> <li>• Coordinator</li> <li>• Supervisor Sr.</li> <li>• A. Manager</li> <li>• Legal Representation</li> <li>• International experience</li> <li>• Micro and small business entrepreneur – Startup</li> </ul>
<b>Knowledge</b> Development and understanding of the theories and principles of the sciences	<ul style="list-style-type: none"> <li>• Working and studying represents the opportunity to value at an early age the effort of how to earn a salary in University of Life, "work"</li> <li>• The opportunity to climb hierarchical positions based on effort, discipline and promotion is the best professional experience, to realize empathy with the collaborators of the new generations</li> <li>• Reaching levels of management and authority, represents not only self-realization, but also a commitment of high responsibility of trust and ethics, with whom I grant it to you.</li> </ul>
<b>Skills</b> Skills and passion for identifying what you like to know and do	<ul style="list-style-type: none"> <li>• Taste for drawing scale schemes, understanding of process analysis techniques: labor, working methods, measurements, machinery and raw materials in an environment</li> <li>• As hierarchical levels are scaled in organizations, personnel management skills, communication, conflict management, interpersonal relationships are challenges that are learned by living each experience even with mistakes.</li> <li>• The positions of maximum hierarchical level involve strategic planning skills, critical thinking, emotional intelligence, leadership assertiveness, astuteness, public relations skills and knowledge of general culture</li> </ul>
<b>Attitudes</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>• Universal values, respect for the rights of others, the vocation to help and generate friendships is developed from basic education in society</li> <li>• As you advance in professional life, the social environment becomes multidisciplinary links, which generates the opportunity to generate alliances and large networks of friendships in society.</li> <li>• As the different levels of personal self-realization are covered, processes of remuneration to Society are generated, such as philanthropy actions.</li> </ul>
<b>Happiness</b> Those activities that we decide to do for pleasure	<ul style="list-style-type: none"> <li>• Satisfaction of the first triumphs and achievements through the culture of effort and merit to excellence</li> <li>• Growth and integral development with remuneration for the consolidation of the full quality of life</li> <li>• Reaching the highest level of business hierarchy represents a labor merit for the goal achieved and the competition among many people with similar skills</li> </ul>

Figure 4. QHS Methodology analysis of the systemic impact of Business on Society

The trajectory of a person in his professional performance as consolidated in an organization where professional services are provided, according to his competences; knowledge, skills, attitudes, and places to develop what you are passionate about.

If, your performance results are successful, innovative, and outstanding in your area of specialty, you become a reference among your peers, being naturally proposed as a guest, member, and leader in Associations of the sector and specialty area of the profession you exercise, in such a way that it initiates another facet of professional development, becoming an opinion leader, expert criterion in good practices product of experience and professional career. The first experiences that are lived in the trajectory of professional development, are the collaboration networks, the associations of students or professionals, these social figures, represent the opportunities to learn and develop skills of public speaking, leadership, assertive communication, and the principles of political behavior, in order to achieve the planned ends, putting into practice the expression, The objective justifies the means. Figure 5 presents the trajectory of outreach activities, professional management, national and international leadership roles, product of experience and participation as a sector expert.

 <b>QHS METHODOLOGY</b> <small>systematic analysis of the impact of ASSOCIATIONS on society</small>	
Systemic Experience	Success factors of development in networks of the author of the Methodology QHS (Martínez, 2010)
<b>ASSOCIATIONS SECTOR</b> Development of professional and social bonding skills	<ul style="list-style-type: none"> <li>Member of the Association of Industrialists</li> <li>Member of the Board of Directors of the Maquiladora Industry of Otay</li> <li>Training and Competitiveness Director</li> <li>Member and Vice President of the Mexican Association of Training and Personnel Development (AMECAP)</li> <li>Research and International linkage</li> <li>Member, Vice President and Secretary General of CIREC Mexico</li> <li>International experience</li> </ul>
<b>Knowledge</b> Development and understanding of the theories and principles of the sciences	<ul style="list-style-type: none"> <li>Being a member of an association of professionals, generates a process of empowerment, professional leadership, networks and strategic alliances</li> <li>Occupying positions on boards of directors of the associations represents a professional status of leadership and specialty of the organization and with it a responsibility with the associates</li> <li>The maximum hierarchical positions in the councils of associations, represent opportunities for leadership of opinion and public agenda</li> </ul>
<b>Skills</b> Skills and passion for identifying what you like to know and do	<ul style="list-style-type: none"> <li>Public relations skills, management of press conferences, writing articles for dissemination in networks and media</li> <li>Empowerment of sectoral programs and public policies that make up the mission of associations and cooperation networks for the benefit of Society, ability to promote an issue on the agenda of public opinion</li> <li>Ability to identify opportunities in public policy programs that may positively influence or disfavor the interests of professional networks and associations and generate positions</li> </ul>
<b>Attitudes</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>Development of principles and values of solidarity, companionship, collaboration for charitable purposes, pursuit of the common good</li> <li>Enhancement of the profession, specialty in the topics that affect professional development through training activities, updating, certification of professional skills</li> <li>Leadership with the different generations of the profession, in order to share experiences and good practices that have influenced success factors in society</li> </ul>
<b>Happiness</b> Those activities that we decide to do for pleasure	<ul style="list-style-type: none"> <li>Meet new people and create networks in society</li> <li>Opportunity to create strategic links, key circles in learning, personal growth and professional consolidation</li> <li>Satisfaction for the good done, the contribution to Society through work, collaboration, linkage and management</li> </ul>

Figure 5. QHS Methodology analysis of the systemic impact of Associations on Society

The Associations, Business Chambers and Unions represent the interests of the registered Members, with the objective of developing programs and initiatives for the empowerment and improvement of the discipline and the profession; considering the development of strategic plans as a cross-cutting axis; for the development of linkage projects through mechanisms of articulation with the different sectors of society. The Associations are characterized by the formation of a Board of Directors with a structure managed by democratic elections of its members, typically a structure

of a Presidency, Vice Presidencies, Directors of Commissions or Committees, with periods of 1 or 2 years, which can be re-elected according to their statutes, generating a history of leaders of professionals who are distinguished by their leadership and ability to achieve results in their management.

By successfully and outstandingly developing the performance of responsibilities in professional practice, it is common the transition from exploring the alternatives of selling complementary professional services to a formal position in an organization in a subordinate manner, becoming an expert of specific topics, generates the reflection of valuing changing the role of employability; Offering business consulting services represents a parallel alternative or even the main source of professional performance, when prestige and credibility is the business card of the provision of professional services, problem solving in organizations.

Figure 6 describes the importance of a professional career to build and consolidate an image, style, and credibility, the voice of expert and facilitator of training processes, manager, and advisor of the management group, as an Organizational Consultant to give technical support and coaching to the staff group, as well as a management group.

	<b>QHS METHODOLOGY</b> systematic analysis of the impact of aCONSULTANT on society				
Systemic Experience	Success factors in development as a consultant of the author of the Methodology QHS (Martinez, 2010)				
<b>CONSULTANTS SECTOR</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>• Training and staff development consultant</li> <li>• Certified Consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Telecommuting Consultant</li> <li>• ISO Systems, Safety and environment Consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant in certification of labor and professional skills, analysis of the crossing and generational change</li> </ul>	<ul style="list-style-type: none"> <li>• Corporate governance and supply chain Consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant in development of economic ecosystems with the QHS methodology (Systemic integration)</li> </ul>
<b>Knowledge</b> Development and understanding of the theories and principles of the sciences	<ul style="list-style-type: none"> <li>• Knowledge of legal framework, legal compliance in companies, training and development systems as a professional profile</li> </ul>	<ul style="list-style-type: none"> <li>• Empowerment to work remotely, development of macro processes to develop quality management systems (ISO), safety, hygiene, environment, corporate governance and supply chains</li> </ul>	<ul style="list-style-type: none"> <li>• Consultancy in development of models and systems of labor, professional and research competencies at national and international level, under the QHS methodology</li> </ul>		
<b>Skills</b> Skills and passion for identifying what you like to know and do	<ul style="list-style-type: none"> <li>• Ability to make systematized and agile models to develop diagnoses and executive reports that become projects</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to communicate multidisciplinary, in transversal issues in organizations for purposes of responding to legal compliance audit processes</li> </ul>	<ul style="list-style-type: none"> <li>• Communication skills with expert opinion on specialty topics as a national and international consultant</li> </ul>		
<b>Attitudes</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>• Understanding of knowledge to help those who need to understand and solve areas of opportunity in professional practice</li> </ul>	<ul style="list-style-type: none"> <li>• Mind open to multidisciplinary work to develop eclectic initiatives for the benefit of collaborative work and contribution to the common good of Society</li> </ul>	<ul style="list-style-type: none"> <li>• Empathy for the training of new generation of consultants and transmission of experiences of how it is done, to optimize learning curves</li> </ul>		
<b>Happiness</b> Those activities that we decide to do for pleasure	<ul style="list-style-type: none"> <li>• Satisfaction for helping to solve problems or areas of opportunity in organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Satisfaction for developing and perfecting intervention methodologies for consulting as a style and own brand</li> </ul>	<ul style="list-style-type: none"> <li>• Satisfaction for developing research mechanisms to contribute to the development and integration of all actors in society</li> </ul>		

Figure 6. QHS Methodology analysis of the systemic impact of a Consultant on Society

The consulting sector is one of the most diverse labor markets in the business and professional services sector, there is great demand for professionals who have the main skills of a consultant that are essential to grow business and profitability.

Knowledge and skills to perform successfully in the different branches of consulting; technical knowledge, strategic research at the corporate level, specialists must know in depth the following aspects: government fiscal policies, corporate responsibility and governance, and functional and organizational strategies, Internal financial policies, a quantitative analysis regulatory application, Federal Labor Law, Payroll and income taxes (ISR), Professional training programs, Labor benefits and benefits, Vacations and vacation premium, Financial consulting, Promotion and marketing, Distribution and supply chain, Capital allocation, Risk management, Purchases and acquisitions, Investments and mergers, Productivity and profitability, IT Consulting, Computer networks, Migration to the cloud, Digital transformation, System Integration, Data Science, Forensic Technology, Protection against cyberattacks. In the environment of the most outstanding consulting services and firms and international prestige, the profiles of the consultants are supported by the following characteristic aspects in the resume and professional career:

#### 1. Academic success

It is essential in specialized consulting roles. The academic record supports the ability to learn, the willingness to grow, two key attributes in a consultant. A strong record of school results, performance at different grade levels; Higher education levels, postgraduate or recognitions and distinctions, demonstrate the ideal profile to be a consultant.

#### 2. Work experience

To work as a consultant, you must have a proven work and professional career, consulting companies select professionals who have successfully performed in companies with outstanding results and impacts. Therefore, work experience in data analysis, information presentation skills, teamwork, are impact factors.

#### 3. Leadership

Leadership is an elementary characteristic of a consultant, consulting companies are looking for people who can thrive, lead a team and face challenges.

#### 4. Attention to detail

A criterion of success in consulting demonstrates attention to detail and high standards of quality, continuous improvement, ease of structuring ideas, writing and explaining and listening.

#### 5. Troubleshooting

To show aptitude for analysis and critical thinking, application of the scientific method to solve problems, develop team relationships and integrate high performance teams. Document cases and success stories as a curricular reference to train new generations of human talent in consulting services.

## 6. Commercial awareness

Consultants develop skills to efficiently understand the fundamentals of an industry and the requirements of legal compliance and with it the identification of gaps to create key consulting services, including anticipating in preparing for the challenges that will be part of the agenda of the future in society, such as sustainable development (SDG) and green energies.

## 7. Natural communication

The written and verbal communication skills are success factors of a consultant to effectively transmit and influence an innovative idea in different contexts in society.

## 8. Self-awareness

The capacity for self-reflection and availability to optimize areas of opportunity to constantly improve. A consultant never stops learning.

## 9. Teamwork

The skills of teamwork and autonomy are key, the consultant must know how to delegate to his team of consultant's activities and promote high performance results highlighting and recognizing individual performance, giving fair credit to each member of his work team, promotion of performance and productivity indicators.

## 10. Interpersonal relationships

Consultants must develop empathy and charisma skills to generate and develop the ability to build relationships at all levels of an organization and generate new networks.

Figure 7 describes an example of professional and academic trajectory, collaboration in associations and consulting with government institutions through linkage and collaboration in public program activities under the modality of research, training, advisory and evaluation projects of public programs with an impact on society.

<b>Systemic Experience</b>	<b>Success factors of the link with the government of the author of the Methodology QHS (Martinez, 2010)</b>		
<b>GOVERNMENT SECTOR</b> Contribution of experience and intellectual capacities to society	<ul style="list-style-type: none"> <li>Honorary President of the Commission for the Promotion of the Social Economy</li> </ul>	<ul style="list-style-type: none"> <li>Member of the Subcommittee on Economy, Tourism and Border Affairs</li> <li>Verifier of the Municipal Development Agenda</li> </ul>	<ul style="list-style-type: none"> <li>Head of the Social and Solidarity Economy Development Node (NODESS)</li> <li>Researcher with research projects with links to local, state and federal government institutions</li> </ul>
<b>Knowledge</b> Development and understanding of the theories and principles of the sciences	<ul style="list-style-type: none"> <li>Knowledge of public administration of local, state and federal government, for the management of public policy programs for the benefit of society</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of how the initiatives that will become public policies are developed in the national development plan, state development plan and municipal development plan</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of the development of consultation forums and working groups to form sectoral initiatives to create a municipal development plan and strategic plan</li> </ul>
<b>Skills</b> Skills and passion for identifying what you like to know and do	<ul style="list-style-type: none"> <li>Ability to manage linkage and collaboration projects with local government institutions</li> </ul>	<ul style="list-style-type: none"> <li>Ability to communicate and propose proposals with state government through the institutional articulation</li> </ul>	<ul style="list-style-type: none"> <li>Ability to collaborate in working groups with the federal government under the criteria and opinion of sector expert and researcher</li> </ul>
<b>Attitudes</b> Professional leadership and expert voice	<ul style="list-style-type: none"> <li>Development of the sense of identification of priorities of political issues in the local public agenda</li> </ul>	<ul style="list-style-type: none"> <li>Sensitivity in the management of opportunity to insert issues of impact for society in the state public agenda</li> </ul>	<ul style="list-style-type: none"> <li>Conviction to promote projects and initiatives of social impact through the development of sustainable development ecosystems</li> </ul>
<b>Happiness</b> Those activities that we decide to do for pleasure	<ul style="list-style-type: none"> <li>Satisfaction for being a Member of the National System of Researchers Level 2 distinction granted by the Government of Mexico for achieving original, recognized, appreciable and consistent research, as well as in the formation of scientific community</li> <li>To be a Professor and Researcher at National Technology of Mexico, the largest public institution of Higher Technological Education in Mexico</li> <li>Contribute to the formation of current and future generations of citizens who will enlarge each sector of society</li> </ul>		

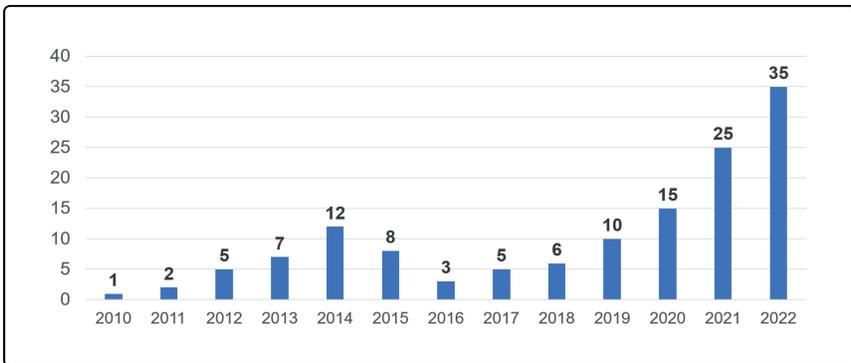
Figure 7. QHS Methodology analysis of the systemic impact of linkage with Government on Society

The main competencies characteristic of success in performing as an employee or public servant; is to be a Motivator; to ensure that institutional objectives are met on the scheduled date. Promoter of dialogue; In the public sector, it is necessary to reach consensus quickly and move projects forward. Capacity for Serenity; ability to remain calm and not transmit despair and intelligent decision making. Focus on results; ability to meet objectives and goals. Knows how to delegate; ability to empower the team of collaborators.

In the management of the public administration one of the most important challenges is the fulfillment of programs of impact on society, specifically medium and long-term programs, which require mechanisms of linkage and articulation with the different sectors of society, in this sense the QHS Methodology has represented a strategic tool to shape projects that affect initiatives of the global agenda as is the case of the 2030 Goals of the UN through the Sustainable Development Goals (SDGs), an issue that has generated various initiatives in government institutions, and require support to develop melting pots, development of ecosystems that combine talent, the experience of representatives of government institutions, academics and researchers from institutions of different educational levels, entrepreneurs, leaders of associations, business chambers, unions and specialized experts from consulting firms, all united through the QHS Methodology for the benefit of the development of program initiatives that integrate all the minds of the different generations in society, seeking harmony, happiness through the common good, united by the development of talent management in society.

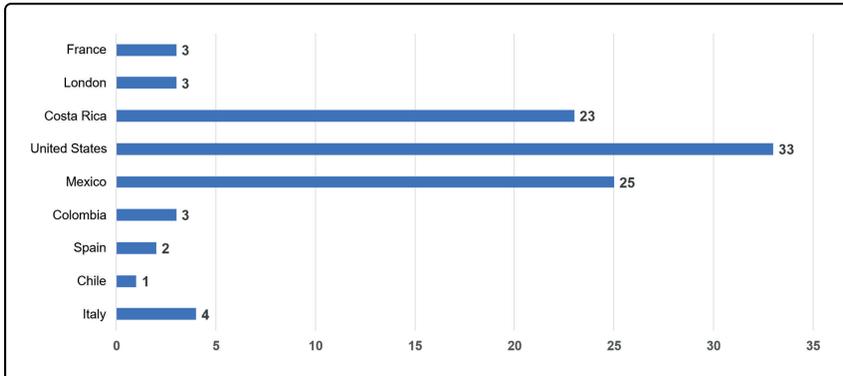
### 3. RESULTS

The findings of bibliographic traceability of actions developed since 2010 includes publications, articles, research projects, conferences, book chapters, as well as books are reflected in Graph 1, academic works and research, were developed product of the inspiration of the doctoral thesis work initiated in 2008, and presented in 2012, that was oriented to the study of the sectorial development and the factors that determine the systemic competitiveness in the electronic industry, specialized in the development of audio and video products, industry that characterizes the development of the border city of Tijuana, Baja California, Mexico. Doctoral research generated the bases of the proposal of the QHS Methodology, which focuses on the analysis of public policies that affect the success factors of an ecosystem of progress and development of a city, and replicable development model.



Graph 1. Report on publications on QHS Methodology

The bibliometric analysis of international publications presented in Graph 2 is linked to the challenges of publishing in prestigious journals and publishers, recognized by the authorities of the National System of Researchers in Mexico, to maintain high quality indicators in scientific research.



Graph 2. International publications on the QHS Methodology

In 2010, within the framework of the presentation of a preliminary advance of the results of the proposal of the QHS Methodology, we participated in a Congress of Public Policies, in the Benemerita Universidad Autonoma de Puebla (BUAP), in the Congress of the Network of Municipal Studies (Red-Mun), where the Authorities of the Center for Research and Training in Public Administration (CICAP) of the University of Costa Rica were known, generating an invitation for a Doctoral Stay, and later in 2012, a Postdoctoral Stay; with activities of linkage and international cooperation with universities in Mexico, Colombia, Panama, Peru, Brazil, Uruguay, Cuba, Chile, Argentina and Spain.

In 2011, the international link and cooperation with the University of Costa Rica continued, generating participation as Guest Professor of Mexico, in the Center for Research and Training in Public Administration (CICAP) and the School of Chemical Engineering, carrying out activities of Conferences on the QHS Methodology, to Students, Professors and Researchers. Likewise generating the bases of Institutional Cooperation between Universities of Mexico and Costa Rica.

The year 2012 [1-4] was the official beginning of the Postdoctoral Stay of six months that became more than six years, generating a great life experience and an excellent conviction of factors for the development of the laboratory ecosystem to replicate projects of the QHS Methodology in different sectors of Costa Rican Society, from the research area at the Center for Research and Training in Public Administration of the University of Costa Rica.

2013 [5] was a year of implementation of actions and research projects that would have the QHS Methodology as a key axis in the development of the bases of a strategic plan, called Project-Country "National System of Labor Competencies", a

Research Project aligned from the University of Costa Rica, to cement the foundations of a Seed Group, to be trained, evaluated and certified as an Instructor, Evaluator and Methodology of Competences, according to the requirements of the Organization for Economic Cooperation and Development (OECD), likewise under an international cooperation agreement with the Technological University of Tijuana (UTT and CECLUTT) and the National Council for Standardization and Certification (CONOCER) of the Government of Mexico. Creating the Project of the First Evaluation Center of Labor Competencies outside Mexico, and later the First Certification Entity of Competencies of the University of Costa Rica (CECLUCR).

In 2014 [6]; research, training and the development of focus groups of the QHS Methodology were replicated; oriented to the construction of the great Carpentry, in a figurative sense of the development of projects of Standards of Labor and Professional Competences necessary for each sector of Costa Rican society, from initiatives of final projects of graduation (TFG) of bachelor's, master's level and doctoral level ; projects aimed at Public and Private Sector Institutions and Organizations; the first draft of the Labor Competence Standard was oriented to the Customs sector, in the function of "Verification of goods in customs warehouses" which was carried out under a process of the QHS Methodology; involving specialists of government representatives Specialists of the Customs Sector, Professors of the Customs subject, Specialists of the College of Professionals and Consultants of the Customs subject, to determine the Knowledge, Skills and Attitudes for the functions of the design and proposal of the Standard of Labor Competition.

In parallel, to the development of research activities, linkage activities were developed with other universities to generate international projects of Competency Standards through the QHS Methodology, generating linkage initiatives between the Universities of Costa Rica (CICAP-UCR), University of Guadalajara, FUNDESCO of Argentina and CONOCER of Mexico, for the development of Competency Standards in Teleworking or remote work.

During the years 2012 to 2014; progress was made in the process of dissemination, training and the activities of the research project "National System of Competences of the Cultural Sector"; in this project I replicate the awareness efforts of the Seed Group involved in the empowerment of Architecture for the Development of Standards of Labor Competencies, venturing into the Development of the Standard of Competencies for the "Theater Management", later other topics were analyzed such as: Management in Museums, Management of the Social Promoter, Management of the Music Promoter, Standards of Competences for issues of formation and development of Young people in football teams, Standards for Teaching Sign Language, Communication Standards, involving specialists in Radio and Television communication. Initiatives of Standards of Competences for Traffic Officers, Standards of Competence for Activities of Psychologists, Standards of Competences for activities of Selection and Recruitment of Personnel in Institutions of the Public Service.

The research project called CECLU CR (Center for Evaluation of Labor Competence of the University of Costa Rica), generated linkage initiatives with the University of Panama, creating a preliminary project to replicate the CECLU CR Project in the School of Public Administration of Panama, as a product of linkage activities and international cooperation in the region of Central America and Panama.

As a strategy to cement the research advances developed through the QHS Methodology, a book chapter "Definition of labor competencies in the Public Administration through the QHS Methodology" was published with the Academic Body called: Research Group in Systems and Tourism of the National Polytechnic Institute (IPN) of Mexico City. Likewise, another chapter of the book "Veins for Future Research" of the QHS Methodology in the Cooperative Sector and Social and Solidarity Economy, published by the Institute of Studies of the Public Ministry (IEMP) of the Ministry of Labor of the Republic of Colombia, was published. Within the framework of the dissemination activities, articles were published in the Journal of the General Directorate of Civil Service of the Presidency of Costa Rica, reflecting the progress of the Research Project of a Plan of a National System of Labor Competencies and its strategic components as a roadmap to achieve cement a Project-Country towards competitiveness through the management of human talent trained at different educational levels and the recognition of knowledge, skills and attitudes in public and private sector personnel.

In 2014 [7] an article was published in a Journal Specialized in Competitiveness Studies in the United States of America, highlighting the key elements of the QHS Methodology to determine the key factors of success in sector development.

By 2015 [8] it had participated in dissemination and dissemination activities in universities in Costa Rica, Panama, Mexico, Chile, Spain, and the Dominican Republic, through the Telework Skills Standard Project, involving master's and doctoral students, through the QHS Methodology, generating publications of articles,

The Postdoctoral Stay at the Center for Research and Training in Public Administration of the University of Costa Rica, ended in 2016, generating a series of contributions documented in a final report, which recorded publications, research projects as principal investigator and collaborator, advisor and tutor of final graduation works (TFG) of undergraduate level, Master and doctorate, link with different educational institutions in Costa Rica, such as the Technological Institute of Costa Rica (ITCR), National Technological University (UTN), State Distance University (UNED), National University of Costa Rica (UNA) and the University of Costa Rica (UCR), where he obtained the Academic Doctorate and the Postdoctoral Stay, as well as a great link with Universities of Panama, Colombia, Peru, Cuba, Guatemala, Argentina, Uruguay, Puerto Rico, Dominican Republic and Spain.

Upon returning to Mexico, after the Postdoctoral Stay in Costa Rica, he participated during 2017 at the Technological University of Tijuana (UTT) as Coordinator of Academic Mobility and Situational Work Analysis (AST), developing the pertinence studies of each study program of engineering careers with the QHS Methodology, to identify the graduation competencies versus the requirements of the representatives of the sectors interested in hiring. of graduates.

He continued with the participation in international events and involvement in specialized research networks such as the International Network of Research in Competitiveness of the University of Guadalajara (RIICO), the collaboration in the Mexican Association of Training and Personnel Development (AMECAP) as Vice President of Research and International Liaison for projects of design, development, and certification of labor competencies.

Likewise, at the end of 2017 [9], the invitation was received from the Director of the Technological Institute of Tijuana, to participate as Graduate Coordinator, of the master's in administration of the Division of Graduate Studies and Research, within the Department of Economic and Administrative Sciences. Initiating in parallel the Project of Certification of Labor, Professional and Research Competencies for Logistics Engineers, as an initial part, to later move to other educational programs, from research projects, involving Social Service activities, Professional Residencies, equivalent to final graduation works (TFG) or bachelor's and master's thesis. Using the QHS Methodology.

For the year 2018 [10], the development of the accreditation of the Verification Unit of the Municipal Development Agenda (ADM) was promoted, for the Master's Program in Administration of the Technological Institute of Tijuana (ITT), generating initiatives of Standards of Competences with the QHS Methodology for the public sector. Parallel to the development of the verification processes of the progress of compliance with the programs of the Municipal Development Plan in the Municipalities of the State of Baja California, in coordination with the Government of the State of Baja California and the Liaison with the National Institute of Municipal Development (INAFED) of the Ministry of the Interior of the Federal Government of Mexico. This experience of evaluation in the Municipality generated the bases of Lines of Research and Application of Knowledge to form an Academic Body with official registration at the national level through the Ministry of Public Education and the National Technology of Mexico (TecNM).

During the year 2019 [11-19] he advanced with the activities of linkage and international cooperation, participating as Co-director of doctoral thesis at the State Distance University (UNED) applying in the thesis project the QHS Methodology, focused on the identification of success factors in companies in the health sector in

Costa Rica. In this same year 2019, the administrative management for the Recognition as a Full-Time Professor (PTC-PRODEP) distinction granted by the Ministry of Public Education was carried out to manage research projects and form Academic Bodies with lines of research related to the profiles of Professors and Researchers that make up a research group.

Already in 2020 [20-27], a curriculum had been consolidated as a Professor and Researcher with evidence, trajectory and specialty in research on issues of competitiveness, labor skills, professionals and research, teleworking, corporate governance, safety and hygiene, supply chains, quality, ISO9001, ISO14001, ISO19011, as well as Mexican Standards (NMX), and properly as Author of the QHS Methodology, the registration of the Academic Certification was processed before the National Association of Schools and Faculties of Accounting and Administration (ANFECA), achieving the Academic Certification (2020-2023).

In 2021 [20-25], the QHS methodology; was linked to the development of projects of linkage and sectoral articulation, in the framework of the activities of Scientific Research Projects registered and authorized by the National Technological of Mexico, the national impulse of the PRENODESS Project linked to the Thematic Line: FOOD SOVEREIGNTY of the National Strategic Programs (PRONACES) of CONACYT of the Federal Government of Mexico. For the formation of the Strategic Allies of the Social and Solidarity Economy Nodes (NODESS), the QHS Methodology was promoted, to encourage sectoral integration, convening representatives of all sectors of society; Social Sector, Cooperatives, Institutions of Upper and Higher Education, Association of Cooperatives, Consultants and Local Government Institutions. Project specialized in the sector of the Dough and Tortilla Industry in the city of Tijuana, Baja California. The programs of activities of Social Services developed in the Department of Administrative Economic Sciences, were designed with field activities with social economy companies for interview processes, development of surveys for the systematization and mapping of the information of the projects with a focus on the QHS Methodology, research projects registered nationally in National Technology of Mexico.

- Observatory of the Integration of Engineering to the Economic Development Ecosystem of the Baja California Peninsula
- Observatory of sustainable development in graduate programs in Baja California.

For the years of 2022 and 2023 [26-29], the QHS methodology was disseminated in national and international conferences, in research projects, theses, publications and methodological strategies of integration and sectoral articulation, as is the case of the NODESS Project (Development Nodes of Social and Solidarity Economy), first NODESS

in a border city in northern Mexico, to manage Social Service activities of students of the Careers of Engineering in Logistics, Engineering in business management, Bachelor of Administration, Bachelor of Accounting and Master in Administration programs for the benefit of society. In the postgraduate in administration of the Technological Institute of Tijuana, the house of the QHS Methodology, different applied research projects have been developed from the postgraduate students with the aim of creating and promoting initiatives of Mexican standards and standards of labor competencies to certify personnel; Some of the research projects linked to the service industry of the Supply Chain, Innovation and Sector Development with the QHS Methodology are:

- QHS methodology for strategic planning, KPIs and talent management in cross-border transport drivers
- Administration of Operations and Quality Systems with Social Responsibility in Customs Agency
- QHS methodology for Business Intelligence with CRM in Warehouse and Foreign Trade Logistics
- QHS methodology to develop competency standards for talent management in customs agency
- QHS methodology for management and finance models in Foreign Trade Supply Chain Business
- QHS Methodology to innovate the Value Chain in the Supply Chain

#### **4. CONCLUSIONS AND REFLECTIONS**

The account of the trajectory of a systemic life [30-42], is the purpose of the article entitled "QHS Methodology applied to professional growth with impact on society," work and study, be part of the Society that made up Generation X, which is characterized by the effort and pride of getting ahead despite the challenges and limitations. It makes us reflect on some principles; "In life we cannot give what we do not have", as well as "Knowledge, generates knowledge."

At present, after a professional exercise of more than twenty-five years in the industry and twenty years as a Professor and Researcher of Bachelor's, Master's and Doctoral level, with links in the public and private sectors, nationally and internationally, it is concluded that the benefits of the competences of human relations, communication, management of specialized talent, Public relations, inter-institutional linkage and cooperation, and constant professional updating in cutting-edge issues generate a competitive advantage for professional development, and with it conditions for the empowerment and achievement of the different goals and objectives set in life, including those that generate happiness and harmony,

because “We always end up doing what we like in life, Let’s do it right and create a legacy in life.” I thank the distinction granted by the Mexican Institute of Leaders of Excellence (IMLE), the Doctorate Honoris Causa, for the Professional, Academic and Research Trajectory, as well as the Students of the Generation of the Doctorate in Business Administration for granting me the distinction of being “Godfather of Generation” at the Escuela del Pacifico, Universidad de Negocios, in Tijuana, Baja California, Mexico.

At the end of 2022, the maximum distinction of the Government of Mexico as a Member of the National System of Researchers at Level 2 is achieved, for developing original, recognized, appreciable and consistent research, as well as for the training and contribution to the scientific community at national and international level.

During the year 2023, development of conferences on the impact of Public Policies of Sectoral integration, account of the actions carried out between the Technological Institute of Tijuana, campus of the National Technological of Mexico, with the three levels of government, in especial with the Municipal Government of Tijuana, the intervention Professors and Graduates. The need for articulation to achieve competitive processes with the QHS Methodology is evident. In international competition, Mexico occupies the 37th position, in the range of low competitiveness, so it is urgent to have greater and better dynamics of higher education institutions in coordination with the business and government sectors, to achieve real progress in the three Mexico’s; the north, center and south.

Figure 8 exemplifies the adaptation of the QHS methodology in an applied research project to generate eclectic models, uniting the knowledge, skills and talent of the different sectors of society; as is this case study; Academic representatives and researchers from universities and innovation and research centers of universities, companies in the supply chain and foreign trade logistics, opinion leaders of customs agency associations and consultants specialized in specialized talent management, to create Mexican standards and standards of competencies to certify human talent.



## QHS Methodology to develop NMX for Supply Chain and Logistics Businesses

QHS (Quinta Hélice Sistemática) in Spanish means: Systemic Fifth Helix Methodology, by Rodolfo Martínez-Gutiérrez (Mexico, 2010)

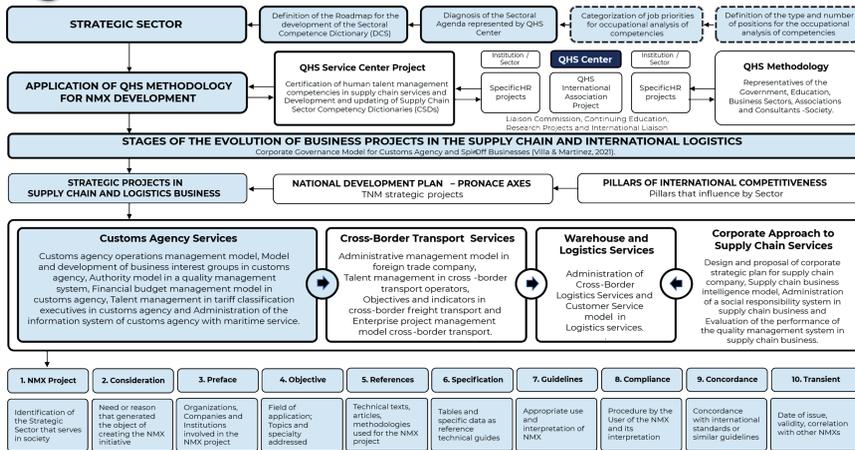


Figure 8. QHS Methodology to develop NMX for Supply Chain and Logistic Business

## REFERENCES

**Journal article (published):** [1] Martínez-Gutiérrez, R. (2012), Quinta Hélice Sistemática (QHS), un método para evaluar la competitividad internacional del sector electrónico en Baja California, México. *Investigación Administrativa*, 110 34-48. Available from: <https://www.redalyc.org/articulo.oa?id=456045338003>

**Journal article (published):** [2] Martínez-Gutiérrez, R. (2012), Quinta Hélice Sistemática (QHS), un método para evaluar la competitividad internacional del sector electrónico en Baja California, México. *Revista Investigación Administrativa*, no. 110, p. 34. Gale OneFile: Informe Académico. Available from: <https://go.gale.com/ps/anononymous?id=GALE%7CA405170452&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=18706614p=IFME&sw=w>

**Journal article (published):** [3] Martínez-Gutiérrez, R. (2012), Quinta Hélice Sistemática (QHS), un método para evaluar la competitividad internacional del sector electrónico en Baja California, México. *Investigación administrativa*, 41(110), 34-48. Available from: [http://www.scielo.org.mx/scielo.php?script=sci\\_arttext&pid=S2448-76782012000200034&lng=es&tlng=es](http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S2448-76782012000200034&lng=es&tlng=es)

**Journal article (published):** [4] Martínez-Gutiérrez, R. (2012), Quinta Hélice Sistemática (QHS), un modelo para el desarrollo de políticas públicas. *Cooperativismo y Desarrollo* 20 28-51. Available from: <https://repository.ucc.edu.co/items/e229f6a2-9338-4564-b9cb-eeefac4974229/full>

**Journal article (published):** [5] Martínez-Gutierrez, R. (2014), Methodology of the Fifth Systemic Helix for the development of public sector policies. *Journal of Competitiveness Studies* 22(3-4) 147. Available from: <https://www.thefreelibrary.com/Journal+of+Competitiveness+Studies/2014/September/22-p54549>

**Journal article (published):** [6] Martínez-Gutierrez, R. (2012), Quinta Hélice Sistémica (QHS), Un modelo para el desarrollo de políticas públicas, *Cooperativismo & Desarrollo*, ISSN 0120-7180, 20(101). Págs. 28-51. Available from: <https://repository.ucc.edu.co/handle/20.500.12494/11840?locale=en>

**Thesis:** [7] Parra Gaviño, G. (2015) Competitividad de PYMES de autopartes mexiquenses, basada en su vinculación con el sector académico y articulación con el sector gubernamental – Tesis Doctoral, (Instituto Politécnico Nacional, Escuela Superior de Comercio y Administración Unidad Santo Tomás, Ciudad de México). Available from: <https://tesis.ipn.mx/jspui/bitstream/123456789/25028/1/DCA2015%20P343g%20Gilberto%20Parra%20Gavi%C3%B1o.pdf>

**Thesis:** [8] Vergel Torrado, M.M. (2015) Diseño de una Herramienta Estratégica para la Gestión de las Relaciones Interinstitucionales de la Universidad Santo Tomás– Seccional Bucaramanga, Colombia (Tesis). Available from: <https://repository.usta.edu.co/bitstream/handle/11634/1793/2016-VergelTorradoMelissa%20Margarita-rabajo%20de%20grado.pdf?sequence=1>

**Journal article (published)** [9] Torres García A. F, Cruz Chávez G. R. y Romero Martínez S. L. (2017) Exportación y dinámica poblacional en los Estados de Baja California, México y California, Estados Unidos. *Revista Global de Negocios* 5(4) 69-80 2020 International Symposium on Water, Ecology and Environment IOP Conf. Series: Earth and Environmental Science 690 (2021) 012061 IOP. Available from: <http://theibfr2.com/RePEc/ibf/rgnego/rgn-v5n4-2017/RGN-V5N4-2017-6.pdf>

**Journal article (published):** [10] Silva Atencio, G., and Li Bonilla, F. (2018) Un método para evaluar la competitividad del teletrabajo profesional *Revista Nacional de Administración* 9(2) 105-137. Available from: <https://pdfs.semanticscholar.org/5549/6ba3c4a88b0c73c0af5b0240dcf4e0558956.pdf>

**Book chapter:** [11] Solis-Quinteros M.M., Avila-Lopez L.A., Zayas-Márquez C., Carrillo-Gutierrez T., Arredondo Soto K.C. (2019) Analysis of the Technological Capability of Linking SMEs in the Electronic Sector to Integrate into the Maquiladora Industry Electronic Sector in Tijuana, Baja California, Mexico. In: Karwowski W., Trzcielinski S., Mrugalska B. (eds) *Advances in Manufacturing, Production Management and Process Control*. Available from: [https://doi.org/10.1007/978-3-030-20494-5\\_35](https://doi.org/10.1007/978-3-030-20494-5_35)

**Book chapter:** [12] Deserti Elia Olea. (2019) Dimensiones a considerar en la formación de investigadores. Formar para la investigación. Revista Educa@rnos. Nueva época, Año 9, núm. 36, Enero-marzo 2020 ISSN-2007-1930. Available from: <https://revistaeducarnos.com/wp-content/uploads/2020/01/articulo-elia.pdf>

**Book chapter:** [13] Martínez-Gutiérrez R. (2020) Methodology of Dictionaries of Sector Competences (DCS), to Design Standards of Professional Competences, Research and Labor. In: Nazir S., Ahram T., Karwowski W. (eds) *Advances in Human Factors in Training, Education, and Learning Sciences*. Available from: [https://doi.org/10.1007/978-3-030-50896-8\\_46](https://doi.org/10.1007/978-3-030-50896-8_46)

**Book chapter:** [14] Martínez-Gutiérrez R., Carmona-López M.A., Juárez-Mendoza M.A., Sánchez-Puga O.J. (2020) Professional Competencies and Research to Offer Integrated Manufacturing Systems. In: Mrugalska B., Trzcielinski S., Karwowski W., Di Nicolantonio M., Rossi E. (eds) *Advances in Manufacturing, Production Management and Process Control*. Available from: [https://doi.org/10.1007/978-3-030-51981-0\\_5](https://doi.org/10.1007/978-3-030-51981-0_5)

**Book chapter:** [15] Tapia-González G. (2020) Educational Marketing and Hackathon for Candidate Student Recruitment. In: Kantola J., Nazir S., Salminen V. (eds) *Advances in Human Factors, Business Management and Leadership*. Available from: [https://doi.org/10.1007/978-3-030-50791-6\\_55](https://doi.org/10.1007/978-3-030-50791-6_55)

**Book chapter:** [16] Bonilla-Hernández A.L. (2020) Accountability in Assertive Decisions Making. In: Kantola J., Nazir S., Salminen V. (eds) *Advances in Human Factors, Business Management and Leadership*. Available from: [https://doi.org/10.1007/978-3-030-50791-6\\_18](https://doi.org/10.1007/978-3-030-50791-6_18)

**Webpage:** [17] Martínez Gutiérrez, R. (2020) SciELO Indicadores bibliométricos de revistas indizadas en CLASE y en colecciones de ScieLO, así como Hemeroteca Virtual Latinoamericana de la Dirección General de Bibliotecas de la Universidad Nacional Autónoma de México. Available from: <https://biblat.unam.mx/es/revista/investigacion-administrativa/articulo/quinta-helice-sistemica-qhs-un-metodo-para-evaluar-la-competitividad-internacional-del-sector-electronico-en-baja-california-mexico>

**Webpage:** [18] Martínez Gutiérrez, R. (2022) SciELO Top 100 articles by number of accesses - SciELO Analytics México. *Investigación Administrativa (2448-7678) Quinta Hélice Sistemica (QHS), un método para evaluar la competitividad internacional del sector electrónico en Baja California, México*. Available from: <https://analytics.scielo.org/w/acceses/list/articles>

**Book chapter:** [19] Martínez-Gutiérrez, R., Correa, M.E.S. (2020). Dictionary of Competencies for Sustainable Development in the Municipalities of Northern México. In: Kantola, J., Nazir, S., Salminen, V. (eds) *Advances in Human Factors, Business Management and Leadership*. Available from: [https://doi.org/10.1007/978-3-030-50791-6\\_40](https://doi.org/10.1007/978-3-030-50791-6_40)

**Book chapter:** [20] Martínez-Gutiérrez, R., Carey-Raygoza, C.E., Hurtado-Sánchez, C., Chávez-Ceja, B., Lara-Chavez, A. (2021). Business Management Engineers: Profile and Competencies of Generations X, Y and Z. In: Trzcielinski, S., Mrugalska, B., Karwowski, W., Rossi, E., Di Nicolantonio, M. (eds) *Advances in Manufacturing, Production Management and Process Control*. Available from: [https://doi.org/10.1007/978-3-030-80462-6\\_36](https://doi.org/10.1007/978-3-030-80462-6_36)

**Book chapter:** [21] Martínez-Gutiérrez, R., Ibarra-Estrada, M.E., Hurtado-Sánchez, C., Carey-Raygoza, C.E., Chávez-Ceja, B., Lara-Chavez, A. (2021). Competitiveness and Innovation on the Frontier of Knowledge: 25th Anniversary Postgraduate in Administration TecNM Tijuana. In: Markopoulos, E., Goonetilleke, R.S., Ho, A.G., Luximon, Y. (eds) *Advances in Creativity, Innovation, Entrepreneurship and Communication of Design*. Available from: [https://doi.org/10.1007/978-3-030-80094-9\\_49](https://doi.org/10.1007/978-3-030-80094-9_49)

**Book chapter:** [23] Bonilla-Hernández, A.L., Martínez-Gutiérrez, R. (2021). Innovation in Value Chain in the Medical Tourism Industry in Tijuana, Baja California. In: Goonetilleke, R.S., Xiong, S., Kalkis, H., Roja, Z., Karwowski, W., Murata, A. (eds) *Advances in Physical, Social & Occupational Ergonomics*. Available from: [https://doi.org/10.1007/978-3-030-80713-9\\_65](https://doi.org/10.1007/978-3-030-80713-9_65)

**Book chapter:** [24] Martínez-Gutiérrez, R., Ahumada-Tello, E., Galvan-Sanchez, R., Hurtado-Sánchez, C., Chávez-Ceja, B. (2021). Postgraduate Administration Education: Profiles and Skills Contribution to the Knowledge Society. In: Goonetilleke, R.S., Xiong, S., Kalkis, H., Roja, Z., Karwowski, W., Murata, A. (eds) *Advances in Physical, Social & Occupational Ergonomics*. Available from: [https://doi.org/10.1007/978-3-030-80713-9\\_26](https://doi.org/10.1007/978-3-030-80713-9_26)

**Book chapter:** [25] Martínez-Gutiérrez, R., Solís-Quinteros, M.M., Sánchez-Hurtado, C., Carey-Raygoza, C.E. (2021). Challenges for an Observatory of the 2030 Goals, SDG and Social Economy, in Northern Mexico. In: Goonetilleke, R.S., Xiong, S., Kalkis, H., Roja, Z., Karwowski, W., Murata, A. (eds) *Advances in Physical, Social & Occupational Ergonomics*. Available from: [https://doi.org/10.1007/978-3-030-80713-9\\_24](https://doi.org/10.1007/978-3-030-80713-9_24)

**Book chapter:** [26] Martínez-Gutiérrez, R., Ibarra-Estrada, M.E., Carey-Raygoza, C.E., Hurtado-Sánchez, C., Chávez-Ceja, B. (2022). Observatory of Labor, Professional and Research Competencies of the Economic Sectors in Baja California. In: Ahram, T., Taiar, R. (eds) *Human Interaction, Emerging Technologies and Future Systems V*. Available from: [https://doi.org/10.1007/978-3-030-85540-6\\_164](https://doi.org/10.1007/978-3-030-85540-6_164)

**Book chapter:** [27] Martínez-Gutiérrez, R., Ibarra-Estrada, M.E., Hurtado-Sánchez, C., Carey-Raygoza, C.E., Chávez-Ceja, B. (2022). Observatory for the Integration of Engineering in the Economic Development Ecosystem of the Baja California Peninsula. In: Ahram, T., Taiar, R. (eds) *Human Interaction, Emerging Technologies and Future Systems V. IHiet 2021. Lecture Notes in Networks and Systems*, vol 319. Springer, Cham. Available from: [https://doi.org/10.1007/978-3-030-85540-6\\_162](https://doi.org/10.1007/978-3-030-85540-6_162)

**Book chapter:** [28] Martinez-Gutierrez, R., Solis-Quinteros, M.M., Ibarra-Estrada, M.E., Hurtado-Sanchez, C., Carey-Raygoza, C.E., Chavez-Ceja, B. (2022). Observatory for the Development of 2030 Goals and the Circular Economy in Baja California. In: Ahram, T., Taiar, R. (eds) Human Interaction, Emerging Technologies and Future Systems V. Available from: [https://doi.org/10.1007/978-3-030-85540-6\\_163](https://doi.org/10.1007/978-3-030-85540-6_163)

**Book chapter:** [29] Martinez-Gutierrez R, Marcela Solis-Quinteros M, Esther Ibarra-Estrada M, Ernesto Jimenez-Bernardino (2022) A. Observatory of Sustainable Development in Postgraduate Study Programs in Baja California [Internet]. Sustainable Development. IntechOpen. Available from: <http://dx.doi.org/10.5772/intechopen.104641>

**Book chapter:** [30] Martinez-Gutierrez R, Esther Ibarra-Estrada M, Hurtado-Sanchez C, Galvan-Sanchez R, Ernesto Jimenez-Bernardino (2023) A. Perspective Chapter: Prospective of Sectoral Competences for the Design of Dictionaries of Professional Competences and Research [Internet]. Higher Education - Reflections From the Field [Working Title]. IntechOpen. Available from: <http://dx.doi.org/10.5772/intechopen.109457>

**Webpage:** [31] Martinez Gutierrez, R. (2018) The Tecnológico Nacional de México campus Tijuana was again a special guest at the Competitiveness of the Academic Sector panel in Baja California. Available from: <https://www.tijuana.tecnm.mx/el-tecnologico-nacional-de-mexico-campus-tijuana-de-nueva-forma-fue-invitado-especial-en-el-panel-de-competitividad-del-sector-academico-en-baja-california/>

**Webpage:** [32] Martinez Gutierrez, R. (2022) Origin of the QHS Methodology. Available from: [https://youtu.be/e3M\\_vqURthc](https://youtu.be/e3M_vqURthc)

**Webpage:** [33] Martinez Gutierrez, R. (2023) Importance of bonding, interview in television program Onda UNED, Universidad Estatal a Distancia, Costa Rica. Available from: <https://www.youtube.com/live/CPps2M0D9g8?feature=share>

**Webpage:** [34] Martinez Gutierrez, R. (2022) Conference on Public Policy – QHS Methodology. Available from: <https://www.tijuana.tecnm.mx/presentan-conferencia-sobre-politicas-publicas/>

**Webpage:** [35] Martinez Gutierrez, R. (2022) TecNM campus Tijuana achieves being the first NODESS in the Northern Border of Mexico. Available from: <https://www.tijuana.tecnm.mx/tecnm-campus-tijuana-logra-ser-el-primer-nodess-en-la-frontera-norte-de-mexico/>

**Webpage:** [36] Martinez Gutierrez, R. (2019) ITT collaborates in Social Economy Commission of the Ecosystem for Economic Development of Tijuana. Available from: <https://www.tijuana.tecnm.mx/%EF%BB%BFitt-colabora-en-comision-de-economia-social-del-ecosistema-para-el-desarrollo-economico-de-tijuana/>

**Webpage:** [37] Martinez Gutierrez, R. (2020) Master in Administration participates in the Consultation Forums for Municipal Development Plan 2020-2021. Available from: <https://www.tijuana.tecnm.mx/maestria-en-administracion-participa-en-los-foros-de-consulta-para-plan-municipal-de-desarrollo-2020-2021/>

**Webpage:** [38] Martinez Gutierrez, R. (2022) TecNM Tijuana will install first NODESS in the Northern Border region. Available from: <https://www.tecnm.mx/?vista=noticia&id=2861>

**Webpage:** [39] Martinez Gutierrez, R. (2023) Environmental Education Committee in Baja California. Available from: <https://www.tijuana.tecnm.mx/actualizacion-del-comite-de-educacion-ambiental-sep-semarnat-en-baja-california/>

**Webpage:** [40] Martinez Gutierrez, R. (2022) Executive Committee of CIRIEC – International Centre for Research and Information on the Public, Social and Cooperative Economy. Available from: <https://ciriemex.mx/com-ejecutiva-ciriec/>

**Book chapter:** [41] Martinez Gutierrez, R. (2015) Methodology of the Fifth Systemic Helix for the development of public sector policies. In: Sanchez Gutierrez, J.; Vargas Barraza, J.A. Competitiveness Business Models, innovations, and systems. American Society for Competitiveness. USA. Available from: [https://www.cucea.udg.mx/sites/default/files/documentos/adjuntos\\_pagina/business\\_models\\_customer\\_needs\\_and\\_innovation\\_management.pdf](https://www.cucea.udg.mx/sites/default/files/documentos/adjuntos_pagina/business_models_customer_needs_and_innovation_management.pdf)

**Authored book:** [42] Martinez Gutierrez, R. (2022) Employability observatory: students and graduates. Ebook. Available from: <https://atenaeditora.com.br/catalogo/ebook/observatorio-de-empleabilidad-estudiantes-y-graduados>

**Book chapter:** [43] Martinez-Gutierrez, R., Graciela Barreto-Canales, I., Lucas-Bravo, G., & Moreno-Cabral, S. (2025). SDG Voluntary Local Reports (VLRs): Analysis of Glocal Sustainable Innovation. IntechOpen. doi: 10.5772/intechopen.1009029 Available from: <https://www.intechopen.com/chapters/1206648>