

THE MAKING UP OF A TERRITORIAL INSTITUTIONAL SYSTEM IN TWO MEXICAN REGIONS RELATED TO THE EXPORTATION MAQUILA INDUSTRY

Mónica Casalet Ravenna, Ph.D.¹

I. INTRODUCTION

The purpose of this work is to examine how inter-institutional networks are being created in two regions of Mexico, Jalisco and Chihuahua, which show some similar and other dissimilar traits in their decentralizing efforts and in the establishment of a development strategy based on actions agreed upon by various social actors. Throughout three decades, the localization in these regions of the electronic exporting sector has expanded entrepreneurial learning abilities and the sophistication of the productive nexus.

Among the various phenomena and actors that account for this synergy, there is an outstanding factor –the action of political groups which, in coordination with local enterprise forces, succeed in bringing about political projects of regional development, and undertake decentralized production promotion programs and tools to address local demands. The institutional structure of the region is thus gradually modified, and the functions of the public sector are slowly changed into active roles that result in restructuring old and creating new modernization-oriented institutions. Alliances and coordinating relationships with the private sector are favored so as to support integration with local suppliers and encourage exchanges with academic, enterprise, and technological institutions that strengthen social capital embeddedness. These efforts are accompanied by the new role of academic and technological training institutions which, since the nineties, have tried to reformulate their curricula to address the latest production demands of the exportation maquila industry.

The changes both regions have undergone involve multiple actors with different proportions of power who negotiate their stances and new positions in the local institutional structure through these new networks creating a new external and internal environment (Boisier, S. 1999). The new internal environment involves the articulation degree of civil society organizations, and to the kind of exchanges they carry out which, of course, are a direct reflection of their controversial or cooperative nature. (Boisier, S. 1999)

Hence, the purpose of this work is to identify the changes promoted through government development plans in these two Mexican states (Chihuahua, Jalisco), and aimed at attracting international investment and integrating it in the regional

¹ Professor and researcher, Facultad Latinoamericana de Ciencias Sociales, Mexico. The present paper is part of a research work included in the CONACYT-funded Project "Aprendizaje Tecnológico y Escalamiento Industrial: Perspectivas para la Generación de las Capacidades Tecnológicas en Empresas Maquiladoras de la Frontera Norte" (Technological Learning and Industrial Scaling up – Prospects for Generating Technological Capabilities in Maquila Enterprises from the Northern Border).

economy. The counterpart of such efforts may be found in the new support from the private sector, especially in new private-private and public-private agreements established by bridge institutions and national and regional enterprise associations, which foster a thriving service market (Casalet, M. 2000), multiply enterprise networks, and establish quality programs for suppliers.

Modernization processes have had significant effects, since they changed operational market procedures increasing openness and competition and introducing relevant changes in production and the enterprise nexus itself. However, the contribution of such changes to the consolidation of the civil society is rather superficial, since the imprints of old practices cannot be removed through institutional actions, nor can they be overcome by adhering to free trade agreements. The aftereffects of a deeply-rooted mistrust of anything public may be detected in the general outlook on the public sphere and the civil society, and they cannot be wiped out by merely implementing development programs.

II. RELEVANCE OF THE TERRITORIAL DIMENSION

Since the 1980's, the relevance of the external environment has been explored widely in economic and sociological literature, and further examined in studies about successful international experiences (Salais, R. and Stoper, M., 1993, Becattini, G. and Rullani, E. 1996; Scott, A. 1998/1999, among others). These works indicate a marked trend favoring approaches that are not based so much on static advantages, but rather on a dynamic organization along path-dependent stabilized patterns (Becattini, G. and Rullani, E. 1996; Krugman, P. 1995). Thus, present structures may be explained in evolutionary terms, not so much as a result of rational choices and effectiveness but rather as more or less causal mutations which have been selected over time, and further amplified by the accumulation mechanisms characteristic of any system.

The territory itself is a geographical area where some actors make decisions about investments and the localization of productive activities. It is, somehow, an organization in which actors interact and exchange goods, services, and knowledge according to specific rules (Casalet, M. 2000; Vázquez B. 1998; Poma, L. 2000; Yoguel, G. 2000).

Among actors with a significant role, the following may be mentioned: government agencies, universities, agencies devoted to establishing quality standards, think tanks currently centered around national and international consultants, institutions dedicated to technical training delivering specialized training courses and education, which carry out research and offer technical support.

In his analysis of the Silicon Valley Saxenian (Saxenian, A. 2000) emphasizes the existence of an enterprise system closely related to both the external nexus and local institutions. The geographic localization operates as a socioproductive infrastructure where communication exchanges among economic agents are

effectively and flexibly carried out. Collective learning processes, opportunities for mutual affluence, the opening-up of the labor market, the strengthening of cooperative processes, and a highly competitive dynamics are all stimulated by the networks that make up the industrial system. (Casalet, M. 2000).

Despite path diversity, local development efforts in advanced countries (Albuquerque, F. 2002; Maillat, D. 1995; Scott, A. 1999; Poma, L. 2000; Casalet, M. 2000, 2001) share some common traits, which may be used in the analysis of these Mexican regions. Among them, the following may be identified:

- a) A reference geographic localization with some homogeneity, where actor networks show identifiable behaviours and decision independence. Behaviours may be modified through dynamic learning in accordance with changes in the environment, so as to find proper solutions for new conditions.
- b) The presence of more or less formalized institutional coordination styles, as well as particular cooperation and exchange patterns between local firms, which include associativeness and market relationships.
- c) A social outlook prone to technological innovation, and the abilities needed to develop a local culture apt to produce local synergies and to take advantage of favorable external driving forces.
- d) Intangible production factor endowment, such as know-how, research and development centers near the cores, and a technical culture that is the foundation for dynamic competitive advantages and the launching pad for positive externalities and closeness effects favorable to innovation.
- e) Local development agencies resulting from agreements between public and private actors in the geographical area involved, which elaborate agreements on development and employment for the region relying on the support of dynamic local authorities fully aware of their catalyzing role.

III. SOME RELEVANT QUESTIONS

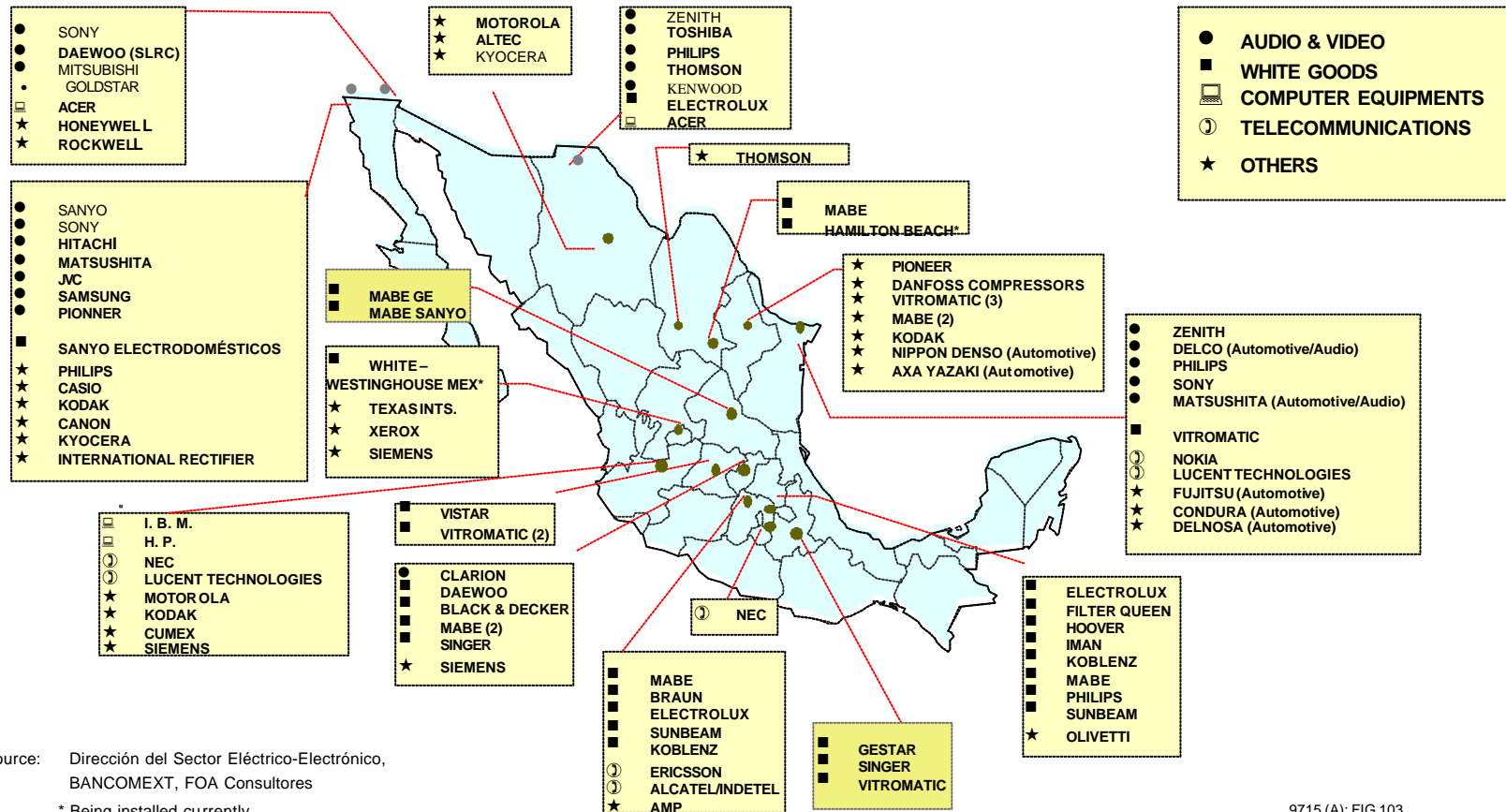
The previous points raise several questions about how this geographic dynamics works in Jalisco y Chihuahua. Deprived as they were of a long tradition of productive settlement and interinstitutional relationships, how have these regions managed to create a structure favorable to knowledge exchanges and creation? To what extent changing public policies have succeeded in generating a positive local environment and densifying social capital embeddedness? Which were the options for constructing formal and informal interaction networks and creating public/private coordination spaces between the various actors involved? As regards Chihuahua, and especially Ciudad Juárez, the following questions arise: Which are the particular mechanisms and instances that provided the means and opportunities to generate social capital embeddedness in a region with no production history, affected besides by significant migratory movements?

These questions are related to the ability of actors and institutions to generate new skills that strengthen the local environment. Hence, the importance in this work of the institutional system, its development, and its ability to promote new interrelationships. Such exchanges constitute a development strategy supported by various actors who, despite their different rationale, dissimilar interests, behaviours and timing, have brought to bear economic and non-tradable resources, in order to construct this vulnerable social capital embeddedness. The current crisis in the maquila exportation sector, closely related to the slow-down of the US economy, the overvaluation of the Mexican peso, and regulation complexities derived from NAFTA, raise further questions about the stability and effectiveness of such exchanges.

IV. RELEVANCE OF THE ELECTRONIC INDUSTRY IN THESE REGIONS

The states where most industrial establishments are concentrated include: Baja California, the Federal District, Chihuahua, Sonora, Jalisco, Nuevo León, and Tamaulipas. As regards employment generation, Chihuahua, Baja California, and Tamaulipas are the three most important states. The electronic industry includes here five main subsectors: audio and video, computers, telecommunications, parts and components (clear-cut importer), etc. The first subsectors represent 53% of exports in this sector.

LOCALIZATION OF THE ELECTRIC-ELECTRONIC INDUSTRY IN MEXICO (FINAL PRODUCT FIRMS)



Source: Dirección del Sector Eléctrico-Electrónico, BANCOMEXT, FOA Consultores

* Being installed currently.

SLRC: San Luis Río Colorado, Son.

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The power of the electronic industry in Mexico is mainly concentrated in three geographic areas, where specialization in specific subsectors may be observed.

First, , the Center of the country, including the Federal District; Mexico state, San Luis Potosí, and Querétaro, where the white goods subsector has expanded.

The border region, mainly Baja California, Chihuahua, and Tamaulipas, specialized in audio and video.

The region of El Bajío, including areas neighbouring Guadalajara, Jalisco, and Aguascalientes, where the computer, telecommunications, and electronic components industries have settled.

ELECTRONIC SECTOR SHARE IN THE ECONOMIC ACTIVITY OF MEXICO

In 1998, the electric-electronic sector represented:

- 0.5% of the Total GDP
- 2.6% of the Manufacturing GDP
- 2.6% of total imports (1st importing sector)
- 30% of total exports (1st exporting sector)
- 20% of the total quantity of maquila firms
- 34% of the employment generated by the maquila industry (over 300,000 jobs).

SOURCE: Guillermo Woo, 2001

ECONOMIC UNITS AND EMPLOYMENT IN THE MEXICAN ELECTRONIC EQUIPMENT SECTOR

Sector Activity	Economic Units			Employment		
	1993	1998	Change (%)	1993	1998	Change (%)
3832 Electronic Equipments	707	907	28.3	128,665	225,905	75.6

SOURCE: Guillermo Woo, 2001

PRODUCTION VALUE IN THE ELECTRONIC INDUSTRY

Base December 200 – 100
(In millions of pesos)

	1994	1995	1996	1997	1998	1999	2000
Electronic Industry	30,768	35,416	48,648	67,137	75,796	70,688	68,138
Manufacturing Industry	1,262,613	1,221,813	1,386,893	1,453,418	1,467,211	1,478,294	1,556,181

SOURCE: Guillermo Woo's elaboration, based on data from del INEGI, Encuesta Industrial Mensual (Monthly Industrial Survey).

4.1) ELECTRONIC SECTOR LOCALIZATION IN JALISCO.

The first electronic firms arrived at Jalisco between 1967 and 1973, though the thriving period proper started after the North America Free Trade Agreement (NAFTA) was approved and decisions to localize manufacture subcontracts were made. A further drive was due to the production cost reduction derived from the devaluation of the Mexican peso in 1994.

The establishment of original equipment manufacturers (OEM's) such as IBM, HP, Motorola, NEC, Phillips, and Consumer, increased the development of contract electronics manufacturers (CEM's), such as Siemens, Flextronic, Selectron Usi, Natsteel, and Pemstar Dovatron, and of specialized suppliers such as Electrónica Pantera, Electrónica Cherokee, Acoustic Control, Molex GPI Mexicana, Quest, and Micron de México. This concentration has merited Jalisco the name of "Mexican Silicon Valley", since it has 120 firms specialized in different technical areas, which directly or indirectly provide goods and services for the electronic industry. Recently, one of the largest plants for the production of communications equipments has been installed in Jalisco. Besides, this region is a world leader in the production of wire and cordless telephones, and answering machines.

4.2) ELECTRONIC SECTOR LOCALIZATION IN CHIHUAHUA.

Three clearly differentiated production patterns may be identified in Chihuahua: 1) Ciudad Juárez, mainly directed towards the maquila industry. 2) Chihuahua city, operating since the nineties within a cluster system under the leadership of transnational companies. Both regions (Ciudad Juárez and Chihuahua) absorb 70% of total industrial employment and concentrate migration flows from the state and from other regions of Mexico. 3) The localized agroindustrial model in Parral and Cuauhtémoc. On the national scale, Chihuahua is the first producer of apples, chile, and walnuts, and the second important national producer of onions and cotton (Ruiz, Durán, C. 2000).

Chihuahua's electronic cluster includes about 241 establishments where 165,000 employees work, mainly concentrated in the the two growth poles of Ciudad Juárez and Chihuahua. The main products are computers, TV sets, telephones, cellular telephones, pagers, satellite receivers, digital video players, printers, as well as electronic parts such as printed circuits, capacitors, coils, magnetic elements, and optical fibers.

V. POLITICAL CHANGES AS DEVELOPMENT AND/OR DISCONTINUITY FACTORS.

The alliances and agreements that constitute the current regional space in Jalisco y Chihuahua have been changing with the alternation in power of two parties, PAN and PRI, and the opportunities for local enterprises to use foreign investment and take advantage of their geographic nearness to the United States. In spite of political and economic uncertainties that had a negative impact in both these regions, a change may be noticed in formal and informal relationships connecting

public and private actors devoted to production, merchandising, research, professional training, and production promotion.

Historically, the weakness of the social fabric has helped in evading collective commitments. In this sense, neither Mexico as a whole, nor the regions studied herein conceive the public sphere as something pertaining to all, as a field where collective responsibilities are at stake, but rather as a realm manipulated by a few, where adhesion to local powers and controlling groups is a source of privilege.

Actual policies contributing at the local level to encourage production are embodied in state development plans and in the creation of specific programs and tools (clusters, development programs for suppliers, industrial parks) which are newcomers to the region: they date back to the nineties though the settlement of the maquila industry occurred earlier.

In the mid-nineties, and in the framework of tariff reductions discussed during negotiations about the North America Free Trade Agreement (NAFTA), a new cooperative dynamics arose encouraging new strategies to bring public and private actors closer, divulging the new entrepreneurial and relational skills that favor state decentralization.

Currently, the most evident problem concerns the continuity and responsiveness of these new institutional trends, given the present crisis and, especially, recession in the United States, main destination of exports from the maquila sector. During 2001 and 2002, the slow-down of the United States economy has affected the maquila industry as a whole. From the second quarter of 2001, the sector showed greater weakness as regards expansion, production value, and its capacity to create employment. The drive of the economic activity in the United States accounts for growth or lack of growth in the exportation maquila industry. An additional key factor is the peso/dollar ratio¹.

VI. CREATION OF AN EXCHANGE NETWORK AMONG VARIOUS AGENTS IN THESE TWO REGIONS.

6.1) POLITICAL PROJECTS AS A FACTOR OF DEVELOPMENT AND/OR DISCONTINUITY. THE CASE OF JALISCO.

State public policies play a decisive role in directing economy-restructuring efforts towards new specializations (electronic sector) and adapting social organizational abilities to most recent demands for competitiveness.

In the case of Jalisco, the effort to create support for industrial clusters arose from a business group that assumed the political leadership of this state. Thus, new instruments, programs, and institutions that promoted production were developed (State Plan 1995/2001) to increase enterprise and institutional modernization. From the mid-nineties onwards, the recovery of Jalisco's economy was perceptible, mainly focused on an industrialization process based on attracting direct foreign

investment. The establishment of new firms, especially those of the electronic industry, started the expansion of the maquila industry in the region and contributed to create new employment and to change significantly the productive characteristics of the area.

The decisive role of the state government in Jalisco was to set down a new institutional scheme able to support enterprise modernization and to obtain the quality levels required to guarantee the presence of local firms in supplier programs within the framework of the exportation maquila industry. This new role of the public sector has emphasized the expansion of services through a selective incentive policy coordinated in many cases with private initiatives.

PUBLIC INSTITUTIONS CREATED OR RESTRUCTURED IN JALISCO
IN ORDER TO SUPPORT PRODUCTIVE DEVELOPMENT

ORGANIZATION	FUNCTION	START DATE	INSTITUTIONAL NETWORKS
CEPE (STATE COUNCIL FOR ECONOMIC PROMOTION)	TO OFFER FINANCIAL INCENTIVES FOR LOST FUNDS	1997	CAD ELEC., CONACYT, FOJAL, CEJALDI
CEJALDI (JALISCO DESIGN CENTER)	TO IMPROVE PRODUCT DESIGN AND QUALITY	1997	FIRMS FROM THE ELECTRONIC AND FURNITURE SECTORS, BUSINESS CHAMBERS
JAL TRADE (JALISCO FOREIGN TRADE INSTITUTE)	TO SUPPORT SEMS' EXPORTS	1998	BANCOMEXT, NAFIN, ECONOMY DEPARTMENT
JALISCO QUALITY INSTITUTE	TO SUPPORT QUALITY CERTIFICATION OF JALISCO-MADE PRODUCTS	1998	SILVERWORK, ELECTRONICS AND SERVICES
PRODER (REGIONAL PROGRAM FOR ENTERPRISE DEVELOPMENT)	TO ENCOURAGE NEW ENTREPRENEURS, ENTERPRISE CLINICS	1998	PUBLIC/PRIVATE AND ACADEMIC COOPERATION, UNIVERSITY OF GUADALAJARA, ITESM, UNIVA
FOJAL JALISCO FUND FOR THE PROMOTION OF THE ENTERPRISE	TO PROMOTE REGIONAL DEVELOPMENT, INTEGRAL SUPPORT, CREDIT LINES, TRAINING AND TECHNICAL ASSISTANCE	1985 1998 QUALITY RESTRUCTURING	STATE GOVERNMENT NAFIN BANCOMEX
SEIJAL JALISCO STATE INFORMATION SYSTEM	TO CAPTURE, PROCESS, AND GENERATE SOCIO-ECONOMIC INFORMATION	1998	STUDY-WORK: "JALISCO EN EL ENTORNO NACIONAL" (JALISCO IN THE NATIONAL ENVIRONMENT)

Author's elaboration

The table above indicates the role of the Jalisco Economic Promotion Department (Secretaría de Promoción Económica de Jalisco – SEPROE) in creating and implementing a new institutional scheme to promote an increase of technological contents in production, strengthen information circuits for suppliers and SEM's, and develop incentives for exports and productive investment. The new institutional scheme submitted by the state government and applied by SEPROE tried to leverage competitive advantages associated with geographic concentration and sectoral specialization in the electronic industry in order to pave the way for interactions among sectoral firms themselves, and also with other local enterprises, especially suppliers, and thus systematize and adjust the local productive nexus.

The support thus implemented added a new dynamics to usual relationships and opportunities among economic, productive, and research agents. Besides, they tried to attract new firms, aimed at support programs for productive networks that included suppliers, and strived to create guarantee funds in order to facilitate access to credit lines.

The urgent need for new alternatives arises from the obsolescence and/or absence of specific institutions that address new investment, production, and exportation requirements in the region. Moreover, knowledge needs to be systematized taking into account the regional context and the specific characteristics of its productive structure and enterprise behaviour.

6.2) THE STIMULATING ROLE OF EDUCATIONAL AND RESEARCH INSTITUTIONS IN THE CREATION OF AN INTERACTIVE ENVIRONMENT IN JALISCO.

The contribution of the educational and research infrastructure for a positive environment is significant, since the state of Jalisco has 7 universities, 164 technical and training schools, and 11 courses in engineering and telecommunications. There is now more confidence because the university has increasingly taken part in linkage and outsourcing centers, has created specialized careers, and has carried out research and diffusion activities about new development and management methods for SEMs. The increasing exchange of knowledge and opinions thus facilitated adaptation to new production problems and introduced new evaluation and planning techniques.

EDUCATIONAL, LINKAGE AND RESEARCH INSTITUTIONS IN JALISCO.

TYPE OF INSTITUTION	ORGANIZATION	FUNCTION
1) TECHNOLOGICAL INNOVATION CENTER	PANASONIC – FUJI HARDWARE AND SOFTWARE DESIGN CINVESTAV	HIGH TECHNOLOGY CENTERS SEMICONDUCTOR TECHNOLOGY CENTER (CTS)
2) UNIVERSITY-ENTERPRISE LINKAGE CENTER	HIGHER STUDIES TECHNOLOGICAL INSTITUTE ITESO SEM-DEVELOPMENT SUPPORT CENTER SEMS-ITESM- GUADALAJARA CAMPUS NAFIN Y CONACYT	DIAGNOSIS FOR CLUSTER FIRMS: FOOTWEAR, TEXTILE INDUSTRIES, HEAVY ENGINEERING INDUSTRY – LINKAGE CENTER. LABOR POOL, PROFESSIONAL TRAINING PRACTICES WITH FIRMS. PROJECT YOUNG UNIVERSITY ENTREPRENEUR-MICROENTERPRISES– 40 SEMS SUPPORT TO ENTERPRISES IN COLLABORATION WITH CIMO ENTERPRISE CLINICS 1994 – GREATER DEMAND, IBM, PRINTING TRADE AND AUTOPARTS. REGIONAL DEVELOPMENT .
3) RESEARCH AND DEVELOPMENT INSTITUTE	SCIENCES AND ENGINEERING CENTER CUCEI-UNIVERSITY OF GUADALAJARA	CLOSE RELATIONSHIPS SECTORS: FOOD, WOOD, BUILDING, PROJECT ENGINEERING DEPARTMENT. PARTICIPANTS: HUMAN RESOURCES GROUP FOR THE PLASTIC ENGINEERING SECTOR
4) REGIONAL RESEARCH AND DEVELOPMENT SYSTEM – CONACYT	STATE SCIENCE AND TECHNOLOGY COUNCIL COECYTJAL – 1997 JOSÉ MARÍA MORELOS REGIONAL SYSTEM SIMORELOS – CONACYT	COORDINATES PUBLIC/PRIVATE SCIENTIFIC AND TECHNOLOGIC ACTIVITIES. AGREEMENT WITH OTAWA AND ADIAT LINKAGE: HEALTH CARE, URBAN DEVELOPMENT, HOUSING, INDUSTRIAL DEVELOPMENT, NATURAL RESOURCES.

Author's elaboration

The table above includes some institutions that have started new initiatives for the local industry and the electronic sector in different spheres: the enterprise, the local university, and national research and development services.

Though based on the firms housing them, the activities of enterprise technological innovation centers that offer training in high technology (PANASONIC–FUJI) also have public activities in research.

The Semiconductors Center (CTS), created by CINVESTAV-G, resulted from a research agreement for the electronic industry between a highly specialized center and private firms, and is closely related to transnational enterprises. Here, research has a highly specialized nature. One of its objectives is to train high-level human resources, carry out theoretical and applied research in telecommunications systems (including birefringent optical fibers, biological light transmission, reflection and dispersion, software for digital switching and call-processing). Most of these projects are funded by transnational enterprises.

Universtiy/Enterprise linkage centers based on higher education institutions have developed increasing abilities to encourage demand from the private sector by offering uninterrupted services for SEMs. In their projects for SEMs, they use

state government incentives (as regards training, information systematization, credits) to effectively coordinate supply and achievement.

The Technological Institute of Higher Studies (Instituto Tecnológico de Estudios Superiores - ITESO) plays an active role in establishing links with the productive sector through university consultants that offer technical advice and diagnostic services about technological and organizational issues for firms integrating the footwear, textile, and heavy engineering clusters in Jalisco. Research works carried out at ITESO have been helpful to compute the human development index, and have also contributed to implement the state information system (SEIJAL).

The SEM-development support center pertaining to the Technological Institute of Monterrey-Guadalajara Campus (Instituto Tecnológico de Monterrey–Campus Guadalajara) started its activities with the support of the Development Bank (NAFIN) and CONACYT. Initially, it offered support for firms affected by the 1994 economic crisis, but now its enterprise clinics program is a model of its kind, that is being applied not only in Jalisco state but throughout the ITESM system at the national level.

Through its University Sciences Center (Centro Universitario de Ciencias Exactas – CUCEI), the University of Guadalajara shares strategies and projects with Jalisco Industrial Chambers Council and offers advisor services to several production sectors, especially for the electronic industry through its Project Engineering department. This department has created a training program for technicians, supervisors, and die-casting operators, aimed at satisfying demands from the injection sector of the plastics engineering industry. Various diagnostical studies made in computers and electronics firms, as well as in the autoparts sector, have shown a shortage of skilled personnel in the plastics engineering industry and a parallel production increase in this area.

The Regional Research Systems (Sistemas de Investigación Regionales - SIRS) organized by CONACYT reintroduce decentralization and regionalizing policies of the Federal Government in order to channel efforts towards strengthening scientific and technological skills in the country as a whole.

The basic mission of such systems is to act as integration tools contributing to strengthen decentralization and promote regional development through the joint effort of productive, academic, and government sectors though, by the end of the 1990s, CONACYT encouraged Science and Technology state councils as a more formal and institutionalized form of public/private cooperation for research and innovation promotion. The State Council of Science and Technology (Consejo Estatal de Ciencia y Tecnología - COECYTAL), created in 1997, is devoted to encouraging, promoting, and coordinating various public and private efforts aimed at the scientific and technological development of Jalisco state. Currently, the Council is deeply committed in the creation of an electronic technopole.

VII. ENVIRONMENT-CONSTRUCTION IN CHIHUAHUA.

In the case of Chihuahua, the development of a regional industrial development plan arose from a group of firms related to an opposition political party (PAN). Initially, this group succeeded in consolidating some production projects with public supplementary support (the government, then under PRI's leadership). Despite political ups and downs in the region (PRI/PAN/PRI) that entailed changing political circumstances and even open clashes, polarization did not prevent a continuous strengthening of the new growth model. When PAN assumed the state government, the impact of private enterprise initiatives changed substantially and previous efforts became actual policy instruments. Afterwards, PRI assumed government again, but the economic maquila-centered project –vital for the region– has not been abandoned, though some policy tools have been re-oriented and others of different origin hindered, especially those which did not arise from its ranks.

The relevance of Chihuahua's experience lies in the fact that it shows how enterprise dynamics in this state was able to promote a more homogeneous industrial growth by consolidating private initiatives and public state policies. The expanded public and private cooperative effort has succeeded in strengthening existing institutions and creating some new ones aimed at supporting enterprise modernization (Entreprise Chambers, Attorney Offices, Customs Centers, Research Centers, Industrial Parks), thus generating an industrial learning process able to include new industry sectors and prone to accept new behaviours in a business world mainly concentrated on primary activities until the sixties.

Local economies, especially at Chihuahua city, were further boosted by the approval of the North America Free Trade Agreement and the devaluation of the Mexican peso by the end of 1994/5, and the maquila sector expanded accordingly. The government of this state –under PAN's orientation in the period 1992/1998– included private initiatives in the Strategic Plan for the Economic Development of Chihuahua State (Plan Estratégico de Acción para el Desarrollo Económico del Estado de Chihuahua), and private initiative became thus the actual axis of the whole project. Chihuahua's businessmen who sympathize with PAN have a long political history in the region, at least since 1983, when they created the Civic Front for Citizens' Participation, an organization which gave open support to PAN's candidates for the state government.

The 1999-2005 State Plan for Development carried on these efforts though it was conceived in the framework of the new PRI government and re-established state initiative as its axis. Thus, political changes reflect the ups and downs of political leadership (PAN lost the government of the state and PRI assumed power) but they do not affect power cores already consolidated in the maquila sector.

The construction of a production nexus aimed at promoting regional development in Chihuahua shows different institutions from the private sector that play a decisive role in creating a local system. The Bermúdez group, that established the

first industrial park of Mexico, currently controls five parks located in Ciudad Juárez, Mérida, and Torreón, and provides advise on industrial parks to other countries from Latin American and Asia.

The establishment in 1979 of local firms like Aceros de Chihuahua, Industria Minera de México, and Internacional de Cerámica (INTERCERAMIC), opened up new roads for creating industrial parks and subcontracting. This was further reinforced in the 1980s, when FORD installed an engine-production plant in the industrial park Complejo Chihuahua, thus starting a localization process of supplier firms, such as BOCAR de Chihuahua, an autoparts firm of domestic capital. The establishment of new firms increased general interest in creating industrial parks, large industrial premises or industrial sheds, and subcontracting programs.

RELEVANCE OF PRODUCTION PROMOTION INSTITUTIONS CREATED THROUGH PRIVATE INITIATIVE

ASOCIACIÓN CIVIL DE DESARROLLO DEL ESTADO DE CHIHUAHUA (CIVIL ASSOCIATION FOR THE DEVELOPMENT OF CHIHUAHUA) (DESEC)	CREATED IN 1973	TRANSITION FROM THE PRIMARY SECTOR TO AN INDUSTRIALIZED ECONOMY. DIRECT INDUSTRIAL PROMOTION WITH NATIONAL AND FOREIGN INVESTORS. CREATION OF AN ENVIRONMENT FAVORABLE TO INVESTMENT.
ASOCIACIÓN HACIA UNA MEJOR CALIDAD DE VIDA (ASSOCIATION FOR A BETTER LIFE QUALITY)	CREATED IN THE 90S	IT IS A PLAN FOR PROMOTING THE INTEGRATED DEVELOPMENT OF THE STATE.
COMITÉ DE PROMOCIÓN INDUSTRIAL (INDUSTRIAL PROMOTION COMMITTEE)	CREATED BY A DESEC'S INITIATIVE	ORGANIZES THE 'SHELDER' PROGRAM: PROVIDES COMPONENTS, DESIGN SUPPORT FOR CUSTOMS AND NATIONAL REGULATIONS, PERSONNEL RECRUITMENT AND SCREENING.

Author's elaboration

When PAN assumed the state government in 1992, DESEC's work received greater support of a public nature, and the idea behind the Programa Chihuahua Siglo XXI (Chihuahua 21st Century Program) thrived and consolidated itself.

This program, crucial for the State Development Plan carried out in the period 1992/1998, was a long-term strategic plan based on cluster strengthening.

It started with a diagnostic analysis of the state economy carried out at the Instituto Tecnológico de Monterrey (ITESM) Campus Chihuahua, called 'CHIHUAHUA SIGLO XXI' (21st Century Chihuahua). The study not only examined the problems of employment, demographic circumstances, infrastructure, and the state communications systems, but also advocated the role of economic clusters –many of which were inexistent then– as a means towards industrial development.

Potential sectors suggested in this report included: livestock, the plastics industry, merchandising services, tourism, the automotive industry, processed food, the electronic industry, meat processing, forestry, financial services, and credit unions.

Proposals were further complemented by policies to create human and technological resources, and generate an industrial environment prone to communication and exchange. One of the achievements of CHIHUAHUA SIGLO XXI was to incentivate foreign investment in this region. Among the projects included in the Program, the following may be cited: the creation of seven research and technology transfer centers directly associated with supplier development requirements –i.e., basic technology for component development–, such as precision machining, CAD/CAM manufacturing, plastics injection, precision foundry.

Other research and development institutions resulted from the CHIHUAHUA SIGLO XXI program: the Research Center on Advanced Materials (Centro de Investigación en Materiales Avanzados – CIMAV), the Die-Casting and Stamping Center (Centro de Moldes y Troqueles - CEMYT), the Study and Research Center on Food and Development (Centro de Estudios e Investigación en Alimentos y Desarrollo - CIAD), the Industrial Development Center (Centro de Desarrollo Industrial), the Information Technology Center (Centro de Tecnologías de la Información), and the High Technology Training Center (Centro de Capacitación en Alta Tecnología).

During this period the collaboration between public and private institutions was intense and effective, and one of its results was the approval of the Economic Development Planning Act, mainly aimed at strengthening the state economy by consolidating production clusters.

RESEARCH AND LINKAGE INSTITUTIONS RELATED TO THE ELECTRONIC INDUSTRY IN THE STATE OF CHIHUAHUA

TYPE OF INSTITUTION	ORGANIZATION	FUNCTIONS
1) UNIVERSITY-ENTERPRISE LINKAGE CENTER	COMPETITIVENESS CENTER ITEM	CONTROLS THE INDUSTRIAL ENGINEERING AND SYSTEMS CENTER ENVIRONMENTAL QUALITY CENTER GRADUATE SCHOOL FOR THE MAQUILA INDUSTRY HIGHLY SPECIALIZED CENTER OF STRATEGIC STUDIES, RESEARCH AND CONSULTANCY
2) RESEARCH AND DEVELOPMENT CENTER	RESEARCH CENTER ON ADVANCED MATERIALS (CIMAV) TRAINING CENTER ON APPLIED ELECTRONICS (OCEA-CHIHUAHUA)	ASSOCIATED WITH THE MAQUILA EXPORTATION INDUSTRY. CARRIES OUT TECHNOLOGICAL, BASIC AND APPLIED RESEARCH PROJECTS, AS WELL AS OTHERS ON ENVIRONMENTAL TECHNOLOGY. PROVIDES SUPPORT ON SURFACE ASSEMBLY TECHNOLOGIES FOR ELECTRONIC FIRMS.
3) TECHNOLOGICAL INSTITUTES	TECHNOLOGICAL INSTITUTE OF CHIHUAHUA (SEP)	ENTREPRISE TRAINING PROGRAMS, SHADOW PROGRAM WITH FORD.
4) UNIVERSITY EDUCATION RELATED TO THE MAQUILA EXPORTATION INDUSTRY.	AUTONOMOUS UNIVERSITY OF CHIHUAHUA (UNIVERSIDAD AUTÓNOMA DE CHIHUAHUA). NORTHERN INTER-AMERICAN UNIVERSITY (UNIVERSIDAD INTERAMERICANA DEL NORTE) (U. I. A.)	WIDE RELATIONSHIPS WITH THE MAQUILA INDUSTRY. THE MASTER DEGREE IN STATISTICS WAS CREATED ADDRESSING AN EXPLICIT DEMAND OF MANAGERS FROM THE MAQUILA SECTOR MASTERS FOR THE MAQUILA INDUSTRY PERSONNEL: INTERNATIONAL TRADE, MARKETING, MANAGEMENT, ACCOUNTING, INDUSTRIAL AND SYSTEMS ENGINEERING (HIGHEST DEMAND), AND COMPUTER AND MANAGEMENT SYSTEMS. CURRENTLY, IT HAS 1,200 STUDENTS. HIGHLY AFFECTED BY RECESSION IN THE MAQUILA EXPORTATION INDUSTRY. AGREEMENTS WITH THE ECONOMY DEPARTMENT AND BANCOMEXT, DELPHI, SEP

Author's elaboration

The table above includes various linkage forms of the academic sector with industry, either at the educational level itself, or at the research and technical cooperation levels.

The Competitiveness Center of the Technological Institute of Monterrey (TEM) - Chihuahua Campus, in its turn, establishes the guidelines for several other centers, such as: the Industrial and Systems Engineering Center, where specialized engineers give advice on modernization, automation, and training projects submitted by private firms. The Environmental Quality Center provides services for reducing air-polluting emissions, studying water, waste disposal, etc. The Permanent Education Program provides specific support for the industry through courses, seminars, and graduate courses. The Strategic Studies Center carries out research and diagnostic activities and provides highly specialized advisorship. The Graduate School dedicates most of its services to the maquila industry. However, it should be remarked that these activities are very recent and demanded a great effort so as to inspire confidence and credibility among firms, since the maquila industry used to resort to private consultants backed or certified by international companies, and to request support from United States Schools.

CIMAV, founded in 1994, is a research center integrated to the National System of Research and Education Centers SEP-CONACYT. It was created by an agreement between the federal government, the Chihuahua state government, and the Chihuahua branch of CANACINTRA,.

CIMAV is a research and graduate educational center on new materials and maintains close relationships both with other research institutions and the production sector, since it is located within an industrial park, a circumstance which facilitates continued interaction with the enterprises through technological and training projects.

The Technological Institute of Chihuahua is a dependency of SEP's National Division of Institutes and takes an active part in enterprise training programs (especially with ALTEC and FORD). Together with FORD, it has carried out the SHADOW program, devoted to detecting the specific needs of the operator and the supervisor so as to later adjust training to these requirements.

The Autonomous University of Chihuahua is closely related to the maquila industry. For instance, the recently created Master in Statistics addressed a demand from managers of the maquila sector.

VIII. THE ROLE OF BRIDGE INSTITUTIONS IN CREATING FAVORABLE ENVIRONMENTS IN THESE TWO REGIONS.

Both in Chihuahua and Jalisco, institutions are being consolidated which are closely associated with a new environment of confidence and certainty at the enterprise level. The experience of most of these institutions is recent, since they arose in the nineties in response to the industrial modernization process that required new conditions favorable to clusters with competitive appeal. Some of them try to leverage SEMs' capacity to integrate programs for suppliers; others complement government programs not fully effective because of the private sector mistrust of direct interaction with the government, mainly due to lack of continuity in the programs, scarce coordination, and excessive bureaucracy.

Bridge institutions play multiple roles, such as:

- strengthening knowledge-diffusion, technological exchange, transference, and support networks for the adaptation of technology;
- technical consultancy and quality certification, especially standardization;
- training of suppliers;
- industrial design;
- customs and tax advisorship;
- advisorship for foreign investors; and
- documentation services.

The heterogeneity of their functions, their organizational flexibility and scarce bureaucracy has enabled them to create an integrated market of services in both regions, which has established active bonds among firms, research centers and public sector activities devoted to production promotion. They often act as intermediaries that facilitate interaction, thus leveraging collective learning processes.

Bridge institutions have various legal statuses, from civil associations through trusts to civil societies. Funding is also variegated, though most of them try to survive by selling their services and/or signing agreements so as to receive public and international funds.

Bridge institutions play an important role in complementing and widening public support for promotion entities, and they also play an active part in assigning resources to a particular location and facilitating their use.

Another characteristic of bridge institutions is their capacity to expand interactions among agents, including formal/informal, technological, organizational, and commercial interactions, as well as those devoted to the diffusion of innovations.

The relational character of bridge institutions evidences that innovations requires interactions styles based on confidence and coordination between agents, questions that go far beyond information transmitted by prices, since they express the existence of intermediation channels that address actual demands. Needless to say, demands are subject to continuous adjustments, transformations and development, though the nature itself of the contacts thus constructed guarantees continuity and the capacity of participants to accommodate their behaviour to changes in their environment.

BRIDGE INSTITUTIONS DETECTED IN THE REGIONS UNDER STUDY

ORGANIZATION	FUNCTION	START DATE	INSTITUTIONAL NETWORKS
CADELEC ELECTRONIC INDUSTRY PRODUCTION CHAIN, CIVIL ASSOCIATION JALISCO	INCLUDES LOCAL AND NATIONAL SUPPLIERS OF THE ELECTRONIC INDUSTRY	1998	ITESM, CANIETI FIRMS FROM THE ELECTRONIC SECTOR – UNIVERSITIES
DESEC CHIHUAHUA	PROMOTED THE TRANSITION OF THE PRIMARY SECTOR INTO AN INDUSTRIALIZED ECONOMY	1973	THE INDUSTRIAL PROMOTION COMMITTEE FOSTERED THE DEVELOPMENT OF INDUSTRIAL PARKS. WORK TRAINING CENTER. ECONOMIC INFORMATION CENTER. ASSOCIATION FOR A BETTER LIFE QUALITY. NEW STAGE: SUPPORTS HIGHLY SPECIALIZED CENTERS SUCH AS DELPHI C. JUAREZ AND VISTEON (CH)
CEDEP CHIHUAHUA SUPPLIERS' CENTER	SUPPORT FROM NAFIN, BANCOMEXT, SE, STATE GOVERNMENT, ECONOMIC DEVELOPMENT DEPARTMENT SUPPLIERS' DEVELOPMENT AND TRAINING	1997	MONTERREY TECH. INST AND CHIHUAHUA TECH INST. ENTERPRISE INCUBATORS DEVELOPMENT
DEXTRO CD. JUAREZ SPECIALIZED PROFESSIONAL SERVICES 1983 INSTITUTIONS DEVOTED TO PROFESSIONAL EDUCATION	TRAINING PROGRAMS: TECHNICAL, COMPUTERS, AND SYSTEMS, AND ALSO HUMANITIES. 260 PROGRAMS. LOCAL, NATIONAL, AND FOREIGN CLIENTS	APPROVED BY STPS IN 1983 AND BY SEPT IN 1999	EVALUATION CENTER ACTIVITIES TRAINING FOR FIRMS SUCH AS: LEAR CORPORATION, GENERAL ELECTRIC, FORD, COCA COLA, VITRO, DELPHAI, RCA, HONEYWELL, COCLISA, ARNESSES DE MEXICO
NATIONAL AND INTERNATIONAL ADVISORSHIP	ADVISORSHIP SERVICES FOR FOREIGN INVESTORS; LEGAL, TAX AND MANAGEMENT SUPPORT, QUALITY TRAINING FOR SUPPLIERS, FEASIBILITY STUDIES	ESTABLISHED DURING THE 90'S, MOSTLY IN THE MD-NINETIES	WIDE RELATIONAL CAPACITY AT THE CORPORATE LEVEL, AND ALSO WITH LOCAL AND BINATIONAL AUTHORITIES.

Author's elaboration

The table above summarizes when bridge institutions were created and how they operate in both regions; it also indicates that they differ as regards their functions, legal status and funding, but they are similar in many respects: all of them widen enterprise networks horizontally generating confidence among firms, promoting the coordination of their production resources, and enabling them to acquire knowledge (about technologies, standards, and customs) that they could not achieve by themselves.

Institutions such as CADELEC in Jalisco, or CEDEP in Chihuahua provide training on suppliers' selection processes for the maquila industry. Such training involves articulating differential requirements, coordinating efforts, developing new techniques and practical knowledge, and generating new professional specializations.

Jointly with enterprise representatives, the Jalisco State Government has created a coordinating group for promotion activities denominated "Cadena Productiva de la Industria Electrónica, A. C. – CADELEC (Electronic Industry Production Chain). Its purpose is to foster integration among local, national, and international electronic firms established in Jalisco. Currently, it has 25 members, such as: IBM, HP, INTEL and KODAK. The promotion activities carried out by CADELEC have contributed to

detect business opportunities through specific market studies and the implementation of a firms database.

✧ Commodities committees are also fostered by CADELEC. They coordinate research and market analysis, as well as specific studies. The idea of contacting ITESM Campus Guadalajara to carry out a feasibility study on the local production of commodities arose from these meetings. In November 1999, the "Supplier Day" was organized in order to obtain information about the circumstances and conditions of current commodities production, and about local requirements as regards raw materials, human resources, technologies, and processes. The information that resulted from the different meetings was used to identify business opportunity areas for each commodity, and laid the foundations for defining development strategies in the production chain of the electronic industry.

✧ Software committees: their purpose is to divulge Jalisco's existing potential for software development, and to promote both local and foreign firms that make investments and generate higher quality employment.

✧ The advisory committee for local Suppliers' Evaluation includes executives from IBM, LTCP, HP, and JABIL. In 1999, eight firms were evaluated, and now twelve companies are being studied.

Chihuahua's Suppliers Center (CEDEP) emerged in 1997 with the support of various public and private organizations, the federal and the state government. Among institutions that boosted this initiative, the following should be mentioned: the Economy Department, CANCOMEXT, NAFIN. Among the state government agencies, the departments of Economic Development and Industrial Development, and among enterprise organizations, the collaboration of CONCAMIN, the Regional Association of the Maquila Industry, and DESEC should be emphasized. Educational institutions also took part in the Suppliers Development project through the Technological Institute of Chihuahua, the Technological Institute of Monterrey, the University of Chihuahua, and the Second Technological Institute of Chihuahua (Tecnológico 2).

Since 1996, these institutions participate actively by promoting forums, seminars, and providing specific orientation in order to strengthen a suppliers development program that supports the exportation maquila industry at the regional level.

CEDEP's proposal is aimed at promoting business opportunities through several different ways. Given the weakness of local suppliers, one of these approaches is to attract investments—especially from suppliers—and consolidate joint ventures so as to satisfy the requirements of the maquila industry. Thus, it was possible to identify production needs and elaborate a wide suppliers' register that included information about their location. In its efforts to strengthen its bonds with the exportation maquila industry, CEDEP was forced to promote training as well: agreements were made with educational institutions such as the Technological Institute of Monterrey, and the Technological Institute of Chihuahua, envisaging the

development of enterprise incubators and tending, essentially, to provide support for local firms so as to satisfy new requirements in supplier selection, concerning mainly quality, costs, and just-in-time delivery.

The activities of national and international advisers are also included within the sphere of bridge institutions. The establishment of high-level international consultants such as Andersen, Mancera Ernest Young, Deloitte & Touche, Pricewaterhouse Coopers, and KPMG, in addition to the proliferation of national consultants, emphasizes the relevance of investment attraction as a highly specialized activity based on an information network and international connections. Tax advisorship, the development of a specific methodology to generate new markets, and the elaboration of studies about the necessary inputs that may be sold to the exportation maquila sector are additional activities carried out by national and international consultants. Timely advice for the establishment of firms in the region is crucial for foreign investors, as well as detailed information about accounting requirements, administrative and tax procedures, transference prices, INFONAVIT, IMSS, and the various registers of the Economy and Environment Departments.

Such advisor offices are quite recent in this region: they may be traced back to the mid-nineties. Their activities strengthened the bonds with research and professional training institutions, and also with business associations and technological institutes, thus constructing a nexus for formal and informal knowledge flow, which actually consolidates the actors' negotiating capacity. Bridge institutions are crucial for the professionalization of enterprise management, since they expand the agents' individual and collective possibilities.

Some members of these bridge institutions have a personal background of remarkable mobility, and many have such a wide local knowledge that transforms them into actual network managers in their information-distributing activities. In most favorable cases, they may even exercise a leading role by generating confidence and widening the public space. Hence, the role of "translators" that such institutions play in many cases, bridging the gap between agents that use different codes and languages and contributing to create a relaxed environment of mutual confidence.

IX. ENTERPRISE ASSOCIATIONS THAT HAVE WIDE RELATIONAL AND PROMOTIONAL INFLUENCES IN THE PRODUCTIVE ENVIRONMENT OF THESE TWO REGIONS.

The role of regional business chambers has been remarkably active, especially in supporting new networks of enterprises and establishing linkages with other actors, especially research and development institutions. Not only did business chambers encourage the demand for new services (such as programs for suppliers) but they

also played a significant role in the creation of institutions devoted to professional training and research.

ENTERPRISE ASSOCIATIONS THAT HAVE AN ACTIVE ROLE IN BOTH REGIONS

CANIETI JALISCO NATIONAL CHAMBER OF THE ELECTRONIC, TELECOMMUNICATIONS AND COMPUTERS INDUSTRY	BUSINESS CENTER COLLABORATES WITH CADELEC – SUPPLIERS PROGRAM CECATIS CETI – UNIVERSITY OF JALISCO
CANACINTRA CHIHUAHUA AND CD. JUÁREZ NATIONAL CHAMBER OF THE TRANSFORMATION INDUSTRY	ACTIVE ROLE IN CREATING INFORMATION NETWORKS. TRAINING PROGRAMS. SUPPORT FOR CUSTOMS AND TAX PROCEDURES. EXCHANGE AGREEMENTS WITH RESEARCH CENTERS. THEY CREATED THE CHIHUAHUA COORDINATING COUNCIL FOR ECONOMIC DEVELOPMENT, WITH THE OBJECTIVE OF PROMOTING A SPACE WHERE MULTIPLE-AGENT AGREEMENTS MAY BE ACHIEVED.
AMEAC CHIHUAHUA ASSOCIATION OF THE EXPORTATION MAQUILA INDUSTRY	PARTICIPATES ACTIVELY IN SUPPLIER-DEVELOPMENT PROGRAMS; GIVES SUPPORT TO THE MAQUILA SECTOR ABOUT CHANGES IN CUSTOMS AND TAX REGULATIONS.
AMAC CD. JUAREZ ASSOCIATION OF MAQUILA FIRMS	REPRESENTS THE MAQUILA INDUSTRY. HAS 240 MEMBER FIRMS IN CD. JUÁREZ, MOST OF THEM MAQUILADORAS AND SUPPLIERS MAINTAINS DYNAMIC RELATIONSHIPS WITH CUSTOM AGENCIES. CANACINTRA AND CNIME.

Author's elaboration

The table above summarizes the main activities carried out by several regional chambers. CANIETI Jalisco, for example, played a leading role in boosting CADELEC: because of its close contacts with firms of the electronic sector, it was most effective in promoting networks and creating programs for suppliers.

CANACINTRA's regional office has an active role in creating communication and information environments that favor business activities. Main programs tend to favor enterprise training, divulge among its members information about customs and tax procedures, and promote formal and informal exchange networks with the state educational institutions. The development of these activities has enabled the Chamber to act directly establishing agreements with other educational and research centers, and with private consultants. Regular meetings between CANACINTRA, CANACO, COPARMEX, and AMEAC have succeeded in outlining a Coordinating Council for Economic Development, whose main interest is to promote information exchange, have physical premises where to hold meetings and discuss, and reach a consensus about the different institutional activities involved.

Chihuahua's Association of the Exportation Maquila Industry (Asociación de la Industria Maquiladora de Exportación de Chihuahua - AMEAC) and Cd. Juárez Association of Maquila Firms (Asociación de Maquiladoras de Cd. Juárez), which are both members of the National Council of the Exportation Maquila Industry (Consejo Nacional de la Industria Maquiladora de Exportación - CNIME), play an active role among maquila firms, especially in negotiations with the local Departments of Economic and Industrial Development, in order to attract new investments and generate employment.

NATIONAL INSTITUTIONS THAT HAVE INFLUENCE IN BOTH REGIONS

INSTITUTIONS FOR THE PROMOTION OF PRODUCTION	OBJECTIVES	MAIN RESULTS
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NAFIN DEVELOPMENT BANK	DEVELOPMENT OF PROGRAMS FOR SUPPLIERS, TECHNICAL ASSISTANCE, CREDITS FOR SEM S	SUPPORT TO CADELEC IN JALISCO SUPPLIERS PROGRAM IN CHIHUAHUA AND CD. JUÁREZ
BANCOMEXT DEVELOPMENT EXPORTATION BANK	STIMULUS TO SEM S' EXPORTS	SUPPORT FOR THE ELECTRONIC AND AUTOMOTIVE INDUSTRIES IN BOTH REGIONS
ECONOMY DEPARTMENT (EX SECOFI)	STIMULUS TO INDUSTRIAL CLUSTERS TO QUALITY, SPECIALIZED SUPPORT FOR SEM S.	COMPITE PROGRAM, CRECE CENTERS, ENTERPRISE-INCUBATOR PROGRAMS AIMED AT SEM S' DEVELOPMENT
RESEARCH AND DEVELOPMENT SUPPORT INSTITUTIONS NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY (CONACYT)	SINCE THE 90s, STIMULUS TO ACADEMY/ENTERPRISE RELATIONSHIPS, POSTGRADUATE SCHOLARSHIPS, SUPPORT FOR RESEARCH DECENTRALIZATION	ACADEMY/ENTERPRISE PROVINCE LINKAGE PROGRAM. R&D FUND FOR TECHNOLOGICAL MODERNIZATION, SEP-CONACYT CENTERS (REGIONAL SYSTEM FOR HIGH-LEVEL EDUCATION AND RESEARCH) REGIONAL SYSTEMS
CNIME NATIONAL COUNCIL OF THE EXPORTATION MAQUILA INDUSTRY, CIVIL ASSOCIATION	TO REPRESENT THE GENERAL AND PARTICULAR INTERESTS OF THE MAQUILA EXPORTATION SECTOR IN THE WHOLE COUNTRY. LOBBYING THE EXECUTIVE AND LEGISLATIVE POWERS.	RELATIONSHIPS WITH: FEDERAL, STATE AND LOCAL AUTHORITIES, AND WITH PUBLIC AND PRIVATE ORGANIZATIONS FOR STUDYING AND/OR PLANNING ACTIVITIES RELATED TO THE MAQUILA EXPORTATION INDUSTRY.
CAAAREM MEXICAN CONFEDERATION OF CUSTOMS BROKERS' ASSOCIATIONS	PLAYS AN ACTIVE ROLE AS REGARDS THE NEW FUNCTIONS OF CUSTOMS BROKERS. THEY ABANDONED THE FUNCTION OF RAISING FUNDS TO ACT AS PROMOTERS OF INTERNATIONAL TRADE.	IMPORTS OR EXPORTS ORDERS, CURRENTLY AUTOMATIZED AND COORDINATED BETWEEN THE DEPARTMENTS OF ECONOMY AND FINANCE SAAI, AUTOMATED INTEGRAL CUSTOMS SYSTEM ACTIVE ROLE OF CAAAREM TO PROFESSIONALIZE CUSTOMS BROKERS AND NEGOTIATE SUPPORT JOINTLY WITH CNIME.

Author's elaboration.

The classification above includes institutions of a different nature and scope which have directly or indirectly affected institutional development and network consolidation in these two regions. In the case of Development Banks (NAFIN and BANCOMEXT), their activity is crucial for the promotion and development of programs dedicated to local firms' suppliers, and for supporting exportation. CANACINTRA's regional office has an active role in creating communication and information environments that favor business activities. Main programs tend to favor enterprise training, divulge among its members information about customs and tax procedures, and promote formal and informal exchange networks with the state educational institutions. The development of these activities has enabled the Chamber to act directly establishing agreements with other educational and research centers, and with private consultants. Regular meetings between CANACINTRA, CANACO, COPARMEX, and AMEAC have succeeded in outlining a Coordinating Council for Economic Development, whose main interest is to promote information exchange, have physical premises where to hold meetings and discuss, and reach a consensus about the different institutional activities involved.

The National Council of the Exportation Maquila Industry (Consejo Nacional de la Industria Maquiladora de Exportación, A. C - CNIME) is a non-profit civil association founded in 1983 and representing the interests of the exportation maquila sector. Its main activities include:

- To represent the general and particular interests of the maquila exportation sector in the whole country.
- To help its members, by creating specific committees, in issues concerning the interests of the maquila exportation industry.

- To collaborate with the federal authorities and public or private organizations in social welfare activities related to the maquila exportation industry.
- Lobbying the Executive and Legislative powers.
- To analyze, suggest, and report solutions about various issues affecting the sector (Environment, Foreign Trade, Transports and Communications, Suppliers' Development, Tax Procedures, Migrations, International Relations, etc.).
- To divulge information among its members and through mass media.

In order to achieve these goals, the Council maintains relations with:

- Federal, state, and local authorities.
- Public and private organizations for studying and/or planning activities related to the maquila exportation industry.
- In the maquila recession years 2000 and 2001, CNIME intensified lobbying activities at the Executive and Legislative level through:
 - Working tables held with government authorities.
 - Working groups with Representatives and Senators from all political parties.
 - Authorities' participation in monthly meetings.ii

A new role is assigned in the Customs Act to the Confederation of Customs Brokers' Associations (CAAAREM) and to the National Associations of Local Customs Brokers as rationalization and modernization managers. Therefore, new requirements of specialized training are included in the customs broker profile. The Tax Administration Service (Servicio de Administración Tributaria - SAT) authorizes these confederations of customs brokers and national associations to select their members for electronic data prevalidation. Coordinated activities carried out by the Economy and Finance Departments led to the design and implementation of the Automated Integral Customs System (Sistema Automatizado Aduanero Integral - SAAI) and to devise an automatic procedure for the approval of imports orders. Preventatively, the prevalidation process reviews all the electronic records of orders submitted by Customs Brokers and Proxy-holders: before actual submission, these records are scanned using a software tool developed at CAAAREM so as to check whether they comply with requirements and verify that operations are properly declared. Traditionally, customs brokers reviewed the information recorded in the orders manually, but in a changing legal framework, such a procedure cannot be maintained. The new regulations and the organization introduced by CAAAREM involve the implementation of an information network including all the Associations and the Confederation, so that information is automatically maintained and operations, regulations, and non-tariff restrictions are properly carried out and computed.

The role of customs brokers has changed substantially because Customs themselves have lost their relevance as collectors and have been transformed

into international trade controlling instances: hence the new emphasis on alacrity rather than control. In the specific case of the maquila industry, such alacrity is a must. Therefore, both CNIME and CAAAREM work jointly to harmonize the Customs Act, its regulations, and all the new miscellaneous procedures involved in foreign trade and consistent with the main Project of the maquila industry.

X. FINAL CONSIDERATIONS.

The purpose of this work was to identify institutional factors that have a bearing on the transformation of two Mexican regions, Jalisco y Chihuahua, closely related to the electronic and exportation sectors. The new trends in the economy of these regions, formerly associated with traditional economic sectors, involved new challenges, especially, the implementation of a new institutional and consensus scheme to support incoming changes. In the two regions, the observer may notice the decisive and congruous activity of various public and private actors devoted to establishing new exchange and learning networks in order to strengthen the accumulation of social capital and support transformations of the public institutional area so as to address the new demands for production and technical training, as well as commercial and information requirements.

Both the networks that include public and private actors and research networks contributed to new, more democratic, relationships. The creation in these regions of such a multiplicity of networks strengthens the culture and the cooperative bases of social organization preparing social actors for the challenges of international competition.

Thus, a society previously used to clientilistic relations which had weak public powers and protected markets is now on its way towards new practices that involve more horizontal relationships, and institutions that seek international legitimation. Currently, such new relationships are fragmented and sparse, but a new dynamics is clearly visible and no step back is possible.

The analysis of these two regions tried to identify new demands concerning the organization and management of geographic localization policies, which determine, to some extent, the externalities of the maquila exportation industry. These demands have progressively been institutionalized through state and local programs, such as those created by national agencies that promote production and research, and technological centers, all of them tending to consolidate the proper infrastructure for a complementary development of the electronic sector and the regions as a whole.

Since the mid-nineties, a change occurred in regional development programs and local government trends as regards development policies: instruments based on a functional top-down view of development yielded, so that selective incentives became

more relevant and concentration policies involving a more geographic bottom-up view prevailed.

In both regions, political changes entail discontinuities in institutional paths which disinvest many organizations of their contents and future: though well-meaning in their conception, deprived as they are of proper resources and political support, they are unable to gain public space as a collective project. In contrast with such organizational failures, personal success is not rare, mainly centered on individuals that possess information, have personal networks developed throughout their labor history in the maquila industry or their work at local institutions, individuals with a great ability for generating initiatives, articulating resources, and giving birth to institutions that formally serve them as a support for their activities. They enjoy a vast mobility and great independence, since there is almost no hierarchical control over them from the organizations to which they belong. This mobility makes them actual network managers since they distribute information, and thus become active agents in social capital accumulation.

Despite the relevance of bridge institutions as flexible tools for generating and divulging knowledge and creating networks, and despite the timely appearance of some state policies tending to strengthen the institutional nexus, the weakness of innovation networks persists and may be noticed in the fact that they have been unable to create dense relational and cognitive resources, neither have they succeeded in outlining their identity so as to rely on a social basis that is the key condition for competitiveness.

At Chihuahua and Cd. Juárez, the progressive establishment of new firms, Shelder programs, and industrial parks has turned the regional production nexus much more complex. These changes may be observed in the building of trading estates and the offer of highly competitive industrial parks whose installation technology is sold abroad. It may also be noticed in the permanent offer of new educational and professional training programs, that has succeeded in creating a specialized group of technicians of great mobility, not only in this country but also in the United States. The geographic closeness to USA has contributed to the creation of local enterprise groups interested in attracting investment to the state of Chihuahua: the Bermúdez Group, headquartered at Cd. Juárez, clearly illustrates this specialization in the creation of industrial parks. Such changes have also permeated the local culture approaching it to USA's decision and working levels, both in the case of professional and technicians and of less specialized migrant workers whose sole ambition is to cross the border.

National and foreign consultants established in the two regions constitute another indicator of the progressive complexity of the production nexus and social linkages. Foreign consultants are mainly dedicated to the niche of feasibility studies targeted at foreign investors, and to diagnostic studies about specializations in new products. On the other hand, local consultants are mainly devoted to the application and certification of ISO 9001, 9002, 9003, 9004 quality standards, and to the certification of suppliers.

Customs brokers are forced to change by new regulations. Used as they were to a past history of corruption, clientelism, and fraud, they face today a profound transformation of their professional profile, and are compelled to use new, increasingly computerized methods.

Taking part in local networks was important for research centers from both regions, since their active interaction with firms and industrial chambers approached them to the actual needs of "potential clients" and furnished them with a novel sensitivity for selecting client-winning strategies and constructing new forms of relationship. Thus, the production sector is now familiarized with research activities and more inclined to make a wider use of their services.

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NOTES

ⁱ During 2001 and 2002 new problems arose, owing to a lack of foresight in NAFTA's negotiations about the expansion of the maquila sector. In 2001, the application of Articles 303 and 304 suspended the old regime of temporary imports which allowed importers settled in Mexico to introduce tax-free inputs and machinery from third countries in order to export to USA and other countries at competitive prices. The impromptu creation on December 2000 of the Sectoral Promotion Programs (Programas de Promoción Sectorial - PROSEC) was a conciliatory measure for Mexican industry, since import taxes were reduced for many imports of intermediate and capital goods for the domestic market. The application of the PROSEC programs was extremely troublesome and aroused disapproval in the maquila exportation industry: it involved a long lobbying process headed by CNIME and damaged relations not only in the two regions under study but throughout the maquila industry as a whole.

ⁱⁱ According to CNIME, the states of Chihuahua, Baja California, Tamaulipas, Coahuila, and Sinaloa were the regions most affected by the deceleration of the automotive and electronic sectors, on account of their layoff levels and the relocation of many firms in other countries. In the Maquila Industry Convention held by the end of 2001, the claims of Regional Associations were discussed. Concerns shared by most members included the lack of clear rules and regulations for operating within the framework of Sectoral Programs (PROSEC), the urge for a more flexible taxing scheme for the sector, the pressing need for a zero-rate in the added-value tax (IVA) imposed on virtual exports (sales of national goods to maquila or PITEX firms), and the need to solve problems derived from applying the Article 303 currently in effect.