



Executive Summary

San Diego/Tijuana Manufacturing in the Information Age

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Executive Summary

The economic success of San Diego and Tijuana in the late 1990s has been largely the result of the economic restructuring processes commonly referred to as globalization. In San Diego, old-line defense-related industries such as aerospace and aircraft have diminished greatly in importance. Knowledge-based high-technology industries such as biotechnology and wireless telecommunications now dominate the San Diego economy. While manufacturing is an important part of the global structure of these industries, most of the manufacturing associated with these industries is located outside of the region.

Manufacturing employment in San Diego has declined from a peak in the mid-1980s and has yet to fully recover. Current forecasts predict that manufacturing jobs in San Diego County will not grow significantly in the next 20 years, and will actually decline relative to other employment categories. San Diego is essentially a high-cost region for manufacturing. It is unlikely that new high-value-added large-scale industries will locate here in the foreseeable future. Rather, the most important area for manufacturing growth and development is in small and mid-sized companies.

Tijuana has experienced a manufacturing boom situated at the other end of the Information Age globalization process. Investment in consumer electronics manufacturing, predominantly by Asian multinational television manufacturers and their associated suppliers, has changed the face of Tijuana over the last decade. These television companies have moved Tijuana's manufacturing economy beyond the old twin-plant maquiladora model by creating integrated complexes of assemblers and parts/component suppliers. Tijuana's manufacturing economy is likely to continue to grow for the foreseeable future, although the city's failure to develop an indigenous manufacturing base that is integrated with the global economy and its dependence on potentially capricious foreign investment are worrisome.

Major Findings and Conclusions:

While the recent economic growth in both San Diego and Tijuana is in large part predicated on the same globalization processes, the outcome for each city is different. In terms of the most important core industry, electronics, San Diego is increasingly a center for "knowledge economy" activities such as product research and development and standards management. Meanwhile, Tijuana is increasingly involved in the manufacture of the tangible goods associated with knowledge economy functions.

Traditional manufacturing, while important, will not be the engine that drives San Diego's economic growth. While there is the possibility that some expansion in biotechnology- or electronics-related manufacturing could occur, it is unlikely to be very large. Large-scale, high-value-added manufacturing of the type represented by aircraft

and aerospace has essentially left the region and, given the current configuration of those industries, is not likely to return. San Diego is rapidly becoming an Information Age city in which manufacturing plays an important, but diminished, role.

While Tijuana's manufacturing base is growing in complexity, the city still lacks an indigenous globally articulated manufacturing base (such as electronic industry supply companies). While there are some local suppliers involved in Tijuana's electronics manufacturing complexes, their number is few and the immediate prospects for growth in this area are dim. Many electronics plant managers have expressed their desire to find local sources for inputs, but there are several barriers to the creation of local supplier networks. The big question for Tijuana and Baja California is whether the move to a more advanced level of production can be leveraged beyond the multinational producers around which it is centered.

Tijuana *and* San Diego both lack a broad base in critical areas such as advanced contract manufacturing and supply chain logistics management, both of which characterize electronics manufacturing regions. The current world standard for electronics contract manufacture consists of companies that provide "one-stop" services for everything from design and manufacture to supply chain and distribution-channel management. The region also lacks sufficient infrastructure for cargo transport (particularly air cargo) to support these kinds of functions.

The proximity of San Diego and Tijuana does not necessarily provide electronics or other high-technology industries (particularly large multinational companies) with a compelling reason to establish manufacturing facilities in San Diego and with associated facilities in Tijuana. San Diego's advantages for Information Age industries include its highly educated and skilled workforce, its top-level educational institutions and lifestyle considerations related to its climate and geography, but not its proximity to Mexico. There are essentially few, if any, compelling reasons for large-scale manufacturers, particularly in the important electronics subsector, to locate in either city in order to gain access to the manufacturing resources of the other city.

Despite a great deal of progress during the past decade in strengthening ties between San Diego and Tijuana, the two cities are still too far apart. Many local businesspeople are not sufficiently aware of the region's manufacturing potential. The lack of a truly integrated regional consciousness can have negative consequences on the development of manufacturing linkages across the border and future regional competitiveness.

Policy Initiatives

Policy efforts to strengthen manufacturing in San Diego/Tijuana need to be organized around a realistic sense of what is possible in our region. For San Diego, policy approaches should concentrate on small and mid-level manufacturing. On the Mexican side of the border, Tijuana needs to find ways to encourage the development of small manufacturing facilities, particularly in the area of supplying the large electronics

companies. Both cities should examine the potential of those knowledge-based companies usually thought of as service companies. Cross-border contracting relationships in this area could save costs for San Diego companies while providing an opportunity for entrepreneurs to create small businesses with minimal startup costs. Measures that strengthen the ties and linkages between Tijuana and San Diego, and that normally are not thought of in terms of manufacturing, are also critical. Initiatives that make the border less of a barrier are imperative.

Some specific policy suggestions are listed below:

Mexico-Side Initiatives

- Target the potential technology-related growth areas that complement the television-led electronics sector for promotion and development. Such industries might include personal computer and PC component production, software development or Web development.
- Implement a strategy to develop electronics contract manufacturing at all technology levels and at all levels of production scale. A key component of this strategy should be the improvement of air cargo capabilities.
- Seek more government funding for education in general and for business and technical education in particular.

San Diego-Side Initiatives

- Work with (and donate money to) Tijuana and Baja California educational institutions to promote entrepreneurial and technical education.
- Target small manufacturing industries such as musical instruments, sports equipment, custom manufacture or small-lot electronics goods for promotion and growth.

Tijuana/San Diego Joint Initiatives

- Promote the potential joint advantages of the region to both global and local manufacturers.
- Augment San Diego's and Tijuana's cargo transport capabilities, particularly air cargo at the Rodriguez and Brown Field (Otay) airports. Develop a joint strategy for both airports.
- Seek the creation of a small-scale manufacturing base capable of meeting the needs of small-scale development and manufacturing companies in the San Diego region. Work with San Diego to promote the potential regional advantage for twin-plant-type linkages in the small electronics and non-electronics manufacturing subsectors. Such

promotional efforts should be aimed at businesspeople both within and outside the region. Investigate the potential for the creation of subcontracting linkages in computer programming, software development, data services and Web development.

- Lobby both governments for small business development funding in Baja California. Areas to target might include: 1) indigenous suppliers to TV and other electronics and appliance manufacturers, 2) “services” such as data processing and software development of all kinds including Web development, and 3) twin-plant-type arrangements with regional small or medium-size manufacturers, including small-scale subcontracting.