

# **E-BUSINESS POTENTIAL IN CALIFORNIA'S SAN JOAQUIN VALLEY: AN INVESTIGATION OF SOCIETAL INFLUENCES**

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***Abstract.*** *The success of Silicon Valley and the information economy in Ireland suggest that rural regions have the potential for e-business development. However, the successes of these two cases were not the result of technology alone. In this study, the researchers explored societal issues in the form of relevant policies and regional culture in San Joaquin Valley to investigate their influence*

*on e-business development. Through in-depth interviews with business development organizations and the local population in the San Joaquin Valley, the researchers concluded that the existing policies, coupled with the climate of public opinion and regional culture constitute complex factors that inhibit e-business development.*

## **1 Introduction**

### **1.1 E-Business and the Information Economy**

The information society represents a third wave of societal transformation. In this society, information products and services are key economic commodities [16], and information and communication technologies (ICT) are essential to a firm's viability [12]. As such, the information economy is the engine for the information society. It comprises the information technology (IT) sector of information workers and work that processes information and information tools [17].

Increasingly, businesses in the information society became e-businesses. They actively engaged in e-commerce activities, which refer to e-business activities supported by electronic markets, electronic hierarchies, electronically

supported entrepreneurial networks and cooperative arrangements [20]. E-Business activities are grounded on the electronic networked economy and characterized by flexible business practices, scalability, customization, and innovation, grounded on a flexible networked economy [3]. These activities are supported by the information economy, including e-commerce infrastructure and information technologies to provide information services in three dominant e-business models: business to business (B2B), business to consumer (B2C) and consumer to consumer (C2C).

Supporting e-business development on the backbone of an information economy, the IT sector is becoming increasingly important as business and financial worlds undergo transformations towards increased use of IT-enabled processes. Such information work and workers tend to be concentrated in IT clusters. Thus knowledge industries are migrating to geo-regions that are suitable for information work rather than manufacturing work [5].

The histories of the development of Silicon Valley and Ireland's transformation into an information economy show that rural regions do have potential to develop vibrant information sectors. These sectors are characterized by activities that engage in recording, processing or communicating information [7]. The information sector therefore, comprises businesses that engage in electronic commerce (e-commerce) and are thus termed e-businesses. Locations such as

Silicon Valley and Ireland have been held up as models of the new information economy in which e-business thrives. Furthermore, through an investigation of these locations, Benner and Trauth have shown, respectively, that the development of information economies was the result of more than technological infrastructure [2] [17]. This finding supports the argument that the impact of technology should be interpreted within its context [9]. However, not all locations can adopt the Silicon Valley and Ireland models of e-business development on the platform of an information economy. These locations point to settings in which e-business is developed alongside the development of an information economy. But as other regions attempt to replicate the success of Ireland and Silicon Valley, they will be doing so by developing e-business capacity in conjunction with establishing an information economy. Thus, the story of San Joaquin Valley, an area targeted by California's economic development plans [19], represents both a different kind of location for an information economy and a new model that is representative of emerging information economies supporting e-business.

San Joaquin Valley settled by the Spanish in 1808, is located in central California. The agriculture industry in San Joaquin Valley began in 1847 when the first grapes were grown in Lodi; agriculture remains its main activity today [11]. Presently, San Joaquin Valley encompasses nine counties – Fresno, Merced, Kern, San Joaquin, Kings, Stanislaus, Madera, Tulare, and Mariposa.

Despite California's economy being the sixth largest in the world [14], the San Joaquin Valley is a rural region in California. However, its percentage growth in taxable sales from 1990 to 1999 is 54 per cent, which is higher compared to the State average at 45 per cent [18]. In view of its economic potential, San Joaquin Valley represents an important area in the study of e-business development through the information economy. This research is aimed at investigating the societal capacity for e-business development in San Joaquin Valley. The results of which, can be useful to the IT industry in general, business people, policymakers and economic development interest groups.

## **1.2 Research Methodology**

This research applies Trauth's theoretical framework (see Figure 1) that was developed to study the influence of the societal context on the evolution of Ireland's information economy [17]. According to this framework, four factors comprise the societal context: infrastructure, public policy, economy, and culture. Using this model as a lens for investigating societal influences, the following research questions were advanced<sup>1</sup>:

RQ1 How does public policy influence the development of an IT sector in San Joaquin Valley?

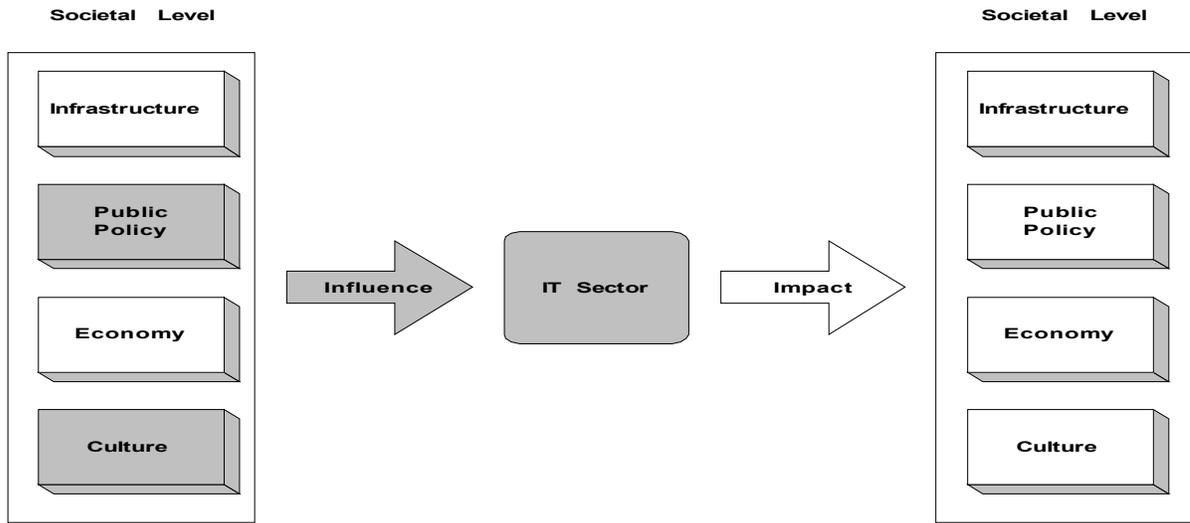
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<sup>1</sup> Due to space constraints, only two of the four factors are discussed in this paper

RQ2 How do cultural factors influence the development of an IT sector in  
San Joaquin Valley?

The shaded portions of Figure 1 represent the focus of this paper.

*Figure 1: Research Framework*



Guided by this research framework, empirical data were collected in San Joaquin Valley in the summer of 2003, through semi-structured in-depth interviews, along with a review of documents related to policy and the regional economic well-being. The face-to-face interviews were conducted with members of the local population and local business development organizations. These included students, workers, and directors and managers of business development organizations, such as the Valley Small Business Development Center (VSMDC). The interview questions were about economic development policy and initiatives, their effectiveness, public awareness, and attitudes towards life and education. The framework was used to guide data collection and analysis categories.

The data were coded using the four factors in Trauth's research framework [17]. Data related to policy, political, and public opinion were coded under public

policy factors; data related to the social dimension such as attitudes and culture were coded under cultural factors.

In the next section, empirical findings from the interviews pertaining to the focus of this paper are presented. The paper concludes with possible future research directions to address the limitations of the study.

## **2 Research Findings**

There are economic policies and initiatives in San Joaquin Valley that are directed at developing an information economy. At the same time, there is evidence of political apathy and lack of awareness of economic opportunities among the Hispanic farm working population, which constitutes almost half of the total population. Without effectively improving their economic well-being through the creation of jobs and opportunities, the industries in the Valley remains oriented around low utilization of IT and pre-information economy business practices.

### **2.1 Public Policies**

San Joaquin Valley lags behind the rest of California in terms of economic development. Nevertheless, local Government policies do not support an environment conducive to business development. There were no clear policies that guide current business practices pertaining to the economy or employment conditions in the Valley. In the public mind, there are two dominant camps: one

advocating no changes in current practices, and the other advocating change to facilitate the development of an information economy and overall economic development. Consequently, an initiative that is undertaken will require time to overcome resistance on the part of people in power.

### *2.1.1 Broadband Access*

The Broadband Internet Access Act of 2001, S 88, aims to make amendments to the Internet Revenue Code of 1986 to provide incentives to ensure timely and equitable access to the Internet for all Americans. The Act was designed to facilitate the spread of high-speed Internet technology to low-income and rural communities [6]. According to the Bill, “the Internet has been the single greatest contributor to the unprecedented economic expansion experienced by the United States over the last 8 years,” and that “increasing the speed that Americans can access the Internet is necessary to ensure the continued expansion.” The main reasons cited from Senator Lieberman in June 2002, in support for this strategy are focused on stimulating IT investments to facilitate economic growth, increasing productivity levels to three per cent annually, and to support public health, education and economic welfare. It is presently being reviewed by committees.

This Federal level initiative justifies the development initiatives in San Joaquin Valley. Residents in the Valley can benefit economically and socially from

it through possible follow-up initiatives of the local Government and economic development organizations.

In addition, the nine Counties in San Joaquin Valley launched ACCESS, an initiative that is aimed at development and implementing IT initiatives in San Joaquin Valley. A San Joaquin Valley task force was set up to develop the projects, provide consultation services as well as distribute the relevant documents.

### *2.1.2 Creating Awareness about Opportunities*

The data suggest that not much money in San Joaquin Valley is devoted to community development. A majority of the population remains poor, yet little has been done about it. Fresno County's unemployment rate has remained high between 1996 and 2000, and has repeatedly failed to fall below 12% level. Importantly, there is a considerable income disparity between the rich and the poor in the Valley.

In addition, there is resistance from segments of the population to change. For example, businesses and the Government are inclined to keep wages low so that it will attract labor-intensive industries to exploit the low overhead costs. These low costs remain as one of the main attractions of businesses even today – and many are making a lot of profits because of this. This low-wage situation persists also because the main labor force (the Hispanic farm workers) is typically contented with lower income because it is offset by the low costs of living. They

do not understand their problems and according to the interviewees, those who do are not aware that they can make a difference.

Furthermore, seminars that were designed to promote IT awareness among the population were not sufficiently targeted at the Hispanic population. Most of the attendees of these training seminars were non-Hispanic business leaders instead of the Hispanics themselves. And there seems to be little initiative to change this.

### *2.1.3 Political Climate and Effecting Change*

The political situation in San Joaquin Valley is disadvantageous to the lower income segment of the population, which is also the majority of the local Hispanic farm workers. There would be cause for optimism if a majority of the population were on the same side – in other words, if there were a focused effort. However, there is typically no open debate about such issues. The Hispanic farm workers, which constitute of half of the local population, cannot decide who should represent them, thus leading to misrepresentations in public opinion.

There is also a problem of Affirmative Action in San Joaquin Valley. California is multi-ethnic, and the local Hispanic population accounts for almost half the population in Fresno County. The population breakdown is given in Table 1. However, there was little support for Affirmative Action that could possibly equalize opportunities across the races.

Table 1: Fresno County Population in 2000

<b>Ethnic Group</b>	<b>Number</b>	<b>Percentage (%)</b>
White	317,365	39.7
Hispanic	351,739	44.0
Asian/Pacific Islander	70,348	8.8
Black	47,964	6.0
American Indian	11,991	1.5

Source: US Census Bureau

[1]Note: Some figures are approximate as interpreted from the original source

## 2.2 Cultural Factors

Overall, the data suggest that the Valley is becoming economically poorer. In addition, the Hispanic farm working population exhibits negative attitudes towards social and economic change, as well as towards education. This is partially reflected in their relatively poor showing state-wide in education performance.

### 2.2.1 Demographic Representation

In contrast to the Hispanic population, the Caucasians are typically the ranchers and farm owners. They hire the Hispanic as farm workers to pick grapes for instance – some as low as \$1 per hour. Between 1990 and 1998, Fresno’s annualized percentage change in real per capita income is -0.56, while its annualized percentage change in population is 1.79. Importantly, the metropolitan areas in the U.S.A. have a median real per capita income growth of 1.49 and population growth of 1.18 for the same period [4]. These suggest that the region is

lagging behind relatively in terms of economic development but experiencing an increase in population growth.

In addition, interviews with local students revealed that many of the Hispanic students come from households whose members could not converse in English. Furthermore, a majority of their families are not literate. With the exception of Mariposa County, the Scholastic Aptitude Test (SAT)<sup>2</sup> performance of San Joaquin Valley residents was lower than the California average in 2000 (refer to Table 2).

*Table 2: SAT Average in San Joaquin Valley and California, 2000*

<b>County/State</b>	<b>Average</b>	
	<b>Verbal</b>	<b>Math</b>
Fresno	≈460	≈480
Kern	≈480	≈500
Kings	≈455	≈460
Madera	≈460	≈480
Mariposa	≈545	≈560
Merced	≈455	≈470
San Joaquin	≈470	≈490
Stanislaus	≈490	≈510
Tulare	≈470	≈480
<b>California</b>	<b>≈490</b>	<b>≈520</b>

Source: California Department of Education  
Adapted from [10]

The pace of life in the Valley is generally slow. Within San Joaquin Valley, Fresno County is the most developed and most urban. According to the interviewees, this slower pace of life is one of the main attractions to retirees. One

<sup>2</sup> SAT is a standard test which measures a student's aptitude for a University education in the United States of America (U.S.A.). This is a standard requirement for university admission in the U.S.A. This test focuses on English and Mathematics. For more details, visit <http://www.ets.org/tests.html>.

of the interviewees said he did not find Fresno attractive in any way. However, his wife wanted to retire in Fresno to enjoy the slower pace of life.

Lifestyle in the Valley is also very oriented around the family. One of the interviewees said that he looks forward to taking his family to the parks and malls every weekend. He enjoys this stress-free lifestyle with his family even though he does not make a lot of money. He believes he will not leave the Valley.

### *2.2.2 Attitudes towards change, education and social mobility*

The local population remains largely agricultural and it tends to be resistant to change. As discussed earlier, residents are unwilling to use high-end technologies in their operations. For most of the farms, agricultural practices are labor-intensive rather than skill-intensive. People typically employ cheap labor and farm workers rely on their family members to help with the farm chores such as harvesting crops. They do not perceive a need for change and even if they do, they do not understand how to implement those changes. As discussed earlier, the existing training programs are not sufficiently targeted at less educated farm workers. The interviews revealed that there were no proven efforts, from the organizations that provide these programs, to find out if farm workers wish to improve their lives or whether they wish to receive training for various IT skills.

The California State University at Fresno and University of California at Merced are situated in the San Joaquin Valley. It is therefore poised to leverage

possible coordinated efforts in the education systems to develop adequate training programs to produce the skilled labor necessary for IT industries. A pool of available skilled and relevant labor would be an asset and therefore, an attraction to foreign investment.

However, findings from the interviews suggest that the local population who depend on agriculture for their living typically do not place a high importance on their children's education. They do not plan for their children's education and would very much prefer them to help out in their farms and carry on the family tradition. This lack of encouragement from the families facilitates the negative attitudes towards education among the younger generation.

For most of the local farm workers, the aim of agriculture is not expansion, but rather self-subsistence. Given their resistance to new technologies and education, it is difficult to imagine these farmers managing huge farming corporations. According to the interviewees, the local farm workers who are typically Hispanics do not place high importance on upward social mobility. Many are aware of the positive benefits of IT but are either uncertain about how to use them, or even worse, do not think it is necessary for themselves.

The local education programs have not achieved much in training the local population to develop a skilled labor force for e-business industries. This can be explained by two reasons. First, dropout rates are typically high in the educational

institutions. The local farmers harvest different crops at different places at different times of the year. As such, children of migrant workers are forced to move with them and are unable to continue their education at the same place throughout their candidature. Second, those individuals who manage to complete their education tend to leave San Joaquin Valley for better opportunities at the coastal regions like Los Angeles and San Francisco. Consequently, there is a lack of skilled labor or an educated workforce in the Valley for e-business companies.

Interviews with the general public show that the local Hispanic farm workers are typically less concerned about their children's future. Most of them do not have high aspirations for them. One interviewee remarked that he has not made any plans in regard to his children's education. He only knows that they will begin their education in Fresno because he is working there. And if he moves, then his children will move with him.

On the whole, the locals' attitudes towards education coupled with the current condition of the education programs portray a bleak future for the Valley in the creation of a new parallel information economy. Such an economy is contingent upon positive attitudes towards education and training, as well as availability of trained and skilled individuals: These preliminary findings suggest that San Joaquin Valley is severely lacking in both of these areas.

### **3 Implications of Findings for E-Business Development**

As an incentive for e-business, investors can take advantage of the lower overhead costs in San Joaquin Valley compared to those of Los Angeles, San Francisco, and Silicon Valley. The proactive approach taken by the local Government and economic development interest groups to develop IT access in the San Joaquin Valley are commendable. However, there has been a lack of documented initiatives and marketing efforts to create social needs and demand for IT. Drawing similarities from the development of the Irish information economy, policies were developed to facilitate employment and to attract foreign investment [17]. However, not only is there a lack of explicit e-business development policies and strategies, there is a lack of adequate consideration to the regional culture in San Joaquin Valley.

#### **3.1 Public Policy, Public Opinion and E-Business Development**

Yeo and Qian's study of digital television initiatives in the United Kingdom and the United States of America (U.S.A.) argued that successful technology diffusion requires a multi-level collaborative effort that takes into account idiosyncratic societal contexts [21].

However, San Joaquin Valley lacks a policy framework to facilitate the development of e-business markets. The development of e-business in San Joaquin

Valley involves diffusing high-end IT to both businesses and the general population. As discussed, there is no initiative to ensure that the population is adequately represented. The public opinion climate is largely dominated by the business and economic development leaders who communicate infrequently with the majority of the Hispanic population. Furthermore, the technological seminars have been designed to help increase IT literacy and encourage the use of IT among business leaders rather than educate the general population in the Valley.

A critical mass of consumers, coupled with low entry costs for these consumers to participate in electronic transactions is a key success factor for e-business [14]. Without this critical mass of consumers, it is difficult for e-businesses to target the local market. The political under-representation is a significant problem because it inhibits IT-related economic initiatives. This in turn, restricts the benefits of developing IT infrastructure to the few who can afford the technology. Consequently, high barriers to entry for aspiring e-businesses have arisen. In addition, the under-represented Hispanic farm workers are not substantially aware of e-commerce and thus are resistant towards the engagement of online consumption activities.

Furthermore, most of the Hispanic farm workers are either too ignorant or too apolitical to elect a representative to partake in the political discourses. This leads to a severe misrepresentation of public opinion. In such instances, it is unlikely

that their interests would be looked into. Meanwhile, the interests of the business and economic development leaders are sustained and positioned such that the Hispanic farm working population is repeatedly exploited for their unskilled labor.

Human capability – what Sen defined as five substantive human freedoms, are constitutive and instrumental to economic development. These are political freedom, economic facilities, social opportunities, transparency, and security [13]. Sen's framework places special emphasis on political freedom to exercise public discourses, and this should be extended to all sectors of the population rather than restricted within a few powers-that-be [13]. Accordingly, political freedom and access to economic facilities are crucial to growth as it facilitates the availability and access to education and basic healthcare, which are essential drivers of growth [13]. Extending his argument, such developments facilitate the development of e-business environments.

Bar demystified the promises whereby the Internet will bring about an egalitarian marketplace of sellers and buyers. Instead, the dominant marketplace discourses seemed to be restricted to major players [1]. This is explained by the high market barriers (i.e. barriers to entry for smaller players), as well as the emergence of new intermediaries coupled with the disintermediation of traditional commercial activities. Without policies to facilitate freedom to voice opinion and access to economic facilities, e-businesses activities will be restricted to a few

players, thus preventing the development of an e-business market. The initiatives by the local economic and business development organizations to push the development of IT in rural and low-income communities in the Valley were commendable efforts. However, the larger picture of policy and culture was not adequately considered.

### **3.2 Education as a Socio-Cultural-Infrastructural Issue**

There is a lack of efforts directed at increasing their awareness of the importance of education. Sen's argument advocates social opportunities as essential drivers of growth [13]. In this context, the lack of social opportunities for basic necessities possibly enhances the public's lack of emphasis on education, thus inhibiting the effect of education on creating a pool of skilled labor for e-business development.

Efforts were not substantially directed at the local population to educate them about the importance of education, economic development and the use of high-end technologies. There was also a lack of documented education initiatives to target the Hispanic farm workers to change their mindsets in their upbringing of their children. The data suggest that the local Hispanic farm working population's perspective on social change is largely inward oriented rather than outward. In the development of the Irish information economy, the Irish changed their perspectives to an outward orientation as society shifted from agricultural to a post-industrial

society [17]. This slow pace of life, coupled with their negative attitudes towards social mobility, explains their lack of emphasis on education.

Flexible labor is an important contributing factor to the development of Silicon Valley's information economy [2]. Businesses in the information economy should engage in flexible employment practices in order to adapt to the rapidly changing economic conditions, so as to sustain long term viability. Rapid changes in the quantity of work, skills, information and knowledge required to execute IT work, as well as the social interactions involved in performing that work are rooted in the dynamics of competition in IT-based industries engaging in e-business because rapid innovation is crucial. E-businesses therefore need the flexibility to acquire adaptive physical and human resources [8]. E-Business activities also emphasize the use of knowledge. Thus an adequate education for the population is crucial to develop an IT sector in the information economy so as to support e-business development. In addition, it must be flexible to accommodate new dynamic knowledge [5].

As with the development of the information economy in Ireland, raising education levels and providing educational opportunities that were compatible with IT-related industries are crucial factors [17]. In San Joaquin Valley however, the lack of importance placed on education by the local Hispanic farm workers' families especially, is hindering the education of their children. This problem is

aggravated when their SAT scores are considerably lower than the State average. In addition, the intra-Valley migration caused by farming practices prevents their children to exploit the education programs and facilities in the Valley. As it seems, the flexibility required by e-business industries seems unrealistic in the Valley.

Employment opportunities that are related to IT are not readily available for graduates of the local educational institutions. And the existing employers are not likely to match the employment offers from the bay areas in terms of monetary rewards. Typically, individuals with higher competencies valued in the IT sector tend to migrate to developed regions where knowledge work and e-business activities are concentrated in IT clusters, leaving developing regions trying to retain them. Meeting the human infrastructure challenge is difficult. But there was little or no effort to create such employment in the Valley. The local individuals who do manage to receive adequate training in schools tend to leave the Valley because there is neither demand for IT-skilled labor nor a vibrant e-business working environment in the Valley at present. This stands in sharp contrast to Ireland's development of its information economy where jobs were actively created in the second half of the 1990s [17]. Without efforts to attract foreign investment, which in turn, creates IT-related jobs for a skilled local population, it becomes difficult to retain the segment of the population who has relevant knowledge and skills.

## **4 Conclusion**

### **4.1 Major Themes**

The researchers highlighted policy and regional cultural issues that inhibit the development of e-business industries in the San Joaquin Valley. In summary, explicit e-business development policies are lacking and the culture of the San Joaquin Valley is not adequately poised to develop the skilled and flexible labor necessary for the flexible networks that e-businesses require.

As a final note, California is currently facing financial difficulties as a State, with a US\$38 billion deficit and without a viable solution. The shortfall is largely due to the national economic downturn. It was especially severe in Silicon Valley, which is the engine of California's US\$1.3 trillion economy. Other causes include rising health care costs for the poor as well as new expenses for homeland security [15]. Without a viable solution, California was bound by law to cut billions of dollars in payments to its agencies, medical providers and private companies that contract with California [14]. Much of the development of a viable public policy framework depends on the budget of the Californian Government – because of the need for subsidy of public goods and public education. This increases the complexity of e-business development in San Joaquin Valley.

## **4.2 Limitations and Future Research Directions**

The study is limited because it excluded the economic and infrastructural dimensions of the research framework. Further research could include an analysis of education as both a cultural and a human infrastructural issue. Also, the study only included California. Although California's high ranking global economy, coupled with large rural regions, is an interesting study site, the research framework can be applied to other regions with different socio-political and economic conditions. These include non-American regions like China and Southeast Asian Countries, which are actively developing their national information infrastructure.

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