



**A Blueprint for High
Technology in Riverside**

**Recommendations of
The High Technology Task Force**

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EXECUTIVE OVERVIEW

Riverside's historical reliance on "cheap dirt" real estate has spawned numerous warehousing and other land-intensive low-technology businesses. Marketing emphasis on low utility rates has brought in a number of low-tech, high-usage manufacturing production and low-wage services. However, with a sizeable government employment base, the presence of four institutions of higher education, and a growing population of increasingly educated and wealthy residents emigrating from the coastal communities, Riverside lays claim to a diverse economic base and growing metropolitan momentum. These factors, both positive and negative, place Riverside at an economic crossroads.

In February 2004, Mayor Ron Loveridge and Assistant City Manager Michael Beck joined to appoint the High Technology Task Force (the HTTF). The HTTF was a volunteer group of technology business leaders in Riverside charged to make recommendations for economic development in the competitive high technology market.

The HTTF was to evaluate Riverside's technological progressiveness and competitiveness, and make recommendations for city action to improve high technology economic development. The HTTF used the combined experience and expertise of its members to provide a set of high-level and policy-oriented recommendations in preparing for the future. This paper describes these recommendations.

After eight months of study and discussion, and with comments and support from leaders in the business and academic communities, the HTTF recommends the City:

1. Promote Local High Technology Development
2. Attract and Support Existing Riverside Businesses
3. Assure Advanced Internet Access
4. Assure City Strategic Use of Technology
5. Stimulate Tech Transfer and Entrepreneurship
6. Promote Riverside as Center For High Technology
7. Orient Policies, Codes and Ordinances around High Technology
8. Attract and Retain Professional Workforce



THE HIGH TECHNOLOGY TASK FORCE

“Economy watchers have been struck by the dynamism of new industries, dubbed ‘high-tech,’ and their apparent role in driving differential regional growth.”

- Project on Regional and Industrial Economics, 2001

THE CHARTER

In February 2004, the Mayor and the Assistant City Manager for the City of Riverside created the High Technology Taskforce (the HTTF). The City recognized that many important elements are necessary to grow and sustain a knowledge-based economy. The HTTF was formed as an independent group of high technology experts and practitioners to recommend strategy and direction for the future of Riverside’s high technology business sector. As leaders in the technology field, the opinions and comments of the HTTF were sought to bring insight, independence, and credibility to the issues and opportunities of high technology. The experience and vision of the Taskforce as technology business leaders was expected to raise awareness of the prospects and hurdles of technology firms choosing to do business in Riverside.

THE CHARGE

The charge to the HTTF was to evaluate Riverside’s technological progressiveness and competitiveness, and to make recommendations for city action to improve high technology economic development. The HTTF was envisioned as a short-term group to review, evaluate, and make recommendations. The HTTF used the combined experience and expertise of its members to provide a set of high-level and policy-

oriented recommendations in preparing for the future. This paper describes these recommendations.

THE SCOPE

The scope of the HTTF was limited to recommendations actionable by the City, which included recommendations impacting Riverside's business, social, economic, and cultural environment. While the Taskforce was not charged to be an implementation body, the Taskforce was expected to deliver specific and actionable recommendations to the City. The political capital amassed in the Taskforce was intended to lend weight to the recommendations, which could include structural, policy, capital and human resource implications for the City to execute the Taskforce vision.

AN INTEGRATED EFFORT

We believe the recommendations for City action presented here are but only one part of a much larger, and much longer, integrated approach. The efforts by the City of Riverside need coincident efforts by Riverside's universities, Riverside's private businesses, and the Chambers of Commerce.

Each one of these critical players needs to have clear focus and a determination to make Riverside the capital of high technology in Inland Southern California. Each needs specifically charged individuals – champions of high technology economic development – to coordinate, communicate, and cooperate in building the future of Riverside.

The recommendations here are a necessary first step toward the future of high technology in Riverside.

HIGH TECHNOLOGY

For the purposes of the HTTF and this document, high technology is defined as a broad set of manufacturing



and service industries with substantial innovative content. These include six specific economic markets as high technology: (1) information technology and software development, management, and services, (2) pharmaceutical, biomedical, and biotechnology products and services, (3) nanotechnology research and development, (4) environmental technology, (5) engineering and architectural services, and (6) research, development and testing services.

THE MEMBERS

The Taskforce was composed of volunteer group of private sector technology professionals and business owners. The appointees were **Amro Albanna**, Chief Executive Officer of Qmotions; **Michael Beck**, Assistant City Manager of the City of Riverside; **Chris Buydos**, Director of Economic Development at the University of California, Riverside; **Brian Hawley**, Chairman and Chief Technology Officer of Luminex Software, Inc.; **Rajan Kasetty**, President and Chief Executive Officer of InfoTech Software Solutions; **Al Lewis**, Chairman/CEO of GamePlex; **William Saito**, Chief Executive of I/O Software; **Ed Setzer**, Tech Coast Angels; and **John Tillquist**, Information & Management Consultant and Assistant Professor of Management Information Systems at the University of California, Riverside.

In composing the recommendations detailed in this report, the Task Force sought out input and support from a number of groups and committees from around Riverside, including:

- o Greater Riverside Chambers of Commerce
- o CEO Forum
- o Department Heads from the City of Riverside
- o The Riverside Downtown Partnership
- o The City of Riverside Economic Development Corporation
- o Chancellor and Vice Chancellors of the University of California, Riverside
- o SmartRiverside

This report is a culmination of these voices about the future of high technology in Riverside.



HIGH TECHNOLOGY IN RIVERSIDE

Eight Strategic Recommendations for Fostering High Technology

STARTING THE JOURNEY

In years past, Riverside has been marketed for low real estate prices and inexpensive electricity. Reliance on “cheap dirt” real estate has spawned numerous warehousing and other land-intensive low-technology businesses. Marketing emphasis on low utility rates has brought in a number of low-tech manufacturing production and low-wage services.

Low skill, low pay industries now make up much of the economic base in the Riverside/San Bernardino region: food services, administrative services, and trade contractors top the list. Coincidentally these are also among industries with the lowest average wage. Other “core competencies” that differentiate the Inland Empire from the rest of southern California and on which many pin their hopes for economic development – warehousing and storage, freight and logistics, and durable product manufacturing – are also among the lowest paying industrial sectors in the United States.

<u>Wages in Inland Southern California</u>	
<u>Rank</u>	<u>Annual</u>
1 Food Services	\$10,828
2 Administrative	\$17,198
3 Trade Contractors	\$30,382

Source: US Department of Labor Employment Statistics

At the same time there is a shortage of skilled labor in the area. Riverside and Inland Southern California rank among California’s lowest in post-secondary education rates and median per capita income.

Those skilled professionals who do make a home in the Inland Empire often do not work here. Almost one out of three workers commute out of the Riverside/San Bernardino area each day for more money or for the opportunity of professional work – the highest rate of daily exodus for any region in the United States.



With a shortage of skilled labor, with a state government that makes doing business in California difficult, with few existing high technology companies and with no comprehensive plan to attract or to grow them, it is not surprising that high technology businesses are looking elsewhere. To high technology companies it may appear the labor, capital and entrepreneurship opportunities for higher economic development in Riverside are small.

Despite having over a quarter million people, nearly one out of three living in the Inland Empire commute out the county for work. When asked why, most cite the lack of high skill and high pay opportunities.

However, with a sizeable government employment base, the presence of four institutions of higher education, a growing population of an increasingly educated and wealthy residents emigrating from the coastal communities, and as the largest employer in the Inland Empire, Riverside lays claim to a diverse economic base and growing metropolitan momentum.

Important, yet still fragmented, factors such as the Downtown Wireless Mall, an existing broadband fiber optic network, UCR's nanotechnology research, and the University Research Park portend a future of high skill and high technology. Many political and business groups, such as the Inland Empire Economic Partnership (IEEP), SmartRiverside, the CEO Forum, UC CONNECT and Core21, have been excited with these prospects and have sought to encourage high technology development. A growing cluster of high technology companies have made Riverside their home, attracting the interest of

venture capital firms from the coast. Increasingly interest is building to forge the City of Riverside into the high technology capitol of Inland Southern California.

The citizens of Riverside want professional, high technology jobs. Three out of four¹ say the Inland Valley needs more high-skill jobs, and eighty-two percent want to change the focus of the region to attract high technology opportunities.

And most are willing to pay for jobs. Two thirds say they would continue to support a government push for high technology opportunities, even if it meant some additional taxes were needed.



Three out of four people say the Inland Valley needs high-skill jobs ... and they are willing to pay additional taxes to bring them here.

Accompanying this ground-swelling call for technology jobs is an opportunity for change. Economic changes outside the city have created unprecedented opportunities for high technology economic development. There is a surplus of highly skilled professionals, managers, administrators and entrepreneurs from now-defunct dot-com businesses. Large amounts of venture capital, previously frozen in fear of high technology, are now searching for profitable ventures as the real estate market cools down. And increasing federal government grants and loan guarantees for start-ups and commercialization of

high technology applications – including the new \$4 million Center for the Commercialization of Advanced Technology (CCAT) center at Cal State San Bernardino – are fueling high technology in Southern California.

¹ Based on a survey by the Tomás Rivera Policy Institute

A CROSSROADS

These factors, both positive and negative, place Riverside at a crossroads. On one side, simple industrial production, manual labor and service jobs – critical to the agricultural-turned-warehouse logistics trend – have for large part buffered Riverside from the economic downturn that has devastated much of the California economy. This economic direction, however, relies on low-skill low-pay positions and ultimately is neither sustainable nor desirable. Riverside is running out of open land for development, freight and passenger traffic on streets and rail are reaching capacity, and industrial production and service businesses are being exported to other cities or outsourced to other countries.



THE VISION

High technology is a necessary and important component to the economic future of the City of Riverside. To create that future, Riverside must anchor its place as the high technology capitol of Inland Southern California.

But how can Riverside become the high technology leader for Inland Southern California? Should Riverside pursue and attract one or two large “heavy hitters” to anchor high technology development, or should the plan be to nurture “homegrown” startups? Where to find the high-skill professional workforce, and where to find the high technology jobs that attract and retain such a workforce?

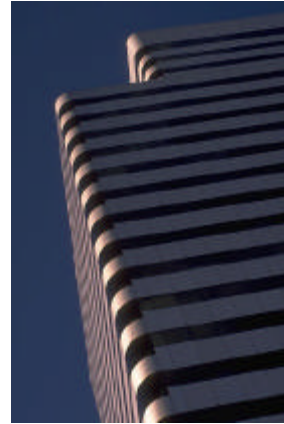
Competition for high technology companies and professionals is intense. When asked for their economic development strategy, most cities cite “attracting high technology” as one of their leading directives. For some cities that strategy has been successful, such as Seattle, Austin, Raleigh-Durham, Salt Lake City, and North Carolina’s research triangle. A few have had one or two big hitters in technology, such as Microsoft in Seattle, but the majority of the success stories are driven by a broad and diversified range of small- and medium-sized technology companies.

The success stories have three things in common. First, each city has spent considerable effort, time, and money in fostering and supporting small, local entrepreneurs and startups. Austin, San Diego, and San Francisco serve as examples of these efforts. Second, cities such as Boston and Palo Alto have invested heavily in building relationships with their local universities and fostering a variety of technology transfer opportunities. The third common attribute of these successful cities is that each has created the infrastructure and support systems to tap into government grants and business loans to stimulate entrepreneurship and launch hundreds of fast growing small companies.

For these reasons we believe that it is better to foster high growth start-up companies than to entice large companies with incentives. Entrepreneurial capacity and economic diversity are prime drivers of job creation and economic growth.

Riverside must be able to innovate, and to start and grow new firms to augment its economic base as older firms stagnate or disappear. It is the entrepreneurial base that creates economic dynamism. Entrepreneurs are necessary visionaries of the economic potential of new technologies and how to apply them to innovative business applications.

This is not to say, however, that Riverside should focus exclusively inwardly, or only on startups and new businesses. Significant and focused efforts are necessary to identify and solicit opportunities from companies outside the Inland Valley. Riverside should act as “test bed” for new technological innovations from large companies as a means to increase technology opportunities and to raise visibility of Riverside as the technology leader. The City needs to remain alert for businesses seeking to relocate from coastal cities, and to have a strong and focused strategy for assisting these firms into Riverside.



When considering whether to foster high growth start-ups or to recruit large companies with incentives, it is better to “raise gazelles” than to “hunt buffaloes.”

- Tomás Rivera Policy Institute, 2004

A VISION FOR RIVERSIDE

Fostering, attracting, and retaining high technology businesses and professionals will take concerted effort by the City. The City must integrate high technology into all aspects of operations and relations. New codes and ordinances are needed for the rapidly expanding high technology companies, including those that would assure flexible leasing agreements, broadband Internet connectivity, technology zones with attractive office settings and nearby restaurants and services, and beefed-up power and air conditioning requirements. As many technology professionals are single, mobile, and independent,

codes for additional parking, after-hours services, and residential broadband connectivity are prerequisite mandates.



Such a young and mobile professional workforce is not attracted to suburban single family detached housing. They look for apartment and condominium complexes in vibrant urban settings, close to amenities and places for social gathering. The City's planning, parks, housing and neighborhood departments will need to orient their efforts around these themes.

Internally, high technology touches every department of the City. Public utilities will need to assess new technological services and applications, both for economic efficiency and for reinforcing Riverside's image as technology-friendly. Public planning will need to leverage information technologies to facilitate urban development, to coordinate both within the City and outside with external stakeholders, and to better provide for traffic, municipal services and city improvements.

The City Council, the Mayor, and the City Manager need a high-level internal staff dedicated for providing trusted assessment and guidance in technology-specific matters. This requires staff with experience and training in high technology to seek out business opportunities, to evaluate options for new city technologies, to manage and direct internal information systems operations, and to participate in joint planning with city officials to assure adequate and appropriate technological services are available and used.

The City's economic development arm should organize departmental structure and work processes around industries, rather than municipal functions. High technology should be one of these industries. Each department within economic development should have direct access to people, processes, and information throughout the City, to facilitate city services needed for economic development (such as permitting, code enforcement, abatement programs, information about technology overlay zones, utilities, and media relations).

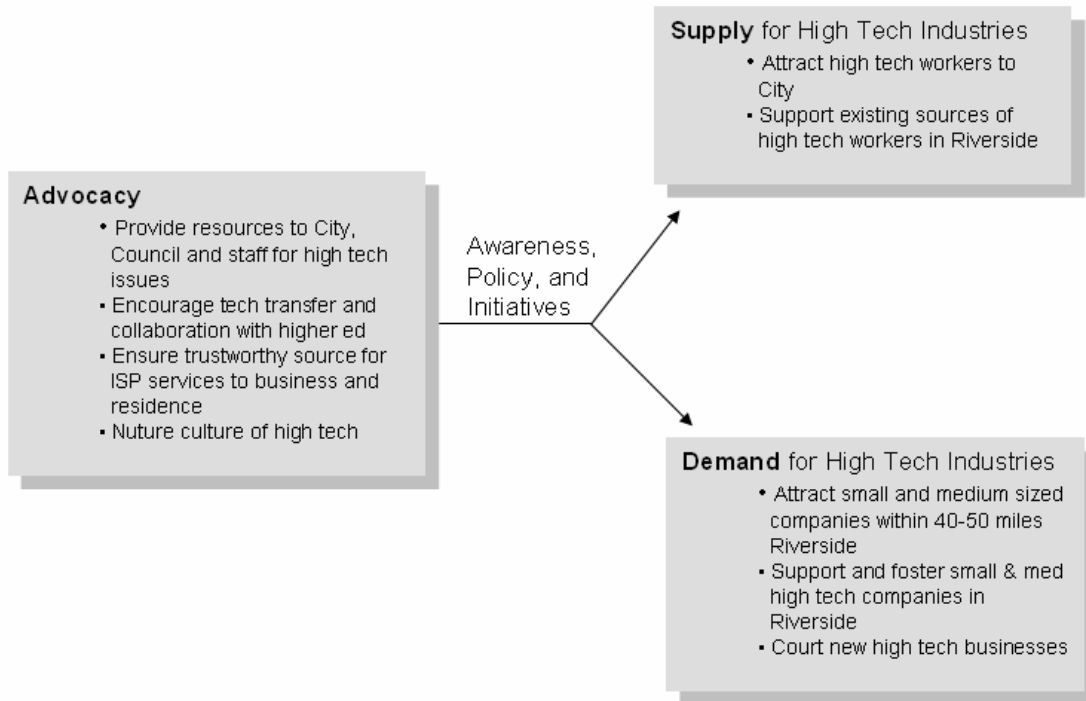
It will take strong leadership to make Riverside the best place for high technology in Inland Southern California. All aspects of city

governance need to work in concert to show potential businesses, investors, and professionals that Riverside means high technology.

EIGHT STRATEGIC INITIATIVES

We believe this vision for Riverside is possible. We have studied other cities that started their high technology development plans years and even decades ago. From these cities, we see opportunities to accelerate Riverside up the high technology development “learning curve.”

The process has three components: Advocacy, Supply of a professional workforce, and Demand for high technology industries. The City cannot directly change either the supply or demand components, but can have a strong hand in creating an environment attractive to high technology through marketing, incentives, infrastructure, policies, and code enforcement. Riverside must raise its visibility as leader in high technology, be aggressive in exploring new ventures and embracing local entrepreneurship, and be a leader in the use of technology in government services.



The High Technology Task Force recommendations give substance and depth to these issues. These recommendations are divided into business promotion, business development, technology infrastructure, internal operations, capitalization and entrepreneurship opportunities, marketing and promotion, and policy. These are the necessary components to create and nurture entrepreneurship opportunities, attract businesses and grow a professional workforce.

The initiative for high technology, however, should not be considered a piecemeal approach – instead, these specific recommendations need to be integrated together as actionable items within an overarching vision of Riverside’s high technology future. To succeed, the City of Riverside must embrace the vision of high technology and use it to organize and orient all aspects of city governance.

Indeed, it will take cooperative leadership from all branches of the City in creating a cityscape that encourages and develops high-skill and high-pay technology businesses.

The High Technology Task Force discussed many different initiatives over the past eight months. Following is a set of recommendations representing the distillation of these many different ideas seen as important to the high technology community, based on our assessment of each in terms of feasibility, impact, and resource availability.





Promote Local High Technology Development. Promoting local startups, entrepreneurs, and small businesses was ranked the top priority for the HTTF. Small firms in business services and technology are the driving forces of economic development. The City of Riverside can make a difference by creating a business-friendly environment for technology firms to stimulate entrepreneurship and to foster growing high technology businesses. Specific initiatives include:

a. Make value-adding incentives available for advancing high technology companies. Small companies are often rich with ideas and enthusiasm but lack basic amenities to conduct business. This is especially true for high technology startups, where labor costs are often well above average and laboratory space is expensive, eating up dollars that are needed for capital and expense items. Technology startups have specialized needs, though while often minimal, these can make the difference between success and failure in the first few years. The City can help stimulate entrepreneurship by providing aid to startup companies in the form of:

- Rent abatement programs
- Tenant improvement packages
- Business loans, grants, and support packages for telecom, equipment, office space and working capital
- Broadband-to-Curb and Broadband-to-Wall Internet service connectivity
- Readily available directories describing what resources are available, where to find them, and how to apply

b. Implement and support a technology incubator in the University Research Park. The University Research Park creates the possibility for a "critical mass" of high technology companies in one place. Close proximity of technology companies to one another increases cooperation, opportunity, synergy, and entrepreneurship. But companies and the local universities need a place where novel applications and ideas can be commercialized. Some local businesses have taken it upon themselves to lease out spare office space and

clerical support for modest fees to new one or two person startups. The University of California-Riverside has attempted implementing the incubator idea to varying levels of success. These attempts, however, have lacked focus and central management. The City should work with the University, through coordinating the diffuse services and initiatives by academia and private companies, to make a technology incubator viable and productive.

c. Assure that high technology parks are established and maintained to concentrate high technology companies. The University Research Park represents a bold step forward for Riverside, but recently tenants have seen new neighbors that do not fit the theme of a technology park. Public storage units and a less-than-attractive entrance detract from the appeal for technology opportunities and reflect poorly on the image of a technology park. The City must carefully consider the value and fit of each potential tenant in terms of the intended vision of the future of the park, and enforce ordinances and codes to assure the integrity of the vision.



Attract and Support High Technology Business Development through Aggressive Focused Business Attraction and Advancement. A key element in the vision for Riverside’s high technology future is “Five Star” attention and service to technology companies and executives considering Riverside:

- o An executive level high tech “point guard” for the City
- o “Concierge” level service for high technology businesses
- o A rapid response team for business events and issues
- o Courting and managing test-bed opportunities
- o An international, versus regional, scope

In detail, the Five Stars of the program are:

a. Establish technology director within City Hall for high technology. A repeated observation raised in Task Force discussions was the importance of having someone “on the inside” of the City who understands technology and who can mobilize city resources and services. Having such a contact enables businesses to better understand city services, to better coordinate transactions with the City, to quickly resolve questions and issues, and to serve as advocate for technology businesses.

To be successful this position needs to be well connected and influential within the City. This needs to be an upper management position with both the responsibility for facilitating interaction with the City and the authority within the city hierarchy to mobilize resources and effect positive change. Consolidating technology management and planning responsibility under this position enables the City to be responsive and supportive of local technology businesses and issues.

As advocate for high technology, this position serves as point for technology initiatives for the City and technology businesses in Riverside. This includes responsibility for creating economic partnerships with local technology businesses, customizing city services and processes, resolving issues and concerns, and providing

trusted assessment and guidance in technology-specific matters to the City, especially for matters in front of the City Council, the Mayor, and the Office of the City Manager.

As coordinator, administrator, and chief architect of city technologies, this staff creates city technologies that energize high technology business development. This staff investigates opportunities for e-government services, new technologies, and better constituent services for value and suitability with the City's goals and objectives. This includes evaluating options for new city technologies, responsibilities for direction and oversight of City Hall's information systems (and the current outsourcing contract with ACS), and participating in joint planning with City Officials to assure adequate and appropriate technological services are available when needed and are used effectively.

b. Establish "Concierge" services for high technology businesses. In conjunction with a technology director, the City also needs to define a high-level staff position responsible for courting high technology executives and establishing their businesses within Riverside. This marketing function seeks out existing technology companies to recruit to Riverside. This includes culling Riverside alumni lists, social and professional networks, and other references to businesses, building one-on-one relationships with executive business leaders, raising awareness of Riverside as technology capitol of the Inland Valley, and persuading business executives to relocate to Riverside.

A primary focus here is on the chief officers and their spouses, providing assistance and direction in locating schools, housing, programs, and involvement in the community. Businesses locate where executives want to live, and a primary purpose of this concierge person is to make moving both executives and their businesses to Riverside as easy as possible.

Knowledgeable of city processes, contacts and incentives, this staff responsibility needs to be highly visible to existing and potential technology businesses. This position needs to be armed with directories of businesses, contacts both inside and outside of City Hall, and with knowledge of resources, practices, and programs that impact technology-based businesses. To be effective, the presence and function of this position needs to be well publicized outside the Inland Valley through media, the Internet, and print advertising.

c. Initiate a high technology "Rapid Response Team". Visibility and attention in the community is important to attracting and retaining technology firms. We recommend a team of highly placed government, academic, and private business managers be constantly on-alert to showcase Riverside's high technology milestones, to welcome new business opportunities, and to publicize Riverside's high technology image.

This collective group, expected to be called upon on short notice, assembles for technology firms considering relocating to Riverside, for firms considering leaving Riverside, and for business events such as openings and product / service launches. Composed of the Mayor, members of City Council, City Planners, and representatives from government services with leaders in academia and local technology businesses, this rapid response team brings visible city presence and support for technology businesses in Riverside.

d. Seek out companies looking for cities to roll out their products for "proof of concept". The Task Force identified several examples of large companies with high technology initiatives and trials searching for host cities, such as Verizon's urban wireless broadband initiative. Such "proof of concept" trials and "test bed" opportunities bring visibility and recognition of Riverside as technology-friendly, the potential for subsidiary and branch divisions locating in Riverside, opportunities for training and experience for the local workforce, and the development of secondary products and services. These opportunities need to be sought out, managed, and administered efficiently and effectively, and be integrated into other city operations, such as media relations and marketing.

e. Court technology opportunities internationally. Unlike other industries, our competition for high technology firms and professionals is not simply Ontario, Corona, or Temecula. In high technology, the competition is global; our competition comes from cities in Ireland, Puerto Rico, China, India and Australia. To compete internationally, Riverside has a strong existing asset with March Air Reserve Base. We recommend the City work to identify ways to exploit the free trade zone located on the base to expand the international reach of companies in Riverside.

The international scope also needs to be integrated into marketing and the pursuit of business opportunities. Riverside needs to be aggressive in seeking out international opportunities and be able to showcase the services, amenities, and support that will attract business to Riverside.



Technology Infrastructure

Assure Advanced Internet Access for Businesses and Residences. Technology-based businesses rely heavily on broadband telecommunications. Interruptions of service for many technology companies mean significant loss of revenue, customer trust and market-share. Nanotech companies and pharmaceutical development firms need high capacity communications for research and cooperative development, as these local subsidiaries are often only one arm of a geographically diverse corporation. Needless to say, the Task Force places a high priority on the recommendation for the City to make assurances of stable, high-capacity broadband connectivity.

a. Connect the University Research Park (URP) to city fiber optic network with an Internet Service Provider. The spare capacity of the City's currently "dark" (i.e., unused) fiber optic cable represents a strong inducement for computer and telecommunications companies to locate in the URP. However, this fiber optic network lacks connectivity to the Internet. The HTTF recommends the City position an Internet Service Provider to "light up" the fiber network and provide broadband-to-wall connectivity within the URP.

b. Identify means to assure state-of-the-art broadband Internet access for Riverside's business and residential communities. High bandwidth ("broadband") Internet connectivity is also vital outside the URP. Technology professionals are accustomed to high-speed access to the Internet, their customers, and their businesses, from home, in hotels and convention centers, and elsewhere. Having reliable, high-speed and high-volume connectivity is a critical element towards attracting and retaining technology businesses and professionals.

The HTTF recommends the City investigate various means to bring about reliable network services, including (a) consideration of the City treating broadband infrastructure as a utility like electricity or water, (b) the City providing access to the existing fiber network to a third-party outside provider, or (c) making guarantees of service by placing the City as provider of last resort. The City should evaluate use of Riverside public utilities fiber and/or electric lines to distribute Internet

to homes and businesses across the city, and to explore new means of providing conduit access from curbside-to-wall.

c. Expand WiFi (wireless data connectivity) throughout the city. The Downtown Wireless Mall has been successful in raising attention and attracting interest in both the downtown and in a high technology future. The HTTF supports efforts by the City and SmartRiverside to expand these services into carefully selected areas around Riverside that will further raise visibility and interest in Riverside as the high technology capitol of the Inland Valley. The HTTF also recommends the City actively investigate emerging technologies, such as urban wireless and Mesh networks, for potential use in business and residential services, police and fire networks, public safety and administration, and public utilities.

The graphic features a large, stylized number '4' in blue and yellow. To its right is a bar chart with four vertical bars of increasing height from left to right, colored in a light orange or tan hue.

An Advanced City Hall

Assure City is Strategically Employing New Technology.

Leadership from the City sets the tone and direction for the technology industry in Riverside. The City can lead by example, making use of appropriate technologies in providing city services, in interfaces with the public (such as web sites and e-government services), and internal information systems planning complementary to the vision and strategies of the city. The City has already moved forward in this direction, with implementations such as PermitsPlus and their Geographic Information System. The HTTF encourages these types of initiatives, and recommends the City move to ensure technology projects are framed against a broad, multi-year technology vision.

a. Evaluation of technology use within the “Technology Master Plan” for Riverside. The HTTF recommends that plans for technology deployment within the city be reviewed by independent technology experts and business leaders. Such a review is intended to bring in expert advice and best practices for technological planning and development to complement and extend the City’s vision. The review is intended to enable greater coordination between technology and city planning, to assure adequate and appropriate technology infrastructure to support future growth, and to assist in allocation and deployment of information systems resources. Information technologies can significantly impact the cost, quality, and speed of government services. By enlisting the external perspective of people who are experts in developing and using technologies, the City can be assured of increased productivity and efficiency, a technological platform that will support the City into the future, and opportunities for new forms of service provisioning.

b. Implement web-based collaboration with local service providers. Many local companies have the products and services needed by the City, yet these opportunities to “Shop Riverside” are often missed because of a lack of information and awareness on both sides. While the City should not be expected to subsidize local startup operations, there may exist opportunities where the City could benefit from proven products from local businesses, yet is unaware of these products.

The HTTF recommends the City build a web-based system for RFP/RFQ procurements. This system is envisioned with two components. First, a web-based directory of current and anticipated city requirements for technology services would be made accessible to local businesses for bidding. This system would not be exclusive of the existing procurement process, but instead would augment the current system and provide greater visibility of the needs of the City to local businesses.

Using this system, government buyers would be able to publicize their business opportunities by posting information directly to the Internet. Local businesses seeking governmental markets for their products and services would then be able to search, monitor and retrieve opportunities solicited by the City.

The second aspect of the collaboration system would allow the City to review and locate local service providers based on postings of their products and services. Local businesses would be able to post descriptions, lists, and specific details about the products and services they believe would be of use to the City. This gives the City visibility of local businesses, and increases awareness of local products and services.²

² The Federal government has implemented such a system. This system, named FedBizOpps, uses an Internet portal to advertise government procurement needs through an on-line RFP process.

The graphic features a large, stylized number '5' on the left, colored in green and blue with a 3D effect. To its right is a simple bar chart with four vertical bars of increasing height from left to right, colored in a light orange or tan hue.

5 Technology Transfer & Entrepreneurship

Stimulate New Development Through Support of Technology Transfer and Entrepreneurship Initiatives. High technology future in Riverside depends upon entrepreneurial start-ups and home-grown businesses. These new firms will require large amounts of external financing for an extended period before tapping the traditional equity and capital debt markets. Local venture capital firms are critical in filling this need, but also in providing business plan development, board direction, management skills, opportunities for partnerships and business networking, and bringing in needed talent.

Technologies borne from local universities are an important stimulant for this entrepreneurship activity. Research laboratories and research parks that make use of technology transfer are important drivers of economic development and diversity. Investments in R&D, opportunities for commercialization, partnerships in technology transfer, and access to capital grants strengthen local economies, and attract further investments by the private and public sectors in a process of dynamic feedback.

The universities need to take a leadership role in technology transfer. The City can and should provide representation and support to these initiatives, by coordinating with the universities for partnership grants, by helping to identify office space, services, and support for technology startups, and by providing coordination to the various and fragmented efforts at technology transfer and entrepreneurship around the city. The private business sector must also play a role in assisting these startups gain a business footing, as most technology transfer startups are begun often by engineers and scientists who are unfamiliar with running a business.

a. Integrate various and fragmented efforts around the city into unified effort. There are numerous groups, past and present, which have sought to foster technology transfer and entrepreneurship opportunities. Some, such as Core21, have been driven from the academic community, and then often in conjunction with local businesses (e.g. UCR Connect). The IEEP has recently absorbed the

IETechSource, but lacks the resources and focus to bring it to its full potential. Local business leaders have also sought out on their own to create advocacy groups such as the CEO Forum and the Silicon Mission.

The recurring appearance of these groups signals both an untapped interest in Riverside's high technology future and a frustration with a perceived inertia toward that future. With only limited resources and clout available to all of these efforts, many of these initiatives have stalled.

Here again the City can make a difference. These groups need to be unified together under a concerted vision, sharing resources instead of duplicating efforts. Working in conjunction with counterparts from the universities and representatives from local businesses, a representative of the City can serve as visionary leader, coordinator, and liaison that bind these groups together.

b. Broker & facilitate technology student internships & involvement. There are several exemplary programs that pair university students with local businesses, such as the Bourns Engineering "Industrial Affiliates" program and UCR's MBA internship program. The City needs to work with both the universities and local businesses to identify and develop opportunities for new programs and to facilitate placement of interns in local businesses.

The City should also take an increasingly active role in K-12 educational opportunities in high technology. For the vision of Riverside's high technology future to grow and prosper, we need to take special care to foster interest and provide opportunities for the entrepreneurs and scientists of tomorrow.

One positive action that can be taken is for the City to move from being home of the annual Science and Technology Education Partnership (STEP) conference to being host as presenting sponsor. Through modest investment, the City can lay claim to hosting the largest science and technology K-12 conference in California.

The City should also investigate programs to create mentorship for high school students with interests in engineering and science. Pairing these students with local businesses and universities, from the creation of a business plan through project capitalization, creates interest and capability for these budding entrepreneurs. These student business projects could then be tied to competitions for local

capital venture, thus creating a visible opportunity for these and other entrepreneurs to meet with local capital.

c. Localize and streamline technology transfer processes. The City can capitalize on knowledge generated by local universities by creating joint incubators for startup companies, based on technologies and ideas from the faculties. There are numerous forms in which this could materialize: pairings between local businesses and faculty on specific projects, web-based directories of faculty research and business services, or joint consortia between local businesses and faculty to couple business opportunities with faculty interests, to name a few. The HTTF recommends the City assign responsibility to its staff for assessing the opportunities, working with the universities, and bringing together local businesses and university faculty to foster technology transfer opportunities. As this effort begins to take shape, we recommend a parallel effort toward the creation and distribution of a directory of expertise and research from our university faculties to inform and raise the interest of local businesses, entrepreneurs, and venture capital.

d. Visit alumni in technology companies to raise awareness of opportunities in Riverside. With the four universities local to Riverside, there are significant numbers of alumni in high technology firms. The City should use these alumni ties to Riverside and encourage alumni to consider Riverside as home for their businesses. With family, friends, and personal histories with the city, these are perhaps some of the most probable candidates to return to Riverside. This needs to be a continuing effort, with personal visits, mail-outs, and other promotions targeting our city's alumni.

e. Facilitate University/Industry collaborations through promotion of funding opportunities. There are numerous grant and loan programs, many of which are available only through academic, private business, and government collaboration. Unfortunately most small businesses are unaware of these options, or are unable for reasons of resource, access to academics, or expertise to pursue these options. The City can play a lead role in stimulating technology transfer and entrepreneurship by promoting and participating with local businesses and the academic community in these funding sources. These include UC Discovery Grants, SBIR (Small Business Innovation Research) and STTR (Small Business Technology Transfer) federal grants,

opportunities through CSUSB's Office of Technology Transfer and CCAT (Consortium for the Commercialization of Advanced Technologies).



Marketing & Promotion

Promote Riverside as a Center for High Technology. Historically Riverside has been marketed as a tourist destination, with much of the promotional print, media, and electronic advertising focused on attractions such as the Mission Inn. Riverside's media promotion needs to be expanded to also showcase Riverside's growing promise in high technology. The HTTF recommends:

a. Initiate media placements and public relations focused on high technology in Riverside. Profiles of local technology companies should be interspersed with the more conventional city promotions. These technology profiles, along with information and current events on high technology, should also appear prominently on the City's Internet homepage, brochures, media advertisements, and other communications. Business announcements and press releases from local technology firms can be coordinated with communications and media relations staff to integrate the high technology message into Riverside's public image. The costs for media placements could be shared with local technology companies in advertisements which promote both the city and Riverside's technology companies.

b. Host high profile events and technology conventions in Riverside. Industry events provide an important forum for technology industries to exchange ideas and to keep abreast of developments within their field. There are numerous events and conventions in and around Southern California, such as the ESRI regional meeting or electronic gaming conventions. While Riverside does not have the capacity for the large-scale conventions, these smaller regional conventions and events can have a positive impact on Riverside's reputation as high technology leader.

c. Establish protocols for technology industry relations within the city. There are numerous events in Riverside's high technology businesses that are put out in the form of press releases – openings, relocations, and announcements of new products and services. Getting the attention of the City on these announcements has been difficult, even

though the City could be using this information to raise awareness, identify opportunities, and promote local businesses. The City needs a single point-of-contact through which business announcements and communication can flow. This position should be able to communicate local business events to the media and marketing functions of the city, and to incorporate feedback from local technology businesses into city planning.



Focused Policies, Codes and Ordinances

Orient Policies, Codes and Ordinances Focused Around High Technology. Policy and direction from the City needs to be focused on the future of high technology. Technology firms have different requirements, a different type of workforce, and a different lifecycle than low-tech production and service industries. For these reasons, the City must carefully consider policies, codes and ordinances in light of the changing industrial demographics of Riverside.

a. Establish and enforce technical overlay zones and review sites for expansion of tech areas. Concentrating high technology into clusters creates a critical mass of technological ideas, capital, and vibrancy, but the City needs to develop technical overlay zones to provide the infrastructure and amenities necessary to attract and foster growth. Currently the URP needs support, expansion and enforcement of zoning codes for parking, frontage appearance, wet laboratory facilities, power availability and telecommunications infrastructure. Other areas of expansion need to be considered and planned for. These zones need to consider code standards and zoning ordinances that support tech requirements, such as wet and dry laboratory space, electrical power termination, high capacity air conditioning, additional conduit, hooding and ventilation, in-wall network routing capacity, enhanced parking, Type-I floor space, redundant power, disaster recovery, off-site storage, and Internet connectivity.

b. Review/update franchise agreements to provide proactive development of information infrastructure and services. While services from cable and telephone operators are adequate for most businesses, technology firms need next-generation information services. Many areas of the City lack high bandwidth communication capabilities, while other services lag behind in other areas. Along with including cable and telephone operators in discussions to assure appropriate technology infrastructure for the city, the HTTF recommends that franchise agreements consider a "state-of-the-art" provision, prompting operators to roll out new technology in Riverside when it becomes available.



Build Professional Labor Force

Attract and Retain a Professional Workforce. An important source for competitive differentiation is a skilled and knowledgeable workforce. In the past, firms attracted people; today, concentrations of talent are attracting firms. The knowledge, skills, experience and innovative potential of talented individuals have greater value than capital equipment. The supply of technicians and technical support is as important as scientists and engineers to growing high technology firms.

a. Foster development of attractive housing opportunities for technology professionals. Technology professionals are typically young, single and mobile. They need affordable, attractive, well-located rentals with access to diversions, gathering places, cultural attractions, and opportunities for sports and recreation. Downtown Riverside, the University Village, and a few other areas in Riverside have the potential to develop into these professional villages, but it will require concentrated and focused efforts from the City Council, Economic Development, Planning and Marketing to realize.

b. Develop a vibrant civic and cultural environment conducive to the technology professional. Consistent with the previous point, technology professionals are attracted to energetic and vibrant urban areas. The City needs to aggressively pursue and foster sources of this energy – arts, fairs, concerts, boutique markets and nightlife venues. The vision of Riverside as technologically savvy must be accompanied with amenities and lifestyle that supports and retains the technology workforce.

c. Support high technology job fairs, exhibitions, conventions and events. Attracting and developing the technology workforce will breed new entrepreneurs and business opportunities. Working in concert with local businesses and universities, the City can sponsor and otherwise support venues where employers find local talent, and where technology professionals will discover Riverside.

The City also needs to support and promote opportunities for graduating students. Universities are not only an important source of R&D, but also a source of future skilled labor for growing technology firms. In joint efforts with our four institutions of higher education, the City can showcase student achievements and host job fairs and career days.

d. Emphasize employee recruitment and attraction, both on-line and off-line. The City should consider development of an Internet portal for local employment, or re-invigorating IETechJobs.com, now dormant because of a lack of funding and resources. The City should also be pushing the large national portals (such as Monster.com and CareerBuilder.com) to include "Riverside" as a separate geographic classification. Currently, many of these national on-line employment services include the City of Riverside under classifications as Riverside county or Inland Southern California.



MAKING THE TRANSITION

During the transition period until the director of technology responsibility is assigned, the HTTF offers to help continue the effort toward a high technology future in Riverside. At the discretion of the City, the HTTF is ready and able to:

- support execution of recommendations, assure appropriation of necessary resources, and to assist the City in implementing the recommendations;
- provide external expertise and opinion in assessing the City's Technology Master Plan;
- to serve as liaison to forge alliances and partnerships in high technology development between City, institutions of higher education, private business and the Chambers of Commerce;
- provide counsel and advice for City;
- participate in "Rapid Response Team" efforts.

As volunteer group of experts and executives with their own businesses, meetings would necessarily be infrequent and at the convenience of the members. For this reason, the HTTF would be only a stopgap measure for the short term. We believe that prolonging the HTTF responsibilities for an extended period would endanger the success of the project.



APPENDICES



APPENDIX A. RECOMMENDATIONS MATRIX

Recommendation	Description	Initiative		
1.	Business Promotion	Promote Local High Technology Development	1.a	Make value-adding incentives available for advancing high technology companies
			1.b	Implement and support a technology incubator in the University Research Park
			1.c	Assure that high technology parks are established and maintained to concentrate high technology companies
2.	Business Development	Attract and Support High Technology Businesses	2.a	Establish technology director within city hall for high technology
			2.b	Establish "concierge" services for high technology businesses
			2.c	Initiate a high technology "rapid response team"
			2.d	Seek out companies looking for cities to roll out their products for "proof of concept"
			2.e	Court technology opportunities internationally
3.	Technology Infrastructure	Assure Advanced Internet Access to Businesses and Residences	3.a	Connect the University Research Park to city fiber optic network with an Internet Service Provider
			3.b	Identify means to assure state-of-the-art broadband Internet access for Riverside's business and residential communities
			3.c	Expand WiFi (wireless data connectivity) throughout the city
4.	An Advanced City Hall	Assure Advanced Internet Access for Business and Residences	4.a	Evaluation of technology use within the "Technology Master Plan" for Riverside
			4.b	Implement web-based collaboration with local service providers

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5.	Recommendation	Description	Initiative	
	Technology Transfer & Entrepreneurship	Stimulate New Development Through Technology Transfer and Entrepreneurship Initiatives	5.a	Integrate various and fragmented efforts around the city into unified effort
			5.b	Broker & facilitate technology student internships & involvement
			5.c	Localize and streamline technology transfer processes
			5.d	Visit alumni in technology companies to raise awareness of opportunities in Riverside
			5.e	Facilitate university / industry collaborations through promotion of funding opportunities
	Marketing & Promotion	Promote Riverside as a Center for High Technology	6.a	Initiate media placements and public relations focused on high technology in Riverside
			6.b	Host high profile events and technology conventions in Riverside
			6.c	Establish protocols for technology industry relations within the City
	Focused Policies, Codes and Ordinances	Orient Policies, Codes and Ordinances Focused around High Technology	7.a	Establish and enforce technical overlay zones and review sites for expansion of tech areas
			7.b	Review/update franchise agreements to provide proactive development of information infrastructure and services

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Recommendation		Description	Initiative	
8.	Build a Professional Labor Force	Attract and Retain a Professional Labor Force	8.a	Foster development of attractive housing opportunities for technology professionals
			8.b	Develop a vibrant civic and cultural environment conducive to the technology professional
			8.c	Support high technology job fairs, exhibitions, conventions and events
			8.d	Emphasize employee recruitment and attraction, both on-line and off-line.

APPENDIX B. TASK FORCE MEMBER BIOGRAPHS



Amro Albanna.

Amro Albanna is the Founder and CEO of QMotions Inc. QMotions is a Riverside-based technology company specializes in developing state-of-the-art, PC/Console-based gaming technologies that incorporate "full-motion" participation from players.

Mr. Albanna was previously the President and Founder of Digital Angel Systems a division of Digital Angel Corp – a publicly held company on the American Stock Exchange. He maintained hands-on responsibility for all of the company's consumer and commercial products. Albanna was also the founder of Timely Technology Corp., a software and systems engineering company that went public via acquisition in year 2000. Earlier experiences included years as a systems engineering consultant for companies in a range of industries. Albanna taught at California Polytechnic State University's College of Extended Education, and authored courses in Distributed Systems for the commercial sector. He holds a degree in Business Administration with concentration in Computer Information Systems from California State University, San Bernardino.



Michael J. Beck.

As the Assistant City Manager for the City of Riverside, Michael is the primary economic development official overseeing five functional areas: Planning, Building, Development, Redevelopment, and Airport. His role is to provide economic development leadership enabling the diversification of the City's industrial base; manage the development processes within the city; manage the City's marketing initiatives, and implement specific development projects and initiatives. He currently oversees more than 40 development projects involving City departments, which include: Villaggio, the Auto Center, University Village, Shops at Tyler, Topaz and Turquoise, and railroad grade separations. He is also charged with the implementation of a number of strategic plan action steps, including the Husing Report recommendations, arts and culture expansion opportunities, and beautification/gateway improvements.

Mr. Beck was previously with the University of California, Riverside (UCR) as the Director of Economic Development and Real Estate Services, serving as the primary liaison between the community, private businesses and the campus to develop private/public partnerships intended to expand the academic and research opportunities of the campus. He also worked to enhance the regional redevelopment and economic improvement opportunities of the campus and the business community and provided regional economic development leadership. He was responsible for managing the campus real estate assets including all acquisitions, sales, leases and joint ventures. His major projects included the University Research Park and University Village.

Mr. Beck has been a consultant to Pacific Bell and Southern California Metropolitan Water District. He has an MBA and BA in Business Economics from the University of California, Riverside.



Chris Buydos.

Chris Buydos serves as the Director of Economic Development for the University of California, Riverside (UCR). As a liaison between the community, private businesses, and the campus, she develops and coordinates private/public partnerships intended to expand the academic and research opportunities for UCR; enhances regional redevelopment and economic improvement opportunities for the campus and the business community; facilitates campus technology transfer and new business development; and facilitates the transfer of campus intellectual property for commercialization. Projects Buydos is responsible for include University Research Park, and the Riverside Regional Technology Transfer Center. Buydos works in collaboration with several groups, agencies and organizations to further the economic initiatives and opportunities of the region and leveraging assets of the area to maximize their benefits to the community.

Buydos possesses a BS in Community and Regional Planning from Brigham Young University, and is a member of the American Institute of Certified Planners. Buydos has more than 15 years of experience in urban planning, redevelopment, economic development, and public administration. Buydos has served in various capacities for local agencies, including more than four years as the Assistant Director of the March Joint Powers Authority, where she authored the redevelopment plans and environmental documents for development

and reuse of former March AFB properties and joint use aviation of the airfield, as well as the managed the selection process of a Master Developer for the former military property.

Buydos is presently the Vice-Mayor for the City of San Jacinto, a Commissioner with the Riverside County Transportation Commission, and serves as the Vice-President of Economic Development of the Greater Riverside Chambers of Commerce.



Brian Hawley.

Brian N. Hawley, Chairman and Chief Technical Officer, Luminex has been a resident of Riverside since 1986. He holds a Masters Degree in Computer Science from the University of California, Riverside. At the University of California, he held various academic positions and pioneered new curriculum for upper division projects in compiler design and multi-user operating systems courses. Prior to co-founding Luminex, he owned and managed Computer Systems International, a consulting firm specializing in corporate business computing and software development.

At Luminex, he is responsible for product vision, architecture, and technology. He has participated in industry standards committees, including the DIS/IEC 13346 and DIS/IES 13490 which addresses industry formats for optical and multi-session CD-Recording.



Rajan Kasetty.

Rajan Babu Kasetty is the President and CEO of Infotech Software Solutions, Inc., a subsidiary of Infotech Enterprises Ltd., India. The Infotech group currently consists of two subsidiaries and a joint venture in USA, one subsidiary each in U.K. and Germany and a joint venture in Puerto Rico with over 2,200 employees in 14 locations worldwide. The company's offerings include IT services and Engineering Design services for aerospace, automotive and industrial customers and Geographical Information Systems for utilities, transportation and government customers. Infotech's location in Riverside was due to an initiative by the city and the Mayor. Infotech

now has over 200 employees in the U.S. directly and through another subsidiary and a joint venture with United Technologies Corporation.

Rajan is one of the founder-directors on the board of Infotech and moved to Riverside in 1999 to set up the American subsidiary.

He also serves as a Director on the Board of an advertising agency in Hyderabad, India and a Technology Consulting Company in California.

After graduating in Electrical Engineering in 1974, Rajan began his career as a Management Trainee with the DCM/Shriram group in Hyderabad. Since 1976, he has been an entrepreneur in engineering, consulting, manufacturing and IT sectors working with international clients and customers.

Rajan was a visiting faculty with the Engineering Staff College of India during its formative years. He served as board member and vice-chairman of the Indo-American Chamber of Commerce, A.P. Chapter and has been involved with several trade and industry associations.



Al Lewis.

From 1995 to 2003, Al Lewis served both as Assistant Dean for External Affairs and as an adjunct professor of entrepreneurship at the A. Gary Anderson Graduate School of Management, at the University of California, Riverside. During his tenure with UCR, Mr. Lewis addressed many different audiences ranging from technology transfer conferences to Chambers of Commerce, Rotaries and other business and educational organizations, and was a regular contributor to interviews and articles in the both the national and local radio and newspaper press. Over the past ten years he has often served as a judge for both the Inland Valley and Orange County Ernst & Young "Entrepreneur of the Year" Award programs and for the Business Press's "Spirit of Entrepreneurship" Awards. Mr. Lewis is currently CEO and Chairman of the Board for GamePlex Entertainment, Inc., a start-up company focusing on the development of retail entertainment centers in the interactive electronic gaming industry. He also sits on the Board of Directors of several other growing companies including Hemet Bancorp and School Facilities Resources Company.

Prior to starting his academic career with UCR in 1995, Mr. Lewis accumulated over 25 years of corporate and entrepreneurial business

experience in strategic planning, marketing, advertising, sales promotion, sales management, and public relations. He has worked for such well-known companies as Warner-Lambert, Hunt-Wesson Foods, and the Knudsen Corporation. Mr. Lewis is a graduate of Yale University and received his M.B.A. degree in Marketing from the Wharton School of Business at the University of Pennsylvania.



Edwin P. Setzer.

Ed Setzer is a private investor with primary focus on early and growth stage technology businesses. As a member of Tech Coast Angels he is active in opportunity screening, due diligence and deal negotiation.

As President of Experian Real Estate Information Services, Ed acquired and integrated 16 companies and developed a number of new electronic information products. Under Ed's leadership, this business became the nation's leading real estate information company with revenues of \$100 million.

Ed holds a MBA from the Stanford Graduate School of Business and a BS in Aerospace Engineering from North Carolina State University.



William Saito.

William Saito, recognized as one of the world's foremost policy and technical experts in information security issues, co-founded I/O Software, Inc. in 1991. Saito has a long history of expertise in the area of information and network security as an entrepreneur, author, scientist, consultant, advisor, teacher and architect. His relationships with the world's top computer and consumer electronic company executives have helped propel I/O Software to the forefront of the authentication security space.

Saito has been honored by Ernst & Young/NASDAQ/USA Today in 1998 as the Entrepreneur of the Year (EOY), the Collegiate Entrepreneur Organizations award for 2001 and was a finalist in the Small Business Administration's Small Business Person of the Year for 2002. In 2001, as a national judge for the EOY program, he helped establish the country of Japan's entry into the Ernst and Young Entrepreneur of the

Year program for the first time. Most recently, Saito received the 100th Anniversary Centennial Award from Rafu Shimpō, America's largest bilingual Japanese daily newspaper, and the Entrepreneur of the Year award from the Asia Business Association and the University of California, Riverside.

Saito is active in statewide educational institutions and has dedicated much of his time to the local community. At the University of California, Riverside, he serves on the UC Riverside Foundation Board of Trustees. As a Riverside police reservist, he helps local law enforcement agencies in the investigation of high technology and economic crimes.



John Tillquist, PhD.

John Tillquist has over twenty-three years experience in the management, development, and research of large-scale information systems and telecommunications projects. He has held positions of directing large-scale information systems developments for Fortune 500 companies, has served as technical planning consultant for firms in both the US and Canada, and currently runs a sole proprietorship for information and management consulting. He holds an MS and a Ph.D. in information and computer science from the University of California, Irvine. John also is an Assistant Professor of MIS at the A. Gary Anderson Graduate School of Business at the University of California, Riverside. He has held positions as senior engineer and corporate staff manager for GTE Data Services, Ameritech, and US West, Inc., where Dr. Tillquist managed large-scale information systems development, software engineering and infrastructure change initiatives, RFI/RFP development, information systems testing and project planning.

Dr. Tillquist is widely published and speaks at major international conferences about strategies for organizational and technological change, information technologies management, and the Internet. He has been quoted in newspapers, radio, and business conferences as an expert in computer technologies and provides expert opinion for high technology legal cases in California and Canada. John has been an invited speaker for the *Economist* e-commerce summit, the London School of Economics, UCLA Anderson School of Management, the Intertrust Strategic Technologies and Architectural Research laboratories (ISTAR), the Pacific Business & Law Institute, Continuing

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Legal Education (CLE), and the University of Alberta. He has spoken in France, England, the Netherlands, Canada, Italy, Hong Kong, and throughout the U.S. about the management and development of information technologies.