

Executive Summary

This Information Technology Indicators Report presents for the first time a set of measurements intended to reflect the state of information technology as it impacts the social, economic and cultural health of Seattle. The importance of this project is not to place focus on specific information technologies (IT or ICT¹), it is to capture whether we are utilizing IT effectively and appropriately and in a manner which grows the capacity of our citizenry and institutions. There have been other IT surveys; these IT Indicators attempt to bring together a range of arenas that we believe will allow reflection and motivate healthy and sustainable IT use.

These measurements present a snapshot at the time they were gathered. The IT indicators are intended to be longitudinal, with measurements retaken at later dates to track change. The data for this report was gathered via original research conducted for the City of Seattle, including a one-thousand household residential survey, and material available through government, industry and other sources.

The measures we chose were drawn from values developed through a rich community dialogue with diverse participants. The project would not have been possible without generous contributions from education, government, business, technology, social service and community leaders. This exchange of ideas and concerns was itself a very positive community action, and we hope this report encourages more conversation about how we as individuals and as community choose to use and guide the tools of technology.

Our community developed five key goals for a technology healthy city. The City and people of Seattle want to build a technology healthy community where information technology:

- Enhances our local economy;
- Is applied to solving social issues;
- Is used to foster civic participation;
- Promotes relationship building and community development;
- Supports the sustainability of our quality of life; and
- Access to technology tools is equitable and affordable.

^{*}In many countries Information and Communication Technology (ICT) is used rather than IT.

We hope other communities undertake a similar process to verbalize their own values and develop their own indicators. Taken a step further we see a need for common indicators across communities, states and nations.

Access

Seattle residents overall have a very high degree of access compared to national data. Three-fourths have an email address. Seventy-six (76%) have access to a computer at home and almost that number can access the Internet (72%). Seattle also has a high percentage of residents with high-speed Internet service. Many of the computers in homes are recent purchases. Of those who own computers in Seattle, most are less than two years old.

However there are some very critical gaps. Access is significantly higher for those with more education or higher income and lags for senior citizens. Income is the most significant factor. Access at home is affected by ethnicity, regardless of income, age, or education. African Americans are more than three times less likely to have a computer or Internet in the home than all other ethnic groups combined. Hispanics are also less likely than others to have access.

Many residents access computers outside the home, at places like work, school, the library, and community centers. More than half the residents surveyed access a computer at work, though only a small portion rely on this as their only computer. For those who do not have a computer or are seeking training or online information outside home or work, Seattle has quite a few public access points (libraries, community technology centers and Internet terminals). These are located within a reasonable distance of most residents, though some of the sites are underutilized.

People with disabilities experience more barriers to access than those without. The cost of computers with adaptive equipment is considerably higher than for those without any special needs, and many local civic web sites are not meeting basic accessibility standards.

Literacy

On average, residents with computer access spend 28 hours a week on the computer and about one-fourth of this on the Internet. Those who use a computer at home spend more than half of their home computer time on the Internet. Seattle residents find computers to be very useful for a wide-range of communication, work, and research-related tasks. Email or instant messaging was most popular, followed by work related tasks.

Overall, Seattle residents have a high degree of comfort with computers and the Internet, though there are a number of differences in degree. Access at work or home has significant impact on comfort level. Those with access at work were most skilled. Residents 65 and older are significantly less comfortable with both basic and advanced computer tasks than any other age group. Caucasians and, to a lesser extent, Asian-Americans are more likely than African-Americans and Hispanics to say they are comfortable with basic computing tasks. We found no gender gap for basic tasks, but men were more likely than women to be comfortable with advanced tasks.

63% of residents can be considered fluent, a measure of their likelihood to learn new programs or help others learn. Asian-Americans, African-Americans and Hispanics are all more likely than Caucasians to have above-average computer fluency. This may suggest that given access to a

computer, these groups make a greater effort to learn and help others. Men were significantly more fluent than women, and we found that fluency decreases with age.

The Seattle School District is slightly lower than the state average for computers per student but is aggressively implementing new technology and has established student technology standards.

Business & Economic Development

Although the IT industry represents a small portion of the overall industry and workforce in Seattle and King County, its growth has been a strong contributor to overall employment growth in our region. In 1999, prior to the economic slowdown of the past couple years, the IT industry's rate of employment growth was three times that of total employment growth in King County.

The number of IT professionals employed by companies located in King County also enjoyed incredible growth and those professionals are benefiting from significantly higher salaries than the average employee. The growth rate in IT-specific jobs between 1998 and 2000 was more than five times the overall job growth rate for King County. On average in King County, IT professionals' hourly wages are almost 50% higher than that of the average worker.

The number of high school students in Washington identifying Computer and Information Sciences as their main academic interest has more than doubled in the last decade. However it still represents only a small percentage (6%) of high school students.

Despite growth in the number of students pursuing information science degrees, Washington colleges and universities are still not graduating enough students in this area to meet projected local workforce needs. One solution to meeting IT workforce needs is employing foreign workers through the H-1B visa program. In 2000, Seattle jobs made up almost half of the 15,000 openings certified in Washington State for H-1B visa workers.

The majority of residents (55%) have looked for local business information online, though satisfaction with content is mixed. A very small number of residents (8%) use the Internet to sell goods and services out of their home.

Community Building

Seattle residents are very involved in their community and using email and the web to further their activity. More than half (62%) participate in a wide range of community organizations. Almost half of those participating in a group use email or the Internet to communicate with others in the organization. Local business associations (75%), cultural organizations (67%), and school associations (65%) were the most likely to report having web pages, while senior centers and neighborhood associations were the least likely.

Neighborhood organizations are using the web and email to communicate and grow their organizations. Email is now the most common way that group leaders are contacting other group members. More attention is being paid to web sites and a number said they were going to come online in the next year. Almost half of the organizations surveyed currently have a web site; an additional 24% think they will have a web site within a year. However, there are mixed feelings about the effectiveness of their sites.

Non-profit organizations are increasingly dependent on information technology to accomplish their work, but often face limited resources. Our survey found that 63% have an adequate degree of IT infrastructure for their needs, which shows there are numerous gaps. Forty percent of organizations surveyed have technology plans.

Civic Participation

Our residents have mixed feelings about the Internet as a tool for civic participation. Almost half (49%) of our residents feel that the Internet and email are effective ways to communicate about issues that affect them and their communities, but less (36%) felt that these are effective tools to communicate with elected officials.

More than half (55%) of Seattle residents have used the Internet in the past year to find information from a city, county, state or federal government site. There are significant differences in who uses the sites. The highest percentages of those who have sought information from a government agency on the web are between 36 and 50 years old, have a college education, and have upper / high upper household incomes. People of color are less likely to use these sites. Whereas two-thirds (66 percent) of Caucasians surveyed have sought information from a government agency on the Internet, only 38 percent of African-Americans, 38 percent of Asian-Americans, and 30 percent of Hispanics respond similarly.

Use of the City's web site has increased dramatically. About 30 percent of all residents have visited the City's website, whereas only 18 percent of residents had accessed www.cityofseattle.net according to our 1999 Citywide Residential Survey

Human Relationships

Overall, Seattle residents feel good about the impact that information technology has had on their lives and on the city. About three-quarters of residents feel it has had a positive impact on their quality of life and about four in five feel that IT has had a positive impact on the quality of life in Seattle.

Seattle residents are divided in their opinions about security on the Internet. When asked about the security of financial transactions on the web, online companies use of personal information, and the ability of children to access the web safely, residents are almost evenly split between those who feel good Internet security and those who do not. Feeling secure when using the Internet is related to gender, age, and experience with computers.

A large majority were satisfied with the content on the World Wide Web, though there are some important distinctions in how satisfied and who. Satisfaction with the web increased with income and was lower for families with children. Among ethnic groups, Asian-Americans were the least satisfied with the content of the Internet and Caucasians were the most satisfied.

Partnerships And Resource Mobilization

The IT industry and IT professionals provide a great deal of community assistance, but there is no comprehensive measure of their contribution. For this report, we were able to identify a

starting measure of almost 500 volunteer hours contributed per year per community technology center by a range of residents. Many efforts, including work on the digital divide and job skills development, rely on partnerships. Strategic tracking of these partnerships could enable more effective placement of resources and better acknowledge leveraging of resources.

Conclusions & Challenges

Overall we found that Seattle is a very wired city and one where use of information technology is being developed and applied in a wide range of arenas. IT is a growing sector of our economy, although we face a hurdle in growing a local diverse workforce to meet the need. IT has also become an important tool for community and non-profit organizations despite the fact that the applications and infrastructure for these organizations are still emerging. We were surprised at the degree to which our residents are already connected and using IT for local business, civic and personal activity. This shows that there is a large population available electronically, which has already impacted our City government outreach strategies and should impact marketing strategies for all sectors. However, the research confirmed that we need to stay very aware and continue to move to address the significant disparities in levels of opportunity for different populations.

Users of the information presented here should take into account we didn't reach everyone. We were not able to survey non-English speaking residents, though we believe from experience in our community technology centers, and assuming income correlations, that our immigrant population is also an important slice of the digitally disadvantaged community.

There is still much work to be done to measure the impact of technology on our community that we were not able to cover at all or only partially in this effort. As described in the introductory section, there are areas where defining the indicator is extremely difficult or where there remain significant barriers to collecting reliable and valid. For instance, there is a need to improve evaluation of the impact of community technology centers (CTC's) in the city. Business license and other industry data do not reflect the current IT industry profile. Industry and employment data is a particularly acute example of where data lags.

Statistical data doesn't always tell the whole story. There are qualitative measures that could be included or refined. For example, measuring culturally relevant content continues to be a challenge. Some issues and benefits are most relevant when told in stories and that's why we've tried to share a few of them in this report.

Despite the lure of using technology, it is our ability to decide how to apply the tools appropriately and when not to use them that will make the difference in achieving other social and economic goals.

This report takes a large leap towards fostering a vision of a technology healthy community created by the community. The data presented here tells us which way we're stepping. The City of Seattle, our residents and others have already taken action as a result of this indicators project. Over the long haul, the value of these IT impact indicators will be decided by users of the data and actions taken to apply these findings.