



FACTORS IMPORTANT TO HIGH -TECH
FIRMS: A SURVEY

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TABLE OF CONTENTS

Key Findings	2
Review of Recent Research	3
Methodology	4
High-Tech Stats on Sample Areas	5
Survey Results: Pittsburgh	7
Survey Results: Denver, Austin, Columbus, and Phoenix	11
Conclusion	15
Appendix	16

Key Findings

This study analyzes, through responses to a survey, how high-tech executives rank the importance of various business climate, labor climate and quality of life measures to their firm. The survey also elicited responses as to how the Pittsburgh region is performing with respect to key decision criteria. The same survey was conducted on a sample of firms from Phoenix, Denver, Columbus and Austin.

The most important findings are:

- Businesses in the metro areas other than Pittsburgh rated their regions as good to very good as a place to do business. Pittsburgh businesses rated their region as average.
- Likewise, firms in the four metro areas other than Pittsburgh rated business and labor climates as good to very good. Pittsburgh firms rated the business and labor climates as average.
- A major difference between Pittsburgh and the other areas appears in the ease of attracting skilled workers. Pittsburgh firms overwhelmingly responded that it is difficult to find such employees while firms in the other metro regions generally find it easy to attract skilled workers.
- There was universal agreement that quality of life for an employee is important.
- A significant difference of opinion occurs between Pittsburgh and other metro area firms on the importance of several of the specific quality of life measures. While Pittsburgh firms see schools as important, on average they attached less importance than firms in other cities. At the same time, sampled firms in other cities also assign far less importance to cultural amenities and professional sports than Pittsburgh respondents.
- Except for taxes there was little difference among the metro areas in the importance attached to individual business factors such as regulation, land costs, and infrastructure. Pittsburgh firms placed a much higher level of importance on taxes.
- The other metro area firms rated their tax and telecommunications infrastructure and physical infrastructure significantly better than Pittsburgh firms rated their region. On all other factors surveyed the respondents' ratings of their respective regions show no appreciable differences.

Review of Recent Research

There has been a considerable amount of research on the question; "What makes a region attractive to high-tech companies"? Two recent studies highlight what companies and high-tech workers believe makes a region attractive, and what regions can do to be competitive in the high-tech market.

Perceptions of High-Tech Talent

The North Carolina Electronics and Information Technology Association (NCEITA) recently surveyed a sample of high-tech workers to gauge perceptions about North Carolina.¹ The results of the survey were surprising to its authors. They found that survey participants from Austin, San Jose, and Boston did not perceive North Carolina as a thriving place for high-tech enterprises. Most survey respondents view North Carolina as a "slow-paced, friendly, agrarian state". For example, many of the participants did not know that North Carolina is home to more than 4,500 information technology companies including two large high-tech employers--Red Hat and SAS Institute.

As a result of this finding, the NCEITA advocated launching a massive public relations campaign to highlight the state's attractiveness to high tech workers and subsequently lure their companies to within state borders. Among the areas emphasized were the nightlife and outdoor activities for singles, and education and cultural events for married couples, as well as the overall high-tech climate in North Carolina.

What High-Tech Companies Hold Important

A study by the Milken Institute shows that high-tech companies are similar to "traditional" companies. The study notes that; "Traditional location factors...are also important to high-tech firms. These factors are generally referred to as 'cost of doing business measures'; tax rates or incentives, compensation costs, land and office space costs, energy costs, capital costs, and firms' perception of the business climate."

In addition to these "traditional factors", the results of the Milken study revealed that high-tech firms are also interested in other factors, such as, "access to a trained and educated workforce, close proximity to excellent educational facilities, an existing network of suppliers, availability of venture capital, climate, and other quality of life factors, and the general cost of living."²

As we see from the brief sketch above, the high-tech workers and companies that participated in these studies have a variety of concerns; from taxes to quality of life, from office space to perceptions of culture, pinning down the most important factors can prove to be a difficult enterprise.

¹ J.C. Zoghby "Execs Use Survey to Help Raise N.C. High-Tech's Low Profile." Business Journal of Charlotte, August, 2001.

² "Where High-Tech Counts" New Mexico Business Journal. November, 1999.

Methodology

This study builds upon the aforementioned research: it asks high-tech executives to evaluate the importance of quality of life, the availability of skilled workers, and the business factors which they believe are important. But it also addresses the impact of state and local government on their business. This study utilized a survey, a copy of which is contained in this Appendix of this report, to gauge attitudes and opinions of a sample of high-tech companies in five metro-areas: Pittsburgh, Austin, Phoenix, Columbus, and Denver. The participants in the Pittsburgh section of the study were selected from the Pittsburgh Technology Council's "Top 50" high-tech business list. The participants in the other cities were selected from each city's Chamber of Commerce member directory. Surveys contained both closed- and open-ended questions. Optional answers for closed-ended questions asked respondents to score their response to a factor from 1 (a low value) through 5 (a high value). Other closed-ended questions asked the respondents to either agree or disagree, or assign degrees of importance to a factor, which might influence their decision to locate to a region.

The surveys were carried out by phone, e-mail, and fax, at the participant's request. The results were tabulated. Results are reported as either averages (for scored closed-end questions), or as percentages (for agree/disagree questions and for questions assigning a degree of importance).

High-Tech Data for Sampled Metro Areas

High-Tech Employment, 1997 Economic Census

Table 1 compares the total number of workers that would be considered employed in the high-tech industry. Pittsburgh ranks above Columbus by about 10,000 persons, but lags well behind Phoenix by almost 30,000 persons. For almost every city in the sample, the majority of the jobs are in the Computer and Electronic Product Manufacturing sector. The exception is Denver, which has its highest percentage of employees in the Computer Systems Design and Related Services sector. Even though each city has a strong high-tech presence, they are fiercely competing against one another to lure even more high-tech firms to their respective areas.

Table 1

<i>Region</i>	<i>Computer and Electronic Product Manufacturing</i>	<i>Software Publishers</i>	<i>Information Services and Data Processing Services</i>	<i>Computer Systems Design and Related Services</i>	<i>Total High Tech Employment</i>
Phoenix	43,743	2,616	3,054	6,638	56,051
Austin	38,357	3,417	1,116	6,631	49,521
Denver	8,938	2,966	5,839	15,545	33,288
Pittsburgh	12,968	2,463	3,826	7,242	26,499
Columbus	6,129	1,533	3,180	5,766	16,618

Forbes Magazine Best Places for Business

According to the annual Forbes Magazine ranking of best places of business, Pittsburgh ranks well behind the other cities in the sample. Even though Pittsburgh improved their ranking by 34 places, it still ranked 113th (out of 200). By comparison, high-tech "hot spots" Austin and Phoenix each ranked in the top ten (2 and 9 respectively). Columbus showed the most improvement by jumping from 118th to 57th (61 places). Table 2 summarizes how Forbes Magazine ranked the 5 metros in the sample in both 2000 and 2001.

Table 2

City	2001 Rank	2000 Rank	Change (+ or -)
Austin	2	1	-1
Phoenix	9	23	14
Denver	22	71	49
Columbus	57	118	61
Pittsburgh	113	147	34
<i>Average</i>	<i>41</i>	<i>72</i>	<i>31</i>

American Electronics Association Cybercities List

The American Electronics Association (AEA) released a report called *Cybercities*. In this report, the AEA looked at the emergence of the high-tech sector on metro economies. One factor was the growth in high-tech employment between 1993 and 1998. Table 3 illustrates how our sample cities fared. Denver leads the way with a job growth of 63%, which ranked as 4th best in the overall AEA findings (Colorado Springs was 1st). Austin's 54% growth in high-tech jobs gave it the 8th best overall mark and is second best in this grouping of metros. With high-tech employment growth at 29% over the AEA's 5-year time frame, Pittsburgh lags behind all of the cities in our sample.

Table 3

City	% High-Tech Job Growth from 1993-98
Denver	63
Austin	54
Phoenix	33
Columbus	31
Pittsburgh	29

SURVEY RESULTS--PITTSBURGH

As mentioned above, the survey was conducted via fax, phone or e-mail and sent to firms on the Pittsburgh Technology Council's "Top 50" high-tech business list. Of the 50 surveys that were distributed, the response rate was 46% (23 out of 50). The cumulative results are listed below.

Workforce

A majority of respondents (52%) either strongly agree or agree that the Pittsburgh region has an adequate supply of skilled workers. However, 74% of the respondents claim that it is not easy to attract workers with high-tech skills to the Pittsburgh area. Among the region's positive attributes for attracting employees are its universities, low crime rate, commute, and low cost of living. Negative attributes included the amount and complexity of local government, the region's reputation as a place resistant to change, and the fact that there are limited job opportunities for spouses

Adequate Supply of Skilled Workers

Strongly Disagree	3
Disagree	7
No Opinion	1
Agree	11
Strongly Agree	1

Easy to Attract Skilled Workers

Strongly Disagree	4
Disagree	13
No Opinion	1
Agree	5
Strongly Agree	0

Quality of Life

An important factor in the effort to attract qualified high-tech workers is an area's quality of life. All 23 respondents either strongly agreed or agreed with this sentiment. Under the umbrella of quality of life, were community factors such as schools, commute time, and cost of living. Firms were also asked to rate the importance of recreational activities such as culture, sports teams, outdoor activities, and the local music scene. The results are listed in Table 4.

Quality of Life Important

Strongly Disagree	0
Disagree	0
No Opinion	0
Agree	9
Strongly Agree	14

Table 4
Assessment of Quality of Life Factors

	Schools	Commute	Cost of Living	Sports Teams	Culture	Outdoors	Music Scene
Not Important	0	1	1	6	1	1	4
Somewhat Important	3	2	1	7	7	7	8
Important	12	16	16	10	15	14	10
Very Important	8	4	5	0	0	1	1

Schools and commute time were rated by 87% (20) of respondents as either very important or important to the region's quality of life, while 91% (21) rated the area's cost of living as such. However, not one firm believed that sports teams were very important to an area's quality of life. In fact 57% (13) of respondents believed that sports teams were either not important or only somewhat important to the region.

Business Climate

Table 5 reveals which business factors are of primary concern to high-tech firms. Factors that rated high are, taxes (78%), infrastructure (83%), and telecommunications (70%). Factors with the lowest average ratings are proximity to suppliers and markets, and government regulations on the high-tech industry.

Table 5
Business Assessment of Factor Importance

Score	Taxes	Regulation	Land/Bldg.	Utilities	Infrastructure	Telecom.	Near to Market	Near to Suppliers	Near to Universities
<i>High Importance</i> 5	10	4	3	5	7	12	3	0	3
4	8	5	7	6	12	4	8	5	8
3	4	7	10	6	2	6	5	9	6
2	0	6	3	4	1	0	3	4	5
<i>Low Importance</i> 1	1	1	0	2	1	1	3	4	1
Average	4.1	3.2	3.4	3.3	4	4.1	3.2	2.6	3.3

The survey sought the firms' assessment of the overall business climate in the Pittsburgh area. They were asked to score how the region performed in areas such as taxes, cost of land and buildings, infrastructure, and regulatory environment. The results are listed in Table 6. The region enjoyed its highest ranking in regard to its university system as 78% of the respondents listed this as a major asset of the region. On average the respondents did not give the region high marks in infrastructure (2.8), taxes (3.0) or telecommunications (3.0). The area did score well, on average, in respect to its regulatory environment.

Table 6
Business Assessment of Pittsburgh Region

Score	Taxes	Regulation	Land/Bldg	Utilities	Infrastructure	Telecomm	Market	Suppliers	Universities
Excellent 5	3	2	0	2	4	2	1	1	7
4	5	8	13	10	3	7	10	7	11
3	8	9	8	7	7	6	8	10	2
2	3	3	1	2	2	5	1	3	0
Poor 1	3	0	0	1	6	2	1	0	1
Average	3.0	3.4	3.5	3.4	2.8	3.0	3.4	3.2	4.1

When ranking the area's overall business climate, none of the respondents rated the region as excellent. However, most of the respondents rated the business climate as average (3.0). Some open-ended comments about the business climate gave the region positive remarks for the local banking community and its awareness of the technology community. Negative comments included the road conditions, downtown parking, and taxes.

Rating of Business Climate

Excellent 5 0
 4 8
 3 9
 2 4
 Poor 1 1
 Avg. 3.0

Labor Climate

The labor climate for high-tech firms had an average score of 3.1, indicating that the respondents believed the Pittsburgh region has an average labor climate. It is interesting to note that not one respondent gave Pittsburgh an excellent rating. This ties in with the above where firms were asked if the region had an adequate supply of workers with high-tech skills. The responses to that question were split with 12 (52%) agreeing or strongly agreeing and 10 (44%) disagreeing or strongly disagreeing.

Rating of Labor Climate

Excellent	5	0
	4	6
	3	13
	2	3
Poor	1	0
	Avg. 3.1	

Local Government

When asked about the helpfulness of local levels of government, 55% strongly disagreed or disagreed with the notion that the local government was helpful to high-tech firms, while another 23% had no opinion. In the open comment section for this question, respondents gave positive remarks for the change in the structure of Allegheny County government. However, many respondents answered that local government is not coordinated, does not possess a game plan, and is not responsive.

Local Government Helpful

Strongly Disagree	7
Disagree	5
No Opinion	5
Agree	4
Strongly Agree	1

Overall Assessment of the Pittsburgh Region

The high-tech firms responding to this survey assessed the Pittsburgh region as average. However, 35% of the respondents (8) rated the region as either excellent or above average. Asked to offer their thoughts on what makes Pittsburgh an attractive location, the respondents cited the cost and availability of housing, uniqueness of neighborhoods, cost of living, and recreation among the positive responses. However, they cited public transportation, airport prices, and the "marketing of Pittsburgh" as negatives to the region.

Overall Assessment of Pittsburgh Region

Excellent	5	1
	4	7
	3	9
	2	5
Poor	1	1
	Avg. 3.0	

SURVEY RESULTS--DENVER, AUSTIN, PHOENIX, AND COLUMBUS

For the cities of Austin, Columbus, Denver, and Phoenix the survey was also conducted via fax, phone or e-mail. The survey was sent to firms identified by each city's chamber of commerce. Of the 55 surveys that were distributed, the cumulative response rate was 29% (16 out of 55). The combined results are listed below.

Workforce

A strong majority of respondents (88%) either strongly agree or agree that their city's region has an adequate supply of skilled workers. The same percentage (88%) of the respondents claim that attracting workers with high-tech skills to their area is not difficult to accomplish. Respondents from Denver stated that their ability to attract high-tech workers was attributed to, the climate and outdoor recreation, schools, labor force, and infrastructure. Negative attributes of Denver included the cost of housing and traffic congestion.

Adequate Supply of Skilled Workers

Strongly Disagree	0
Disagree	2
No Opinion	0
Agree	12
Strongly Agree	2

Easy to Attract Skilled Workers

Strongly Disagree	0
Disagree	2
No Opinion	0
Agree	13
Strongly Agree	1

Quality of Life

An important factor in the effort to attract qualified high-tech workers is an area's quality of life. Much like the Pittsburgh results, all 16 respondents either strongly agreed or agreed with this sentiment. Under the umbrella of quality of life, firms were community factors such as schools, commute time, and cost of living. Firms were also asked to rate the importance of recreational activities such as culture, sports teams, outdoor activities, and the local music scene. The results are listed in Table 7.

Quality of Life Important

Strongly Disagree	0
Disagree	0
No Opinion	0
Agree	7
Strongly Agree	9

Table 7
Assessment of Quality of Life Factors

	Schools	Commute	Cost of Living	Sports Teams	Culture	Outdoors	Music Scene
Not Important	0	0	0	5	0	0	2
Somewhat Important	0	1	2	8	7	3	8
Important	7	13	11	2	8	10	6
Very Important	9	2	3	1	1	3	0

Schools were rated by all of the respondents as either very important or important to the region's quality of life, while 94% (15) also believe the same to be true for an area's commute time. Cost of living and outdoor recreation (88% and 81% respectively) ranked high as important quality of life factors. Only 1 respondent, from Phoenix, felt that sports teams were very important as a quality of life factor. Two others, both from Phoenix, ranked sports teams as important. However, 81% (13) of respondents believed that sports teams were either not important or only somewhat important to the region.

Business Climate

Table 8 reveals which business factors are of primary concern to high-tech firms. Factors that rated high are, telecommunications (75%), infrastructure (56%), and taxes (50%). These cities illustrate the decreasing importance of location as a factor important to the success of their business. These factors have the lowest average ratings, followed by the cost of utilities, land and buildings.

Table 8
Business Assessment of Factor Importance

Score	Taxes	Regulation	Land/Bldg.	Utilities	Infrastructure	Telecom.	Near to Market	Near to Suppliers	Near to Universities
<i>High Importance</i> 5	2	3	1	0	4	5	0	0	1
4	6	3	3	4	5	7	2	1	8
3	6	6	9	9	5	4	6	7	3
2	2	4	3	2	2	0	4	4	2
<i>Low Importance</i> 1	0	0	0	1	0	0	4	4	2
Average	3.5	3.3	3.1	3	3.7	4	2.4	2.6	3.2

The survey sought the firms' assessment of the overall business climate of their respective areas. They were asked to score how their region performed in areas such as taxes, cost

of land and buildings, infrastructure, and regulatory environment. The results are listed in Table 9. The factor that enjoyed the highest average ranking is an area's university system, as 75% (12) of the respondents believed that their area has an excellent or above average university in close proximity. On average the respondents did not give their region high marks in land and building costs (3.1), utility costs (3.2) or location of suppliers (3.2). Overall respondents believe that their areas, on average, have a good telecommunications network, tax structure and regulatory environment.

Table 9
Business Assessment of Respective Region

<i>Score</i>	Taxes	Regulation	Land/Bldg	Utilities	Infrastructure	Telecomm	Market	Suppliers	Universities
<i>Excellent</i> 5	1	2	0	0	1	5	0	0	6
4	6	6	6	5	6	6	7	5	6
3	7	5	5	8	5	4	7	9	3
2	1	1	3	2	2	0	1	0	0
<i>Poor</i> 1	0	1	1	0	0	0	0	1	0
<i>Average</i>	3.5	3.5	3.1	3.2	3.4	4.1	3.4	3.2	4.2

When ranking their area's overall business climate, 81% (13) of the respondents rated their region as excellent or above average. Overall, the business climates of Austin, Columbus, Denver, and Phoenix were rated as above average (4.3). Respondents from Denver listed infrastructure as contributing to the excellent business climate there, while a respondent from Austin claim that lack of a suitable infrastructure hinders their business climate

Rating of Business Climate

Excellent	5	3
	4	10
	3	3
	2	0
Poor	1	0
Avg.	4.3	

Labor Climate

The labor climate for high-tech firms in Austin, Columbus, Denver, and Phoenix had an average score of 4.1, indicating that the respondents believed their region has an above average labor climate. It is interesting to note that not one respondent gave their area a below average rating of the respective labor climate. Overall, 81% (13) of the respondents rated their region's labor climate as excellent or above average. This ties in with the above response to the question of attracting qualified workers to the area. Most

respondents agree that it is easy to attract high-tech workers to their area, thus making the labor climate favorable for these types of firms.

Rating of Labor Climate

Excellent	5	1
	4	12
	3	3
	2	0
Poor	1	0
Avg.	4.1	

Local Government

When asked about the helpfulness of local levels of government, 69% strongly agreed or agreed with the idea that their local government was helpful to high-tech firms. Only 3 respondents (19%), disagreed. In the open-ended portion of the survey, not one respondent had discouraging remarks about their local government’s willingness to work with high-tech firms. This represents a contrast from the Pittsburgh respondents.

Local Government Helpful

Strongly Disagree	0
Disagree	3
No Opinion	2
Agree	9
Strongly Agree	2

Overall Assessment of the Respective Regions

Some open ended comments about the overall assessment of the Denver region centered on its climate and outdoor recreation, schools, labor force, and infrastructure. Negative attributes included the cost of housing and traffic. A big labor pool and tolerance were listed as positives for Austin. Outside perception of it as a "desert" town and the state and local government’s efforts to build new roads were described as negative attributes. Respondents from Phoenix gave no negative attributes. Positive factors included the size of the city, its climate, and its rapid growth. Columbus received a number of positive responses about the attributes of its business climate and its attractiveness. Among these were a mix of industry, schools, housing, low crime, and commute. Negative attributes include the lack of a major airport and overall transportation.

Overall Assessment

Excellent	5	4
	4	11
	3	1
	2	0
Poor	1	0
Avg.	4.2	

Conclusions

The survey of high-tech firms, both in Pittsburgh and other similar areas was done to shed light on what these firms are looking for in a region. The survey asked executives from high-tech firms to rank the importance of various business climate, labor climate and quality of life measures to their firm.

Pittsburgh area high-tech executives rated their area as an average place in which to do business. Not one executive gave the Pittsburgh region an excellent rating. This contrasts with the way that executives of high-tech firms located in Austin, Columbus, Denver, and Phoenix. These respondents gave their areas a better than average rating, with 3 executives rating their region as excellent.

Business factors that rated high with all high-tech executives are taxes, telecommunications, and infrastructure. However, Pittsburgh respondents were more concerned with taxes than other metro respondents. Other metro executives were more concerned with the cost of land, buildings, and utilities than those in Pittsburgh.

Likewise, firms in the four metro areas other than Pittsburgh rated the labor climate as good to very good. Pittsburgh firms rated the labor climates as average. When asked about the current supply of adequately skilled high-tech workers, Pittsburgh 52% respondents found the supply favorable, where as 88% of respondents in the other metros believed that their region has a good supply. This relates to the ease of attracting quality high-tech workers to the various area. Pittsburgh firms found this task to be more difficult than in the other areas.

All respondents, regardless of metro area, believe that quality of life factors are an important aspect of attracting and retaining skilled employees. The divergence occurs on which factors are more important than others. In the Pittsburgh area, executives thought that schools, commute times, and cost of living were the most important quality of life factors. In addition to schools and cost of living, respondents from Austin, Columbus, Denver, and Phoenix placed more emphasis on outdoor recreational and cultural activities. Neither set of respondents placed much emphasis on professional sports teams as important to the quality of life.

In the overall assessment of their region, executives in Austin, Columbus, Denver, and Phoenix were more favorable than those in Pittsburgh. Pittsburgh executives gave the area an average rating, while the others gave their regions an above average rating. 35% of the respondents in Pittsburgh rated the region as either excellent or above average, where as 94% of respondents in the other metros did the same.

Results of this survey indicate that Pittsburgh does not meet the expectations of its firms nearly as well as Austin, Columbus, Denver, and Phoenix meet the expectations of firms located there. The survey results also indicate that business climate is very important to location decisions. It appears that the Pittsburgh area places more emphasis on sports and cultural amenities in order to be attractive to high-tech firms than is warranted.

APPENDIX

High Tech Firm Survey

The Pittsburgh region has an adequate supply of skilled employees

Strongly Disagree Disagree No Opinion Agree Strongly Agree

It is easy to attract skilled employees to the Pittsburgh region

Strongly Disagree Disagree No Opinion Agree Strongly Agree

Quality of life is important to my employees

Strongly Disagree Disagree No Opinion Agree Strongly Agree

Please rank the importance of the following quality of life factors

- | | | | | |
|----------------------------------|-----|----------|-----------|------|
| • School System | Not | Somewhat | Important | Very |
| • Commute | Not | Somewhat | Important | Very |
| • Low Cost of Living | Not | Somewhat | Important | Very |
| • Professional Sports Teams | Not | Somewhat | Important | Very |
| • Cultural Amenities | Not | Somewhat | Important | Very |
| • Outdoor Recreational Amenities | Not | Somewhat | Important | Very |
| • Music/Club Scene | Not | Somewhat | Important | Very |

Please rate the Pittsburgh region's overall labor climate with 5 being the highest

1 2 3 4 5

Please comment on the Pittsburgh region's positives and negatives in attracting employees

Please rate the importance of the following business factors in regards to your firm with 5 being most important:

- | | | | | | |
|---|---|---|---|---|---|
| • Tax Burden | 1 | 2 | 3 | 4 | 5 |
| • Regulatory Burden | 1 | 2 | 3 | 4 | 5 |
| • Land/Building Costs | 1 | 2 | 3 | 4 | 5 |
| • Utility (electric/power) costs | 1 | 2 | 3 | 4 | 5 |
| • Physical Infrastructure (highways, airport) | 1 | 2 | 3 | 4 | 5 |
| • Telecommunications Infrastructure | 1 | 2 | 3 | 4 | 5 |
| • Nearness to market | 1 | 2 | 3 | 4 | 5 |
| • Nearness to suppliers | 1 | 2 | 3 | 4 | 5 |

