
**IMPROVING CALL CENTER
PERFORMANCE
THROUGH
OPTIMIZED SITE SELECTION**

White Paper

Principal Investigators

Dr. Jon Anton
Purdue University
Center for Customer Driven Quality
(765) 494-8357

John R. Chatterley
BenchmarkPortal, Inc.

James J. Trobaugh, III
CB Richard Ellis' Call Center Solutions Group

Mark W. Seeley
CB Richard Ellis' Call Center Solutions Group

Purdue Research Foundation, West Lafayette, In 47907
Used pursuant to license. All rights reserved.

Copyright © 2002, BenchmarkPortal, Inc.

This report may not be copied, scanned or reproduced without the written permission of BenchmarkPortal, Inc. Additional copies may be purchased at a reasonable price by e-mailing Information@BenchmarkPortal.com or by calling (805) 614-0123 ext. 10.

WP10-031802

Table of Contents

| | |
|---|------|
| Acknowledgements..... | v |
| Executive Summary | vii |
| Significant Demographic Findings..... | vii |
| Significant Geographic Findings by Region..... | viii |
| Chapter 1: Introduction..... | 1 |
| Chapter 2: Call Center Characteristics That Impacted Our Research..... | 3 |
| Chapter 3: Site Selection Strategies | 5 |
| Chapter 4: Site Selection Factors | 7 |
| Labor Pool Factor | 7 |
| Educational Factor | 7 |
| Quality of Living Factor | 8 |
| Political and Real Estate Factors..... | 8 |
| Demographic Factors..... | 9 |
| Technological Infrastructure Factors..... | 10 |
| Chapter 5: One-Minute Surveys | 11 |
| Objective | 11 |
| The Survey Questions and Answers: | 12 |
| Survey Findings..... | 18 |
| Chapter 6: Benchmark Analysis – Location vs. Productivity | 21 |
| Criteria for Call Center Selection | 22 |
| Theoretical Model | 22 |
| Chapter 7: General Research Findings..... | 25 |
| Chapter 8: The Profile of the Ideal Location for a New Call Center..... | 33 |
| Chapter 9: Summary and Conclusions | 35 |
| Appendix A: Definition of SEM [®] | 37 |
| Appendix B: Information on the TPI Index | 39 |
| References..... | 45 |
| Author’s Biographies..... | 47 |

List of Figures

| | | |
|------------|---|----|
| Figure 1. | The U.S. by Region..... | 11 |
| Figure 2. | Availability of Employee Applicants in Local Labor Market | 12 |
| Figure 3. | Level of Phone Agent Quality in Local Labor Market..... | 13 |
| Figure 4. | Level of Phone Agent Skills in Local Labor Market..... | 14 |
| Figure 5. | Local Competition for Phone Agents by Other Call Centers | 15 |
| Figure 6. | Turnover Rate of Phone Agents per Region | 16 |
| Figure 7. | Starting Wage for Phone Agent per Region..... | 16 |
| Figure 8. | Weekly Job Applications per Region | 17 |
| Figure 9. | Applicant-to-Hire Ratio by Region..... | 17 |
| Figure 10. | Forced to Raise Wages over Past 12 Months Due to Competition | 18 |
| Figure 11. | Sample Location Factors and Sample Performance Metrics | 22 |
| Figure 12. | Distribution of Call Centers and Population in the U.S. | 25 |
| Figure 13. | Call Center Distribution by Region Including Only the Top 10% of the BenchmarkPortal Sample..... | 25 |
| Figure 14. | Correlation between TPI and Demographic Factors..... | 26 |
| Figure 15. | Correlation Between Cost per Call (CPC) and Demographic Factors | 27 |
| Figure 16. | Correlation Between Turnover and Demographic Factors | 27 |
| Figure 17. | Correlation Between Turnover and Area Age Groups | 28 |
| Figure 18. | Correlation Between TPI and Area Age Groups | 28 |
| Figure 19. | Correlation Between CPC and Area Age Groups | 29 |
| Figure 20. | TPI Performance by Region | 29 |
| Figure 21. | Cost per Call by Region..... | 30 |
| Figure 22. | Annual Turnover by Region..... | 30 |
| Figure 23. | Distribution of Population and Call Centers in the Different Time Zones | 31 |
| Figure 24. | TPI Average in the Different Time Zones..... | 31 |
| Figure 25. | U.S. Time Zones | 32 |

ACKNOWLEDGEMENTS

The research was done in collaboration with the Call Center Solutions Group of CB Richard Ellis. This report is the first in a series of research studies designed to determine statistically if the demographic makeup and job penetration of the geographic location of a call center impacts its ability to achieve a balance between being highly efficient while at the same time being highly effective.

EXECUTIVE SUMMARY

The purpose of our research was to answer the following questions:

1. Is the performance of a call center statistically related to the demographic makeup of the community where it is located?
2. Can demographic indicators combined with market intelligence statistically predict the return on investment (ROI), or profitability of a call center?

The following is an high-level summary of observations resulting from our research:

Significant Demographic Findings

Household Income Factors:

1. Call centers located in cities with high household incomes are more likely to have high cost per call.
2. Call centers in cities with high household income levels are more likely to have a high turnover of call center agents.

Population Size:

1. On average, call centers located in cities with smaller populations tend to have a better Tonchev Performance Index (TPI). The TPI examines 28 metrics in combination to determine how balanced a call center operation is from an efficiency-effectiveness perspective and produces a single index performance ranking of call centers during benchmark analysis. A high TPI signifies a more favorable balance of quality and productivity.

Population Age:

1. On average, call centers located in cities with a high percentage of people between 40 and 44 years of age have lower TPI performance.
2. On average, cost per call is much higher in call centers located in cities that have a higher percentage of population between 40 and 50 years of age.
3. Call centers located in cities with a high percentage of the population between 18 and 24 years of age have lower turnover rates.

Quality of Life (SEM):

1. Call centers located in cities with better quality of life conditions tend to have lower TPIs. Claritas' Socio-Economic Measure (SEM), a cost-of-living and quality-of-life indicator, was used to determine this factor. Please refer to Appendix A for a definition of SEM.

Education:

1. Call centers that are located in areas that have a large percentage of university-educated people (bachelor's degree) perform lower than average.
2. In contrast, cities with a high percentage of people with high school and junior college education, but below the bachelor's degree level, have positive correlation with the higher performance.

Retail Trade

1. Cities with a higher percentage of workers in the retail industry appear to have better-performing call centers.

Employment:

1. On average, call centers located in cities with high unemployment tend to have better TPIs.

Significant Geographic Findings by Region

Note on Geographical Findings by Region:

Although the findings reported herein are at the regional level, it should not be assumed that any particular community within a particular region shares that region's traits as identified and described in this study. In other words, what is true for a region is not necessarily true for an individual community within that region.

The regional breakdown used in this study is illustrated on page 17, Figure 1.

Southwest Region:

1. The Southwest has the highest TPI.
2. The region has a relatively low concentration of call centers.
3. The cost per call is lower than the U.S. average.
4. The turnover rate is fairly low.

Northwest Region:

1. The Northwest has a relatively high TPI.
2. The region has an adequate supply of call center applicants.
3. Phone agents in the Northwest tend to exceed the expectations of employers when it comes to work ethic, job “ownership,” and responsibility.
4. Phone agents in the Northwest tend to exceed the expectations of employers when it comes to telephone skills and basic computer literacy.
5. Starting wages for phone agents are the highest in the U.S.
6. The cost per call is the highest in the U.S.
7. The Northwest has the highest annual turnover rate of phone agents.

Central Region:

1. The Central Region’s performance is only slightly higher than the U.S. average.
2. Competition for phone agents seems to be most severe in the Central Region.
3. The Central Region has a greater percentage of U.S. call centers as compared to its share of the U.S. population.
4. The cost per call in this region is the lowest in the U.S.
5. The regional turnover rate is high.

Southern Region:

1. On average, call centers in the Southern Region have a lower TPI.
2. The cost per call is high in this region.
3. The turnover rate is approaching the U.S. average.

Northeast Region:

1. The Northeast has the second largest distribution of call centers in the U.S.
2. On average, call centers located in the Northeast have the lowest TPI.
3. The cost per call is average.
4. The turnover rate is the lowest in the U.S.

CHAPTER 1: INTRODUCTION

This paper details our research into the correlation between a call center's geographic location and demographic makeup within the U.S. and the call center's performance. By merging call center performance data from thousands of call centers warehoused in the Purdue University database with U.S. demographic data warehoused in the Call Center Solutions Group database, we explored numerous site location issues using standard statistical methods.

Extensive research was conducted into site selection strategies and the primary factors that influence site choice such as population density, regional location, community profile, workforce availability, competition, wage, cost of living, educational level, and more. We also considered the more subtle effects that political, social, and legislative forces may have on call center dynamics.

An index average derived from the TPI was applied to the demographic findings of this report to help determine the cost-effectiveness (efficiency) and the quality of customer service (effectiveness) of call center operations in each of the geographical areas identified within this study.

Benchmark performance comparisons of several thousand call centers were conducted and analyzed to reveal how site location affects productivity and quality. For more details on call center benchmarking and the TPI, please go to www.BenchmarkPortal.com.

CHAPTER 2: CALL CENTER CHARACTERISTICS THAT IMPACTED OUR RESEARCH

The site selection process is largely influenced by the requirements and the needs of a particular company. The idiosyncratic nature of this process implies the use of specific selection tools and criteria. Therefore, it is worthwhile to reveal the main characteristics of call centers before concentrating on our specific research methodology and findings.

The first, and probably the most obvious, characteristic of call centers is their **dependence** on other business processes. Call centers cannot survive without the existence of product manufacturers and service providers. They are in a symbiotic relationship with these organizations, and provide the communication bridge between companies and consumers.

The second trait of call centers is the importance of their **human capital**. Call center employees have an enormous influence on the effectiveness and efficiency of customer communication. It is a general belief that employee satisfaction and customer satisfaction are closely related.

Despite the importance of employee satisfaction, the turnover rate in call centers is higher than most other departments in a company. The average annual industry rate is around 25%, and in some call centers this rate can be between 100 and 150% per year.

Another call center characteristic is limited career development opportunity. Due to their flat organizational structure, call centers offer limited opportunities for professional development. The available growth positions are typically at the lower tier of the organizational hierarchy. The most common career path starts from telephone service representatives (TSRs), then goes to call center supervisor, and finally, the call center manager. This partly explains call centers' difficulties in recruiting good people, and also their inability to maintain fast-track employees for a longer period of time.

Call centers seek educated people with strong communication and computer skills. Since most customer interactions occur through the phone, often with the help of a computer, issues such as non-dialect language, clarity of pronunciation, computer keyboarding, and typing speed are important applicant selection criteria in the recruiting process.

Finally, the last distinctive characteristic of call centers is the **location boundlessness**. This means that the call center location is not bound with the area

it serves. Call centers can be located virtually anywhere as long as they satisfy the needs of their calling customers, and as long as the regional telecommunications infrastructure offers sufficient alternatives.

Call centers make up a relatively young, vibrant, and unique industry. In order to make the optimal decision about the geographic site location for a new call center, companies should take into consideration all the above characteristics, along with other unique market and organizational issues to be discussed later.

CHAPTER 3: SITE SELECTION STRATEGIES

There is more to the site selection process than just finding the right building, or community that offers incentives such as business-tax consideration and rent subsidies. The selection process is time consuming and complex, encompassing many factors, and may entail involving a qualified site-selection company that can assist management in optimizing the location decision.

To narrow the search for the ideal location, it is advisable to first determine the major goal that the new site must satisfy. In other words, a firm must decide what it wants the new center to accomplish, and what functions it will perform. Will it primarily support inbound calls, or generate outbound calls? Is its major purpose one of customer service, technical support, or telemarketing? Will it sell to or support non-English speakers? Is its focus geographic in nature?

Next, the call center's labor needs, including agent qualifications, and agent compensation costs must be considered. The size of the available labor pool within a 30-minute commuting radius, plus sources for manpower growth—such as trade schools, colleges, vocational institutions, non-English speaking and other specialized personnel resources—are key elements for staffing a call center. Staffing and turnover costs represent a major cost factor in successful site selection.

Other peripheral factors that may be important to the site selection process are such issues as right-to-work laws vs. unionization, telemarketing laws, litigious attitude of the local population, major political party influences, and zoning policies or restrictions. The cost impact of these factors upon the operating cost of a call center site can be significant.

Operational considerations are also important, such as the hours or days of operation, and whether to set up a single, large facility or a distributed complex. Parking, accessibility, security, and availability of public transportation are essential factors often overlooked. It is advisable to limit the commute time from where you expect to draw most of your labor to about 30 minutes. Providing security for workers and their automobiles, especially during hours of darkness, can have a significantly higher cost impact in commercial and industrial areas over other locations, such as suburban office parks and outlying communities.

The projected life span of the call center is also important. Frequently, companies underestimate a community's ability to supply a continuing flow of qualified labor to fill the ongoing staffing requirements. Although well aware of their turnover rates, companies are often unaware of the impact of turnover on the available workforce.

A call center's projected life span also helps to determine the real estate and facility costs. This helps determine whether to build out and lease an existing structure, such as a shopping center or a factory building, or to consider build-to-suit options, i.e., constructing a new building. A renovation lease typically runs 5 years compared to roughly 10 years for a new structure. Lease exit and expansion options should also be planned into new site selection criteria. In a subsequent paper, we will address the more detailed aspects of "build-versus-buy" decision regarding a new call center.

The planning process for a new call center location involves careful consideration of many factors. Individually, and in combination, these factors will greatly influence the cost-effectiveness of a new call center, and must be considered carefully before making the final selection. It is also important to understand how these factors influence the others.

CHAPTER 4: SITE SELECTION FACTORS

Labor Pool Factor

Of all the site selection factors, the **labor pool factor** is the most significant. According to the Purdue / BenchmarkPortal Database of Call Center Statistics, the labor cost—which includes salary, benefits, recruiting, training, and screening—equals 60 to 70 percent of the annual call center operating budgets across the U.S. Thus, seeking a location with favorable **labor pool factors** is usually the major goal of the site selection process.

Primary **labor pool factors** include:

- Geographical feeder area for labor pool; proximity to other cities tapping into the labor pool
- Entry-level wage scale, average household income, average annual salary increases, fringe benefits, wage escalation pressure
- Unemployment rate, turnover rate, absenteeism rate in entry level jobs within 50 mile radius
- Labor ratios—clerical, production, semi-skilled, technical, professional
- Availability of retirees, military personnel, part-time workers, seasonal workers
- Call center saturation rate
- Competition for labor pool by other companies.

Educational Factor

Following closely behind the primary labor pool factors is the **educational factor**. Most call centers require at least a high school graduate level of education, so knowing the average level of education of the local workforce, along with the other **educational factors**, is an indicator of the new location's ability to staff a new call center.

Local schools, colleges, and other educational institutions are also an excellent source of replenishment of the labor pool. The number of such institutions within the geographical area helps to determine how difficult it may be to sustain growth and maintain staffing levels through attrition.

Educational factors **include**:

- Number of local schools, colleges, educational institutions
- Annual number of graduates from high schools, post-secondary, colleges, SAT scores
- Presence of cooperative training and employment programs with local schools
- Average level of education
- Experience levels, computer literacy, regional dialects, language skills.

Quality of Living Factor

Studies show that for companies relocating employees to a new location, quality of living can be a deciding factor. More and more, companies are paying increased attention to the cost of living, housing prices, taxes, and cultural amenities that a location provides. Relocating high-level people with spouses who are employed or involved with the community requires consideration of factors such as the crime rate, cost of living, availability of health facilities, community appearance, spouse job availability, and cultural makeup.

On the other hand, quality of life is not a significant factor for hiring the bulk of a call center's employment base from the existing labor pool.

It is important to differentiate between these two situations. Other quality of living factors include:

- Community profile: population size, major industry, cultural makeup
- Work ethic: quality of work, attitude about work
- Median cost-of-living statistics: utilities, food, housing
- Housing costs: availability, average mortgage, rent
- Transportation: airlines, freeway / road access, public
- Environmental: weather, pollution
- Safety: crime rate, natural disaster potential
- Cultural: dialects, languages, ethnic, religious.

Political and Real Estate Factors

Another consideration for the new site equation is how **real estate factors** may influence a prospective location choice.

For instance, state-sponsored incentive packages are normally statutory and have thresholds for qualifications, such as number of jobs created or minimum investment.

Regarding customized incentives, these are usually offered at the local or county level. Most localities perform an economic-impact analysis on a project to determine the benefit that will accrue to the community, and then use that analysis to dictate what type of customized incentives should be offered.

Other real estate factors **include:**

- Commercial real estate availability
- Average cost /sq. ft. of new vs. used; construction costs, labor
- Economic Development Association assistance and incentives
- Local government support, incentives, concessions
- State employment regulations, workers compensation
- County and municipal zoning policies, regulations, restrictions
- Taxes, fees, licenses
- Litigious attitude of the local population
- Labor unions and union-mindset of local population
- Major political party influence.

Demographic Factors

The geographical location of a call center can represent an important cost consideration, and should be carefully evaluated during the site selection process. For example, if the customer service hours of a call center require that it service customers coast to coast during business hours, then it must open for calls at 4:30 or 5:00 AM on the west coast, or remain open for calls until 8:30 or 9:00 PM on the east coast. Typically, the call center that opens early does not need to pay a shift differential, whereas the call center that extends its operating hours into the late evening will need to offer a shift differential.

Demographic studies have shown that the average cost of labor differs dramatically across different regions of the country. Similarly, call centers located in smaller communities generally enjoy a better retention rate and higher quality of work resulting in increased customer satisfaction than call centers in high-population-density communities.

Climate, weather, and susceptibility to natural disasters are also factors to be considered, especially as they relate to their effect on commuting workers, operational costs, seasonal illness, and potential for power outages.

Technological Infrastructure Factors

Call centers are dependent upon the existence and availability of telecommunication and data networks. Fortunately in the U.S., virtually every community of any size offers access to telephone service for both local and long distance calling.

Nevertheless, availability of high-speed networks for Internet, telephone, and direct point-to-point communications is an issue that should be addressed when evaluating a specific location as a site for a new call center. Although most communities are served by major telecommunications companies that are prepared to provide the service required, some communities are served by smaller, independent telephone companies that possess less ability to meet the level of service.

This is particularly true where access to fiber optic service is required. The cost of installing fiber optic cabling from the nearest drop to the actual site location can be very expensive, so knowing the location and distance of the nearest fiber optic connection point is an important cost consideration not to be overlooked.

Similarly, knowing how much time will be required to resolve a service outage could influence the selection of one site over another. Part of new site planning should be a back-up strategy for dealing with power outages and natural disasters without total loss of service by assuring that necessary technology and support is in place for immediate use.

The extent to which all these factors may impact the choice of a new site location may be difficult to assess. Once the location search has been initiated and the selection list has been narrowed, it is advisable to seek professional assistance from a reliable outside organization that can analyze the site profile as it relates to the impact these factors will have on the site goals and objectives.

CHAPTER 5: ONE-MINUTE SURVEYS

Objective

As part of this site selection research, the authors conducted several surveys by selecting a random sample of participants from the combined databases of Purdue University and the Call Center Solutions Group. The objective of the survey was to learn what effect location had on the responses. In addition to their answers, participants were requested to supply the location of the call center.

Of those polled, on average, 18% responded to the survey. Their responses were compiled, and then sorted according to the geographical regions shown in Figure 1 below.

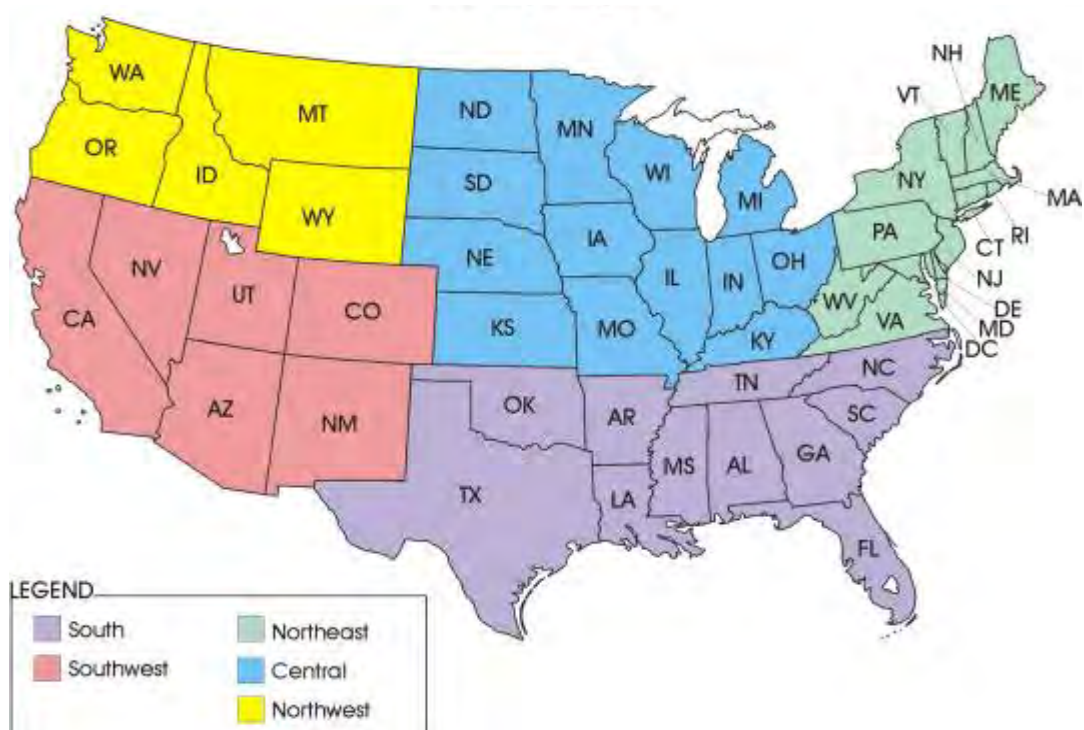


Figure 1. The U.S. by Region

The Survey Questions and Answers:

Question One

Please describe your experience with the availability of employee applicants in your local labor market.

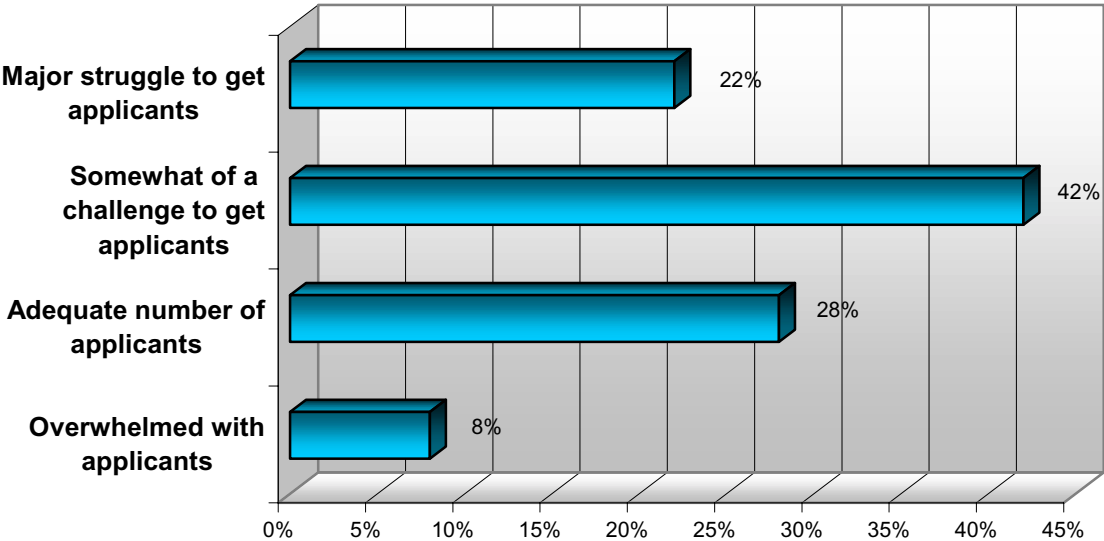


Figure 2. Availability of Employee Applicants in Local Labor Market

| Dominant Response by Region | |
|-----------------------------|---|
| Central: | Somewhat of a challenge to get applicants |
| Northeast: | Somewhat of a challenge to get applicants |
| Northwest: | Adequate number of applicants |
| South: | Somewhat of a challenge to get applicants |
| Southwest: | Somewhat of a challenge to get applicants |

Question Two

Please describe your experience with the level of phone agent quality in your local labor market (namely, work ethic, job "ownership," responsible, etc.).

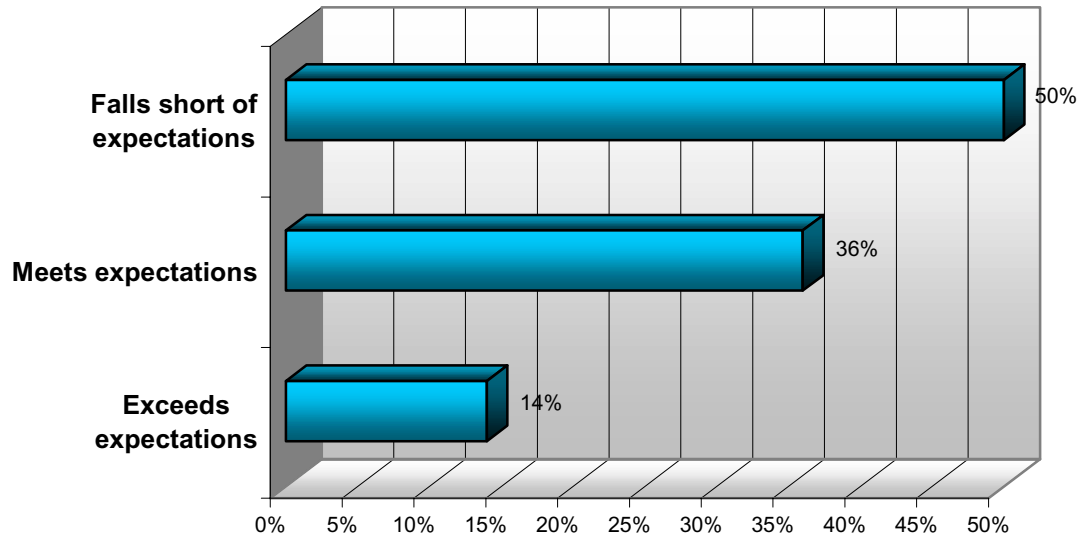


Figure 3. Level of Phone Agent Quality in Local Labor Market

| Dominant Response by Region | |
|------------------------------------|-----------------------------|
| Central: | Falls short of expectations |
| Northeast: | Meets expectations |
| Northwest: | Exceeds expectations |
| South: | Meets expectations |
| Southwest: | Falls short of expectations |

Question Three

Please describe your experience with the level of phone agent skills in your local labor market (namely, communication, basic computer literacy, etc.).

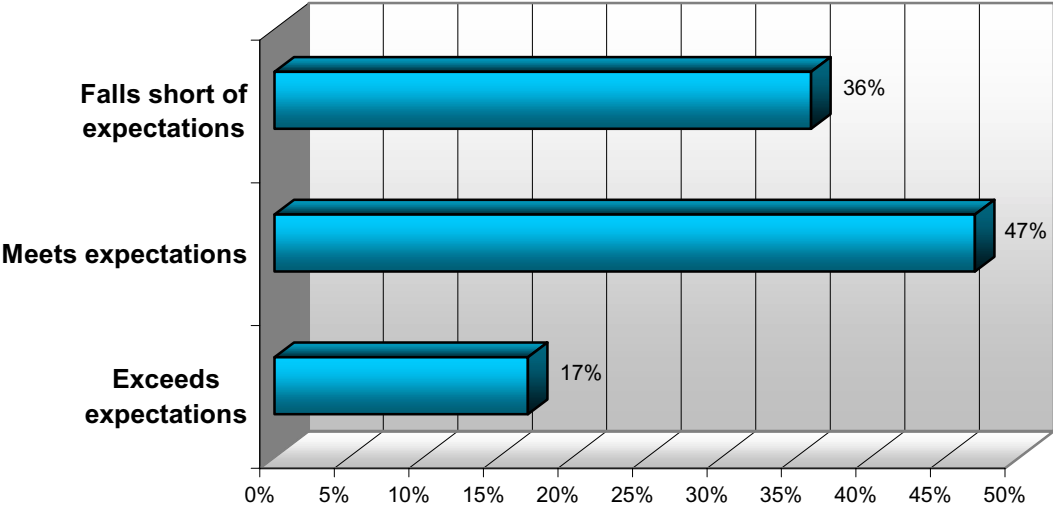


Figure 4. Level of Phone Agent Skills in Local Labor Market

| Dominant Response by Region | |
|-----------------------------|-----------------------------|
| Central: | Falls short of expectations |
| Northeast: | Meets expectations |
| Northwest: | Exceeds expectations |
| South: | Meets expectations |
| Southwest: | Meets expectations |

Question Four

Please describe your experience with the level of competition for phone agents by other call center employers in your local labor market.

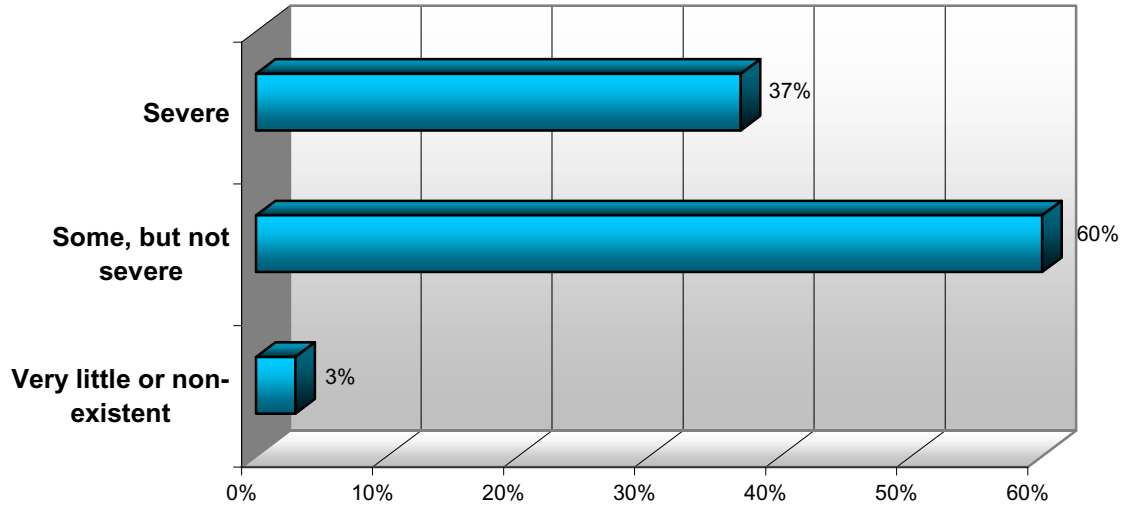


Figure 5. Local Competition for Phone Agents by Other Call Centers

| Dominant Response by Region | |
|------------------------------------|----------------------|
| Central: | Severe |
| Northeast: | Some, but not severe |
| Northwest: | Some, but not severe |
| South: | Some, but not severe |
| Southwest: | Some, but not severe |

Question Five

Please tell us your call center's annual turnover rate of phone agents. Please include only those that leave the company, not those that are promoted elsewhere inside your company.

Overall average = 25 % per year

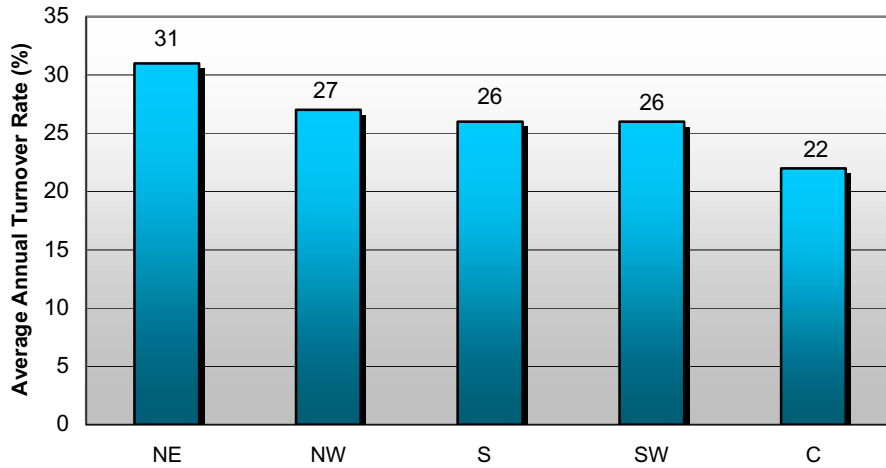


Figure 6. Turnover Rate of Phone Agents per Region

Question Six

Please tell us the current base starting wage for an entry-level phone agent position.

Overall average = \$12.20 per hour / \$25,575 per year

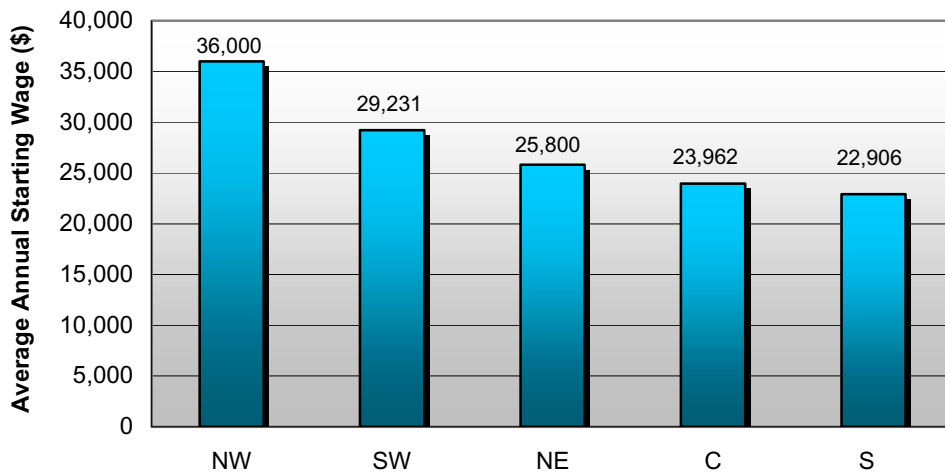


Figure 7. Starting Wage for Phone Agent per Region

Question Seven

Please tell us, on average, the number of applications your call center receives a week for phone agent positions (either solicited or unsolicited).

Overall average = 28

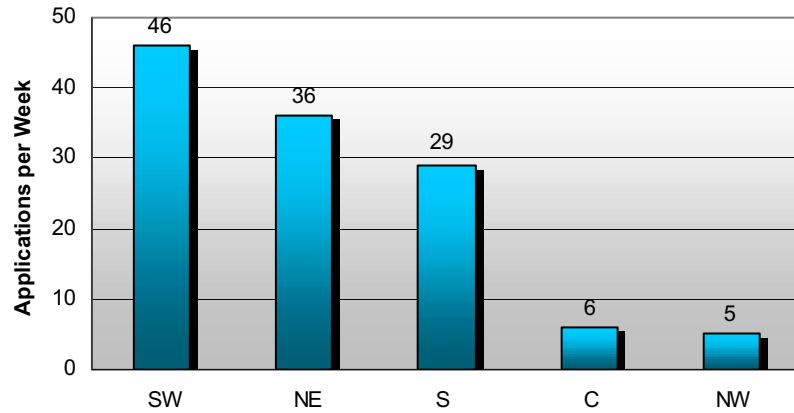


Figure 8. Weekly Job Applications per Region

Question Eight

Please tell us your call center's approximate applicant-to-hire ratio.

Overall average = 29 %

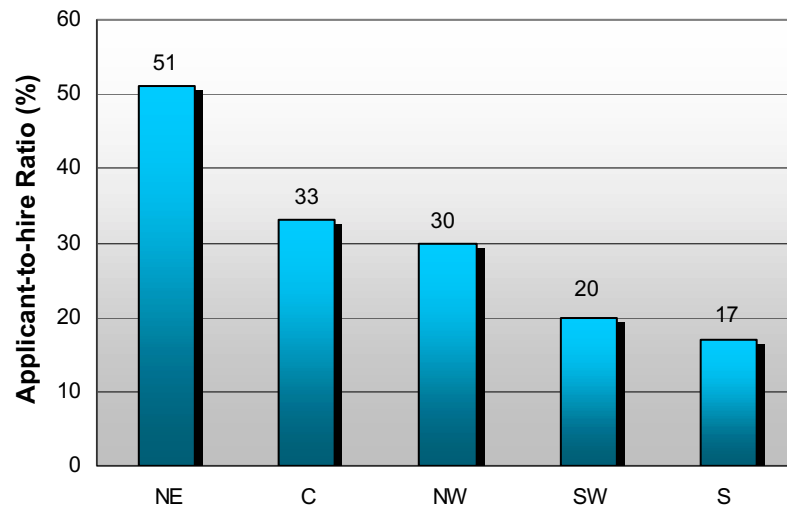


Figure 9. Applicant-to-Hire Ratio by Region

Question Nine

Please tell us whether your call center has been forced to raise its starting wage for phone agents within the last 12 months due to competition.

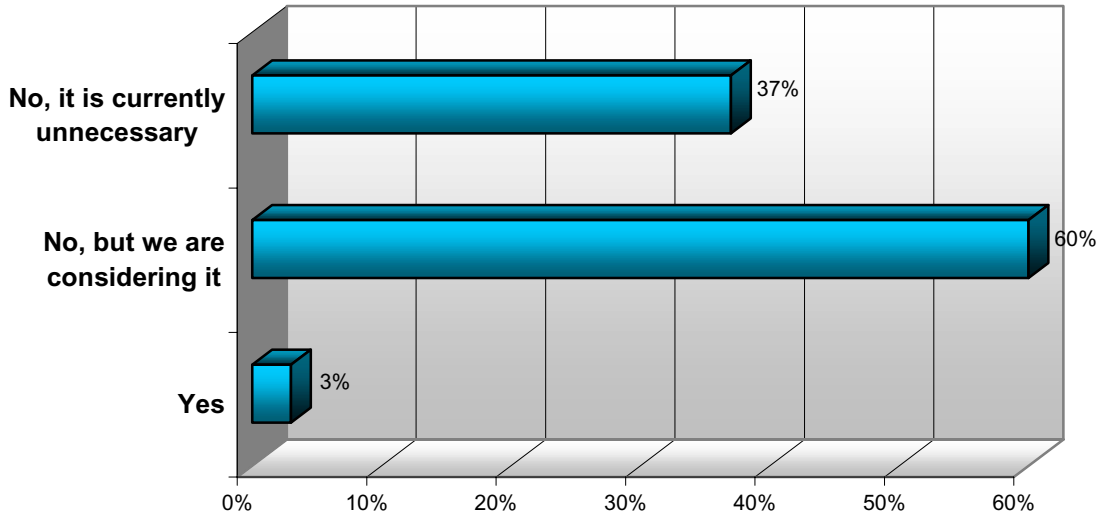


Figure 10. Forced to Raise Wages over Past 12 Months Due to Competition

| Dominant Response by Region | |
|-----------------------------|---|
| Central: | Starting wage increases are considered |
| Northeast: | Starting wage increases are considered |
| Northwest: | Increases in starting wages are unnecessary |
| South: | Starting wage increases are considered |
| Southwest: | Starting wage increases are considered |

Survey Findings

Based on the results of the surveys conducted, we can conclude that the call center industry in the U.S. is facing a challenging labor market. Some of the major problems are: the low number of new applicants, the inadequate level of phone agent skills, and the decreased overall work ethic.

The employee supply is significantly below the corresponding demand, and more than 60% of all participating companies are having difficulties in recruiting new staff members. Moreover, as many as 22% of all contacted call centers indicated that this unfavorable situation is a major struggle for their operation.

Another difficulty for the call centers is in the available competencies and abilities of the work force. The survey results show that 50% of the participants claim the level of phone agent qualities—such as work ethic, personal involvement, and job ownership—do not meet their expectations. The phone agent skills are also unsatisfactory. Approximately 40% of the new employees need additional training and pre-qualifications.

Due to the increased competition, the limited influence of call centers on their labor markets is expected to weaken further. In 97% of the responding call centers, competition from other call centers is the problem. Additionally, 37% of the call centers define the competition as “severe.” As a result, more than 60% of the participants in the survey predicted increase in the starting wages of the phone agents.

Results from the survey show that the responding call centers face different labor conditions, depending on the geographical region in which they operate. The most competitive is the market in the Central Region, characterized by the highest concentration of call centers in the U.S.

In conclusion, call centers in the U.S. operate in a tight labor market. Therefore, a community that has a sufficient level of qualified human resources available becomes a critical factor in the selection of a successful call center location.

CHAPTER 6: BENCHMARK ANALYSIS – LOCATION VS. PRODUCTIVITY

By merging call center performance data from thousands of call centers warehoused in the Purdue University database with the U.S. demographic data warehoused in the Call Center Solutions Group database, we explored numerous site location issues, using standard statistical methods.

The performance data were correlated with the demographic data to surface those factors that indicated location as a positive or negative influence on the ability of a call center to perform.

Thousands of call centers across all industries were analyzed using the following factors:

- Tonchev Performance Index (TPI) – complete definition found in Appendix B of this study.
- City
- State
- Zip code
- Time zone
- Region (Northeast, South, Central, Southwest, Northwest)
- Population of city
- Population within 20-mile radius of city
- Size of call center (number of seats)
- Turnover rate of call center
- Call center recruiting, screening, and training costs per agent
- Agent starting wage
- Annual budget
- Total calls handled per year
- Average unemployment rate
- Average household income
- Average hourly income
- Education levels by percent of population
- Socio-Economic Measure (SEM) – quality of living rankings
- Distribution of trades across population base by percent
- Distribution of age groups across population base by percent.

Criteria for Call Center Selection

The data about the call center’s characteristics and performance metrics were extracted from the databases. The main selection criterion was the size of the call center. For the purpose of this study, the assumption was made that the most appropriate entries would be call centers with telephone agents ranging from 20 to 200. The decision is based on the following:

- The most common size for a start up of a call center is within this range (20 to 200 seats).
- The performance of the call centers is comparable if similar in size.
- Better statistical significance.
- Most reliable data entries (excluding outliers).
- Expected faster response in case of additional queries.

Theoretical Model

The theoretical model used in the research presents the cause and effect relationship between a call center’s location and its performance. The flow chart below encompasses sample factors (location characteristics) and corresponding effects (performance metrics). The main objective of the study was to test the correlations among these factors and, specifically, to find the most influential drivers for a call center’s success.

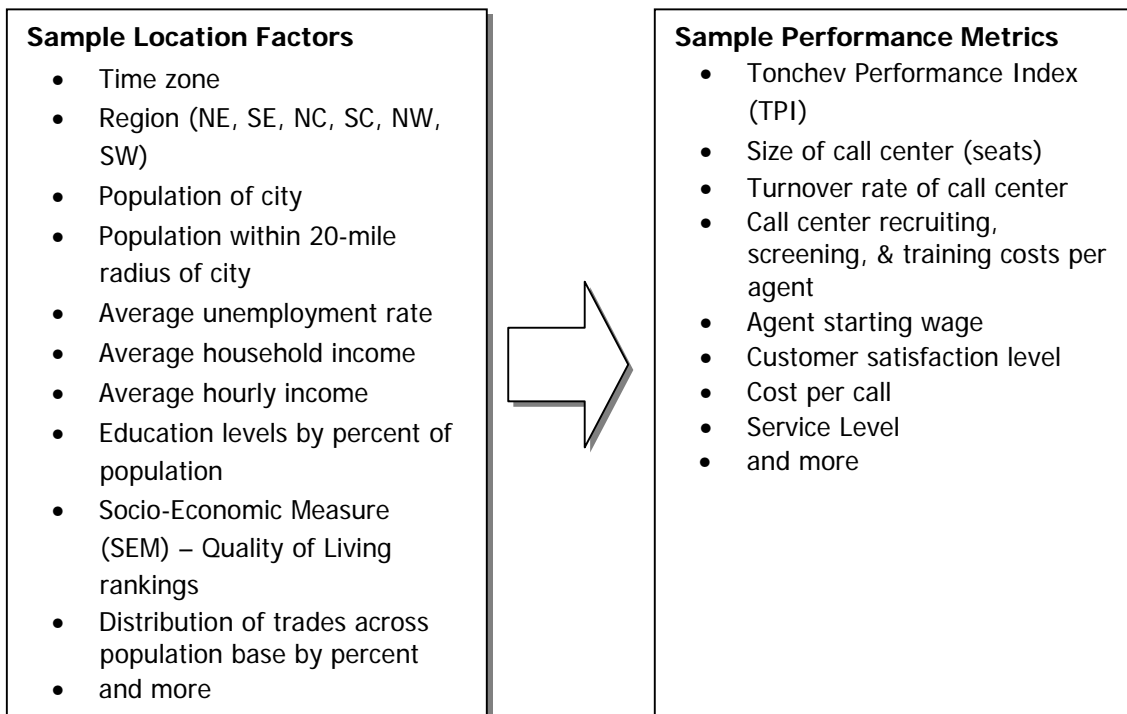


Figure 11. Sample Location Factors and Sample Performance Metrics

All the analyses are based on statistically significant correlations with a confidence interval of 10%. Please check for more details on the statistical methods used in this paper at BenchmarkPortal.com/Statistics.

CHAPTER 7: GENERAL RESEARCH FINDINGS

This chart shows that the highest concentration of call centers in the U.S. is in the Central Region, followed by the Northeast and the South. The Northwest and the Southwest have the smallest number of call centers.

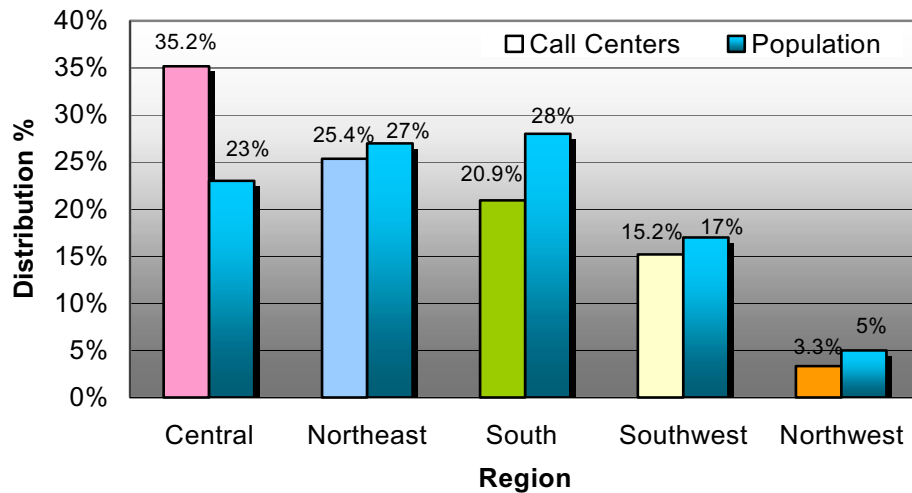


Figure 12. Distribution of Call Centers and Population in the U.S.

The pie chart does not indicate any substantial change in the call center regional distribution. Nevertheless, if one compares this chart with the previous one, it is clear that the Central and the Northeastern Regions have smaller shares in the top 10% (by TPI) of the research sample.

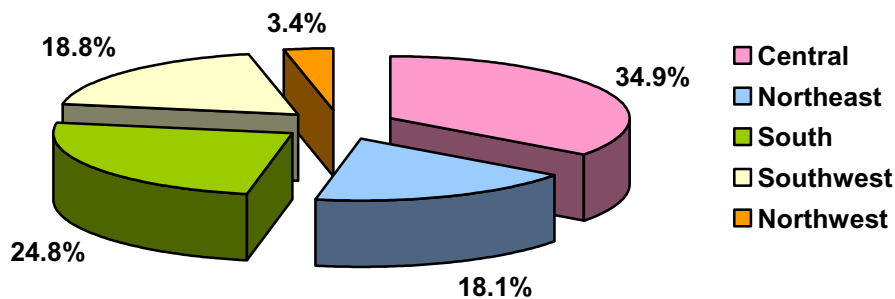


Figure 13. Call Center Distribution by Region Including Only the Top 10% of the BenchmarkPortal Sample

The factor that has the highest correlation with the TPI is the household income within 20 miles. This suggests that call centers perform better when they are located in low-household-income areas.

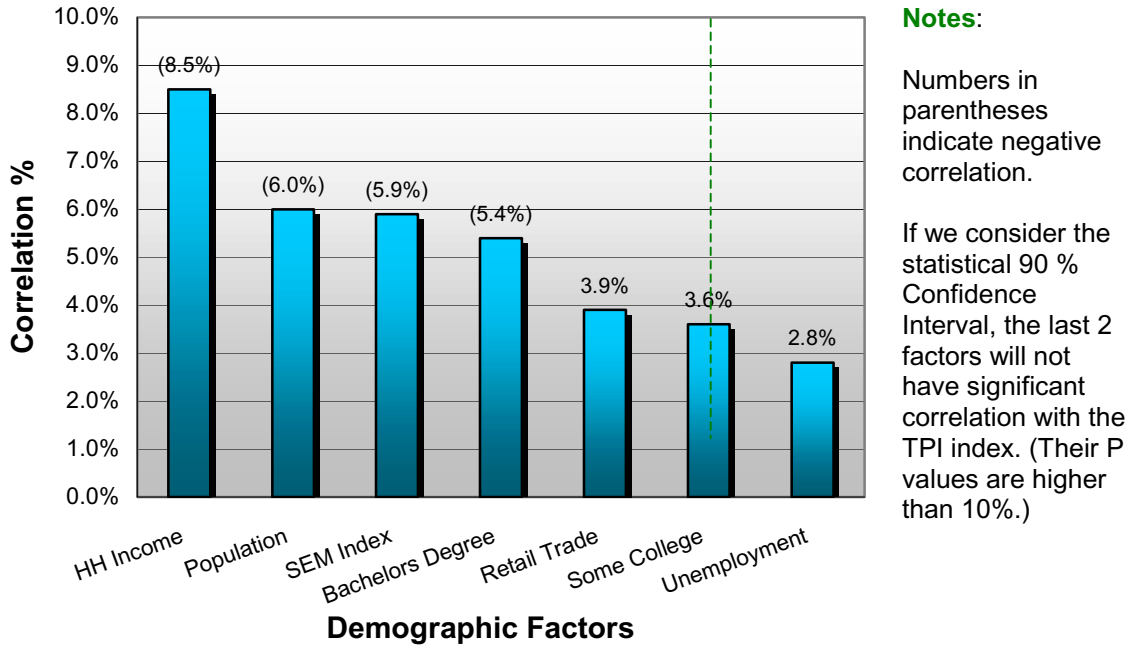


Figure 14. Correlation between TPI and Demographic Factors

The second most influential factor is the population density within 20 miles. The correlation is negative. Therefore, a lower population density in an area where a call center is located is better.

The third significant variable is the Socio-Economic Measure, meaning that in areas with lower quality of life, call centers have better performance.

Next is the bachelor’s degree. The factor is negatively correlated with the TPI index, implying that the locations with a high percentage of university-educated population are not the best performers.

The last influential factor is the retail trade. This factor reflects the number of companies providing face-to-face customer service in a particular geographical area. Since call centers are service providers, it will be easier for them to find trained service professionals in areas with high retail trade, i.e., number of shopping malls and outlet stores.

Logically, the household income within 20 miles has the highest positive correlation with the CPC, followed by the SEM index and the bachelor's degree. This once again demonstrates that a smaller population density means lower cost and therefore higher performance. An associate's degree is also positively correlated with the CPC.

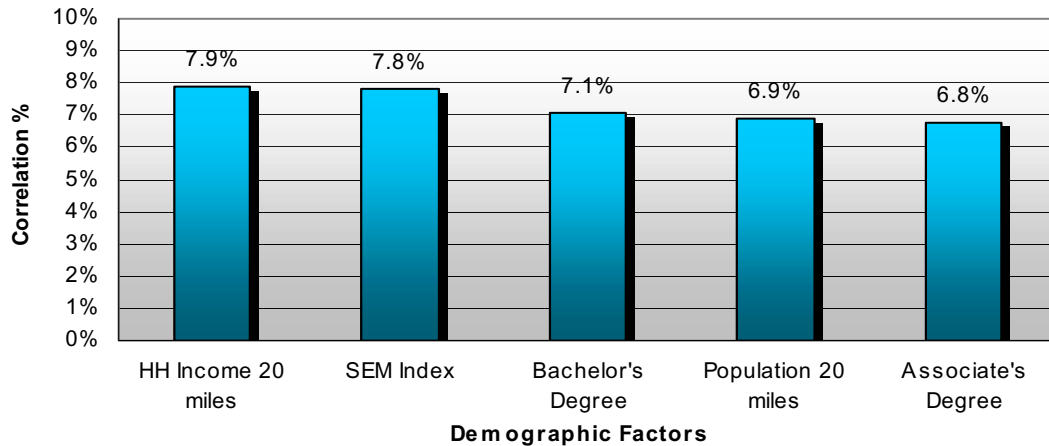


Figure 15. Correlation Between Cost per Call (CPC) and Demographic Factors

The household income within 20 miles of the call center is the factor that has the highest influence on the turnover rate. Next is the negatively correlated unemployment rate. Other factors are a bachelor's degree and SEM.

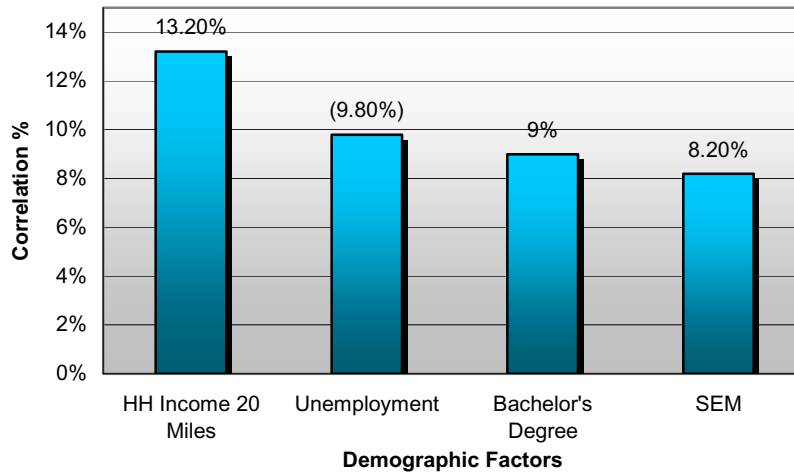


Figure 16. Correlation Between Turnover and Demographic Factors

The turnover rate is positively correlated with the age groups between 35 and 54 years of age. The groups between 18 and 24 years of age have a negative correlation, meaning that younger people tend to stay longer at their call center positions.

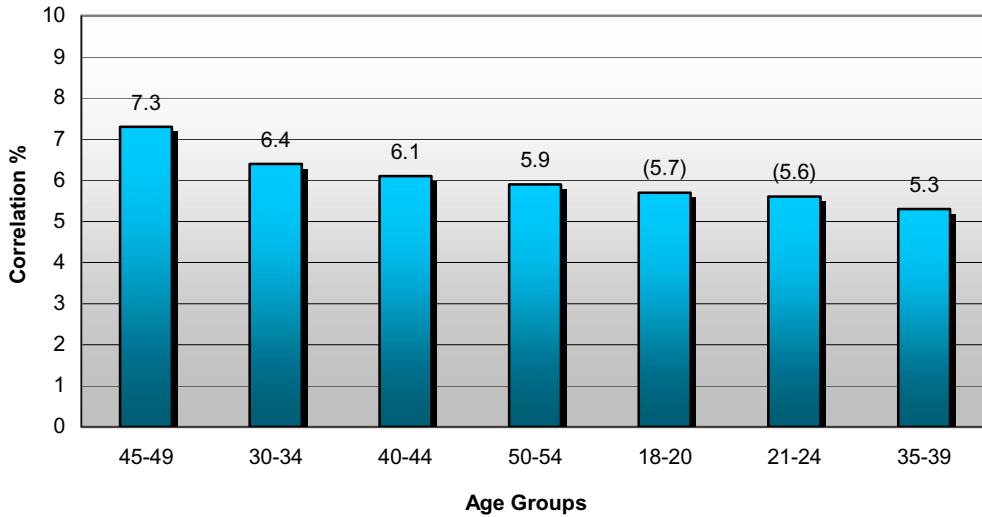


Figure 17. Correlation Between Turnover and Area Age Groups

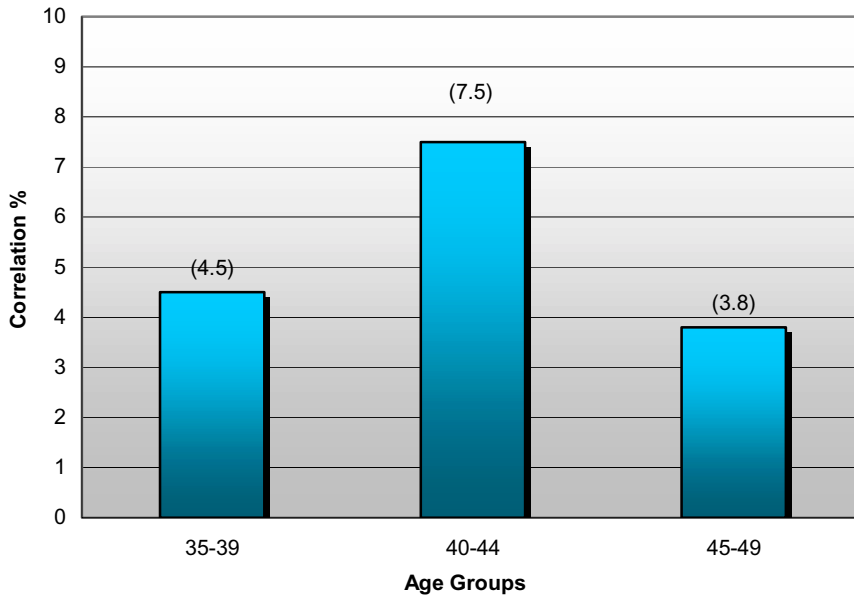


Figure 18. Correlation Between TPI and Area Age Groups

Call centers located in areas with a higher percentage of people between 40 and 44 years of age tend to decrease their performance. This could be explained by the corresponding high costs per call.

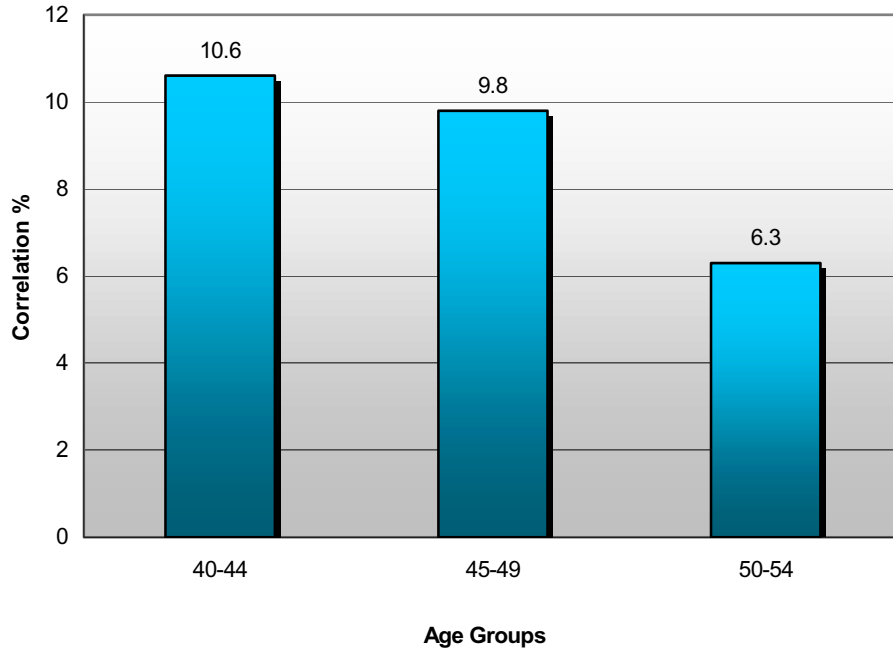


Figure 19. Correlation Between CPC and Area Age Groups

This chart illustrates that the Southwest and the Northwest have the highest TPI indexes among all geographical regions. The Central and the South areas are positioned in the middle. The Northeast is the worst performer, namely its TPI is 134% under the sample average.

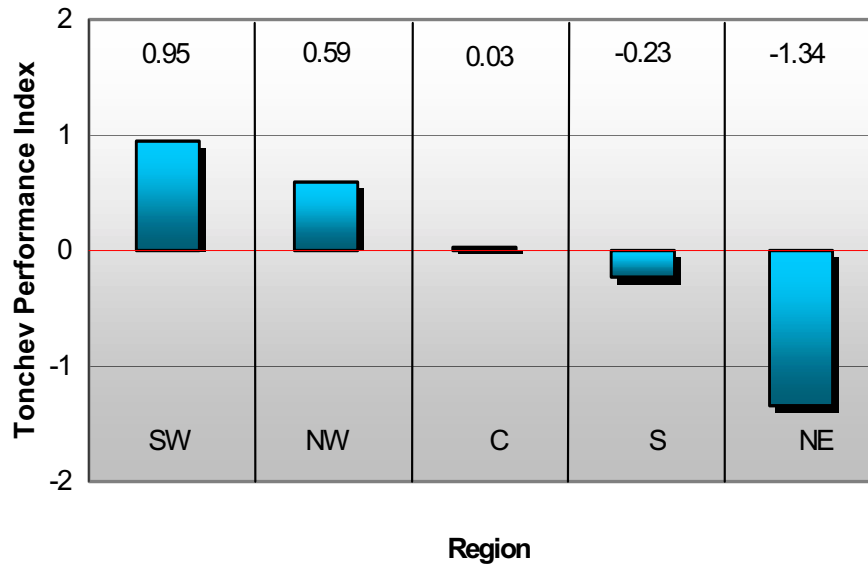


Figure 20. TPI Performance by Region

The Cost per Call (CPC) is the highest in the Northwest, followed by the South and the Northeast. The best performers are the Southwest and the Central Regions.

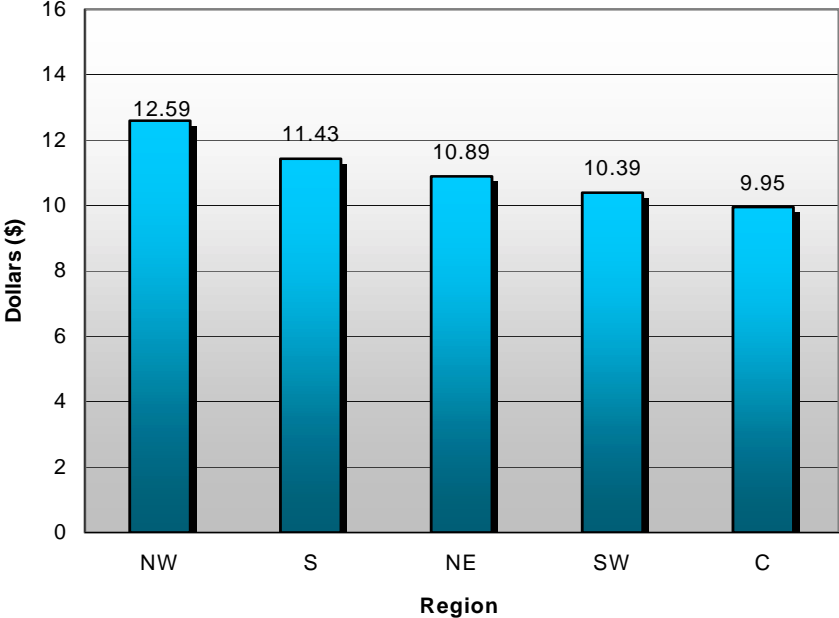


Figure 21. Cost per Call by Region

The turnover rate is the highest in the Northwest, followed by the Central and the South Regions. The Northeast and Southwest have the lowest turnover rates.

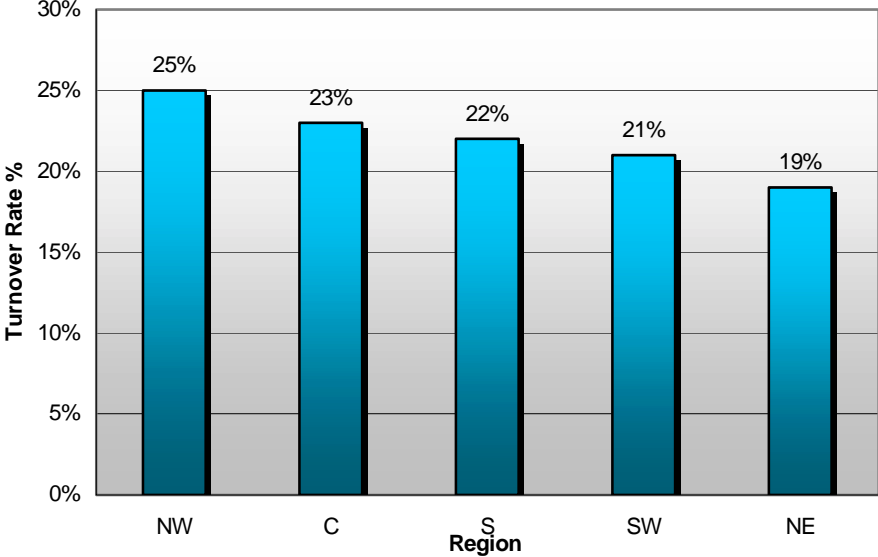


Figure 22. Annual Turnover by Region

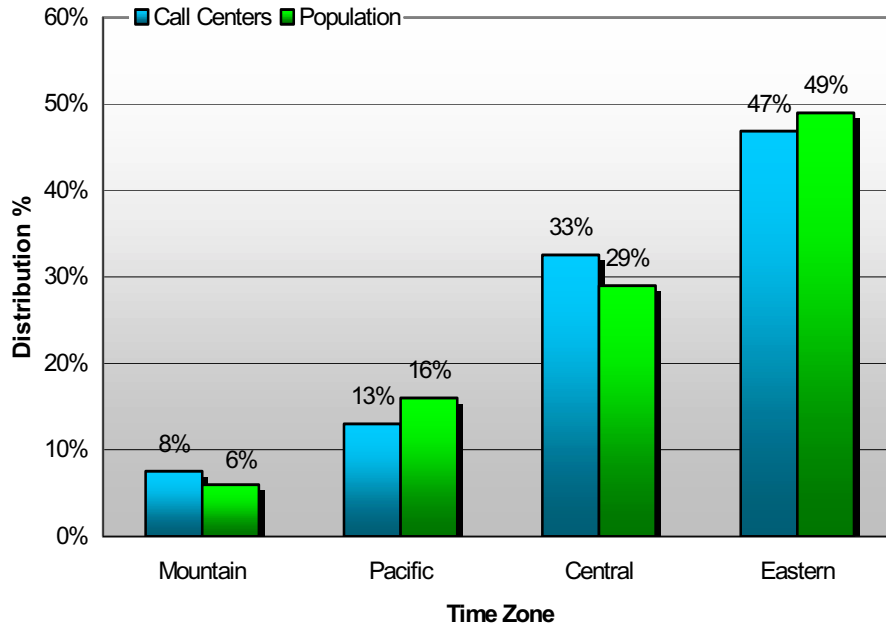


Figure 23. Distribution of Population and Call Centers in the Different Time Zones

In terms of time zones, Figure 23 and 24 show some interesting trends. The Mountain and the Pacific time zones perform better than the Central and the Eastern zones.

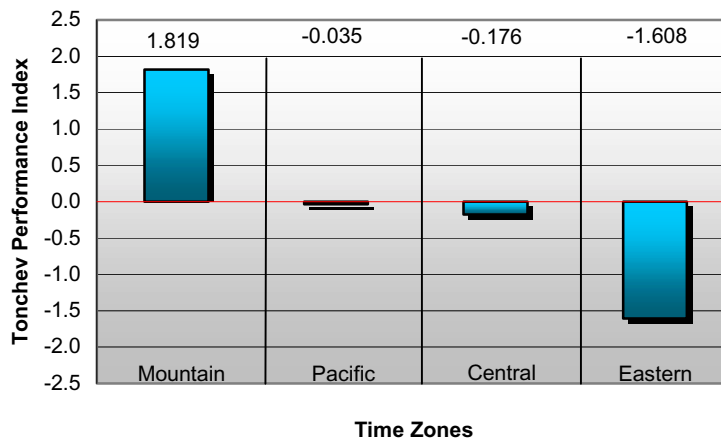


Figure 24. TPI Average in the Different Time Zones

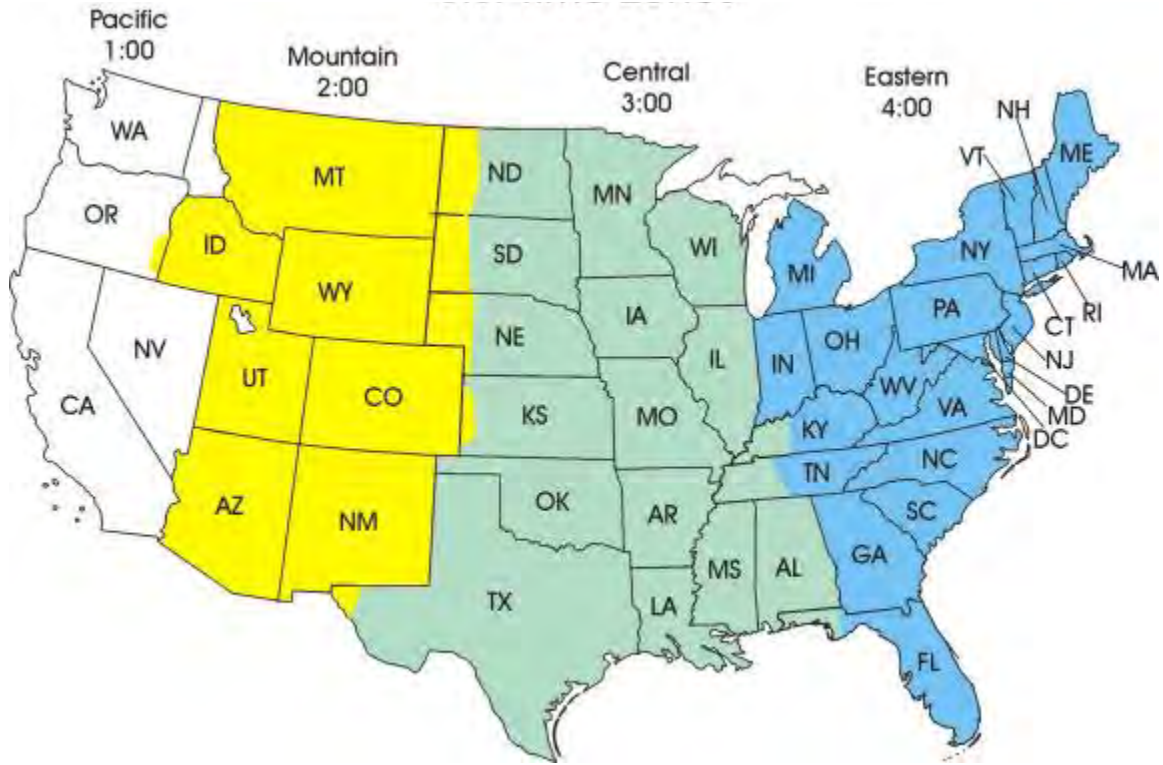


Figure 25. U.S. Time Zones

CHAPTER 8: THE PROFILE OF THE IDEAL LOCATION FOR A NEW CALL CENTER

According to our research, the ideal location for a new call center would have the following profile characteristics:

1. The household income would be lower than average.
2. The location would be a smaller city or, possibly, a rural area.
3. The Socio-Economic Measure index for the area would be lower than average.
4. There would be relatively high unemployment.
5. The population would have a lower than usual percent of university graduates.
6. The area would be high in the density of retail stores, and/or shopping malls, and/or outlet stores.
7. There would be a higher than normal number of workers in the 20-30 years of age group.
8. There would be a minimum of workers in the 40 to 50 years age range.
9. There would be a lower density of other call centers.

CHAPTER 9: SUMMARY AND CONCLUSIONS

Selecting the ideal geographic location for your next call center is a many-faceted decision process. Often the selection process is loaded with emotion, passion, opinions, internal politics, analysis paralysis, and highly-charged meetings, in other words, lot a of “qualitative” thinking.

The purpose of this research project was to approach the selection process with a strictly “quantitative” approach by correlating known call center performance metrics with geographic location, then overlaid with demographics.

In the process, we have discovered many performance-versus-location relationships that will be very helpful in call center site selection. In some cases, we validated existing “hunches” regarding site selection, while in other cases, we have come up with some surprising results.

This research project continues to search for the unique demographic profile of the ideal U.S. city for locating a call center. Statistical research, already underway, should lead not only to the exact city profile for success, but also to a list of those cities that best fit this ideal profile. Stay tuned.

APPENDIX A: DEFINITION OF SEM[®]

Strategic Mapping, Inc., has created its own Socio-Economic Measure (SEM) as a mechanism for ranking clusters. This neighborhood measure not only incorporates the socio-economic quality of the immediate neighborhood but also integrates information describing the environment in which the neighborhood resides.

Measures of education, occupation, housing, income, and neighborhood demographics are supplemented with information on the surrounding locality—including crime statistics, access to health care, access to arts and entertainment, cost of living, and climate.

© 1994-1996 Strategic Mapping, Inc. All Rights Reserved.

APPENDIX B: INFORMATION ON THE TPI INDEX

Developed by

Dr. Jon Anton
Purdue University
Center for Customer-Driven Quality
and

Angel Tonchev and Christo Tonchev
Juran Institute

I. Introduction

Indexes have been widely used to measure the market performance of companies active in diverse industry sectors. However, as the business processes become more complex and inter-dependent, there is an emerging need for a structured analytical methodology that thoroughly examines all the aspects of the company's performance. In response to this challenge, the Tonchev Performance Index (TPI) was developed to match the performance requirements of the Call Center Industry. The index's objectives, structure, calculation and characteristics are briefly described in this paper to facilitate its understanding and utilization.

II. Objectives

The TPI has the following six objectives:

1. **Business Performance Measurement**: to quickly and quantitatively describe a company's call center as compared with its industry peers.
2. **Effectiveness and Efficiency Balance**: to take into consideration the balance needed between effectiveness (quality) and efficiency (productivity).
3. **Industry and Operations Sensitivity**: to evaluate the call center's performance based on both industry and business criteria.
4. **Mathematical Normalization**: to normalize all key performance indicators so that metrics are expressed in identical and comparative units.
5. **Simplified Calculation**: to be easily comprehended, calculated and believed.
6. **Adjustment Allowances**: to allow adjustments and updates without major re-design.

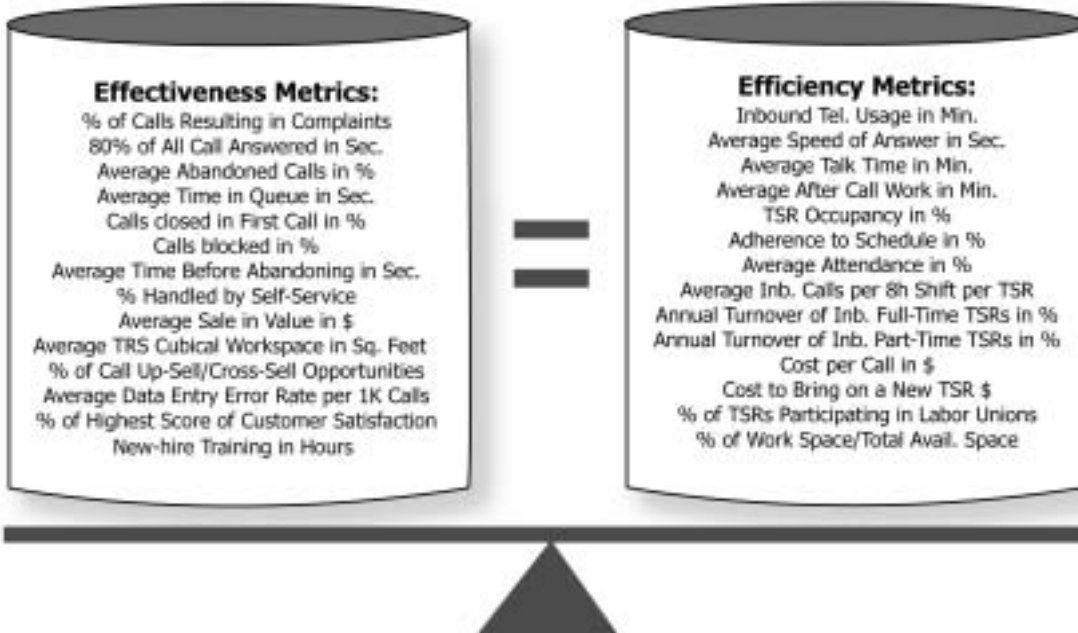
III. Index Structure

Considering the above-mentioned objectives, the TPI index has a multi-level division of its composite metrics. The following description applies to call centers. Similar models are worked out for help desks/tech support desks using appropriate metrics.

The first division for this model is by types of call centers. Here, there are three possibilities: inbound, outbound, and both. For each of these three categories, there is a further split into equal amounts of effectiveness and efficiency key performance indicators. The idea behind this separation is to achieve a balanced model that realistically measures a call center’s performance. Finally, the last metrical division is by industry types. See the two figures below.



A Balanced Model (example)



IV. Index Calculation

The main TPI index's formula is:

$$TBPI = (Q + P) - \frac{|Q - P|}{k}$$

Q = Effectiveness Metrics

P = Efficiency Metrics

k = "Out-of-Balance" Penalty Factor

$$Q = \sum_{i=1}^n C_{q,i} * \frac{(KPI_{q,i} - KPI_{q, industry _ average _ for _ i})}{KPI_{q, industry _ average _ for _ i}}$$

$$P = \sum_{i=1}^m C_{p,i} * \frac{(KPI_{p,i} - KPI_{p, industry _ average _ for _ i})}{KPI_{p, industry _ average _ for _ i}}$$

KPI = Key Performance Indicator

n = Total Number of Effectiveness KPIs

m = Total Number of Efficiency KPIs

n = m (Balanced Model)

KPI_{q,i} = Effectiveness KPI

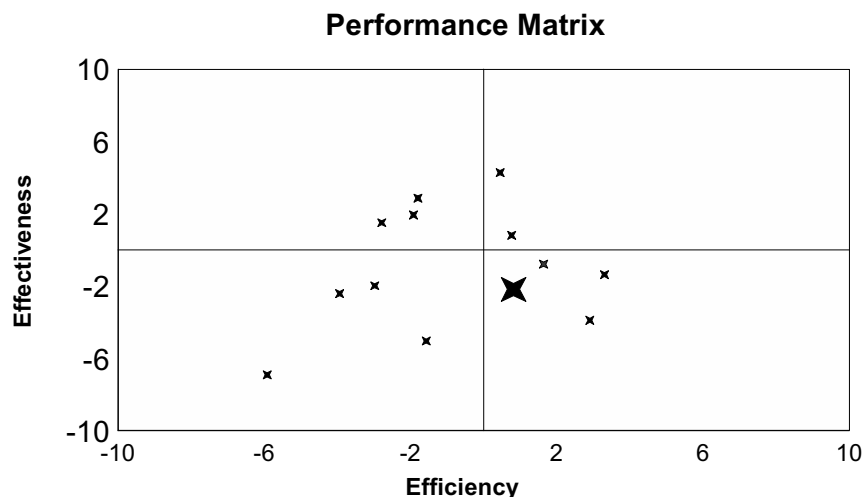
KPI_{p,i} = Efficiency KPI

C_{q,i} = Gap Direction Coefficient

C_{p,i} = Gap Direction Coefficient

V. Graphical Presentation of the TPI Index

The Tonchev Performance Index is graphically represented by the diagram below. This diagram is a type of matrix with two axes: effectiveness and efficiency. A participant will be penalized if it is too heavily weighted toward one axis or the other, and will be rewarded if it is balanced between the two. The closer a given point is to the upper right corner of the diagram, the higher the TPI index, and therefore, the better the performance.



**Please note: Participants falling outside of the range of +/- 10 for either coordinate will not be displayed in the above matrix.

VI. Advantages and Limitations of the TPI Index

The TPI index differs substantially from conventional performance indexes. Its main advantages and limitations can be summarized as follows:

Advantages:

Balance between effectiveness and efficiency - Equal attention is paid to both goals. Therefore, if there is an imbalance between effectiveness and efficiency, the company's performance is penalized, and the index is lower.

Transparent Results – The index value tells exactly the company's deviation from the industry average. Depending on the performance, this value can be positive, neutral, or negative.

Normalization – All metrics included in the index calculation have the same unit, namely they are all expressed in percent.

Adjustability – When necessary, the index allows updates and corrections.

Comparability – Since the company performance is measured by percentage deviation from the industry average, the index compares “apples with apples.”

Dynamics – Except for the penalty factor, the index does not rely on static coefficients. Instead, it is based on dynamic industry data.

Limitations:

Database Requirement – The index requires a large database.

Pair Principle – Since the index’s effectiveness-efficiency balance must exist, the addition of new effectiveness metrics always has to correspond with the inclusion of equal numbers of efficiency metrics.

Penalty Factor – Even though the penalty factor has a logical justification, its value can be biased.

VII. Conclusion

The TPI index is a performance benchmark tool that gives a numerical value of the call centers’ performance. It is a balanced index that can be used for comparisons of different types of call centers with various business operations. The strength of the TPI index is its simplicity and dynamic nature. It can help organizations to identify their weak areas and show the path leading to improved financial and market results. In conclusion, just as the finish time determines the performance of the long-distance runner, the TPI index is a single aggregate value that measures a call center’s competitive performance.

REFERENCES

1. "2001 Annual Location Guide." *Area Development Site and Facility Planning Magazine*, October 2000.
2. "Best Cities to Start and Grow a Company Now." *Inc. Magazine*, December 2000.
3. "Best of the Web." *Area Development - Site and Facility Planning Magazine*, April 2000.
4. "The Call Center Challenge: Finding the Right Location." *Area Development - Site and Facility Planning Magazine*, April 2000.
5. "The Ten Most Popular Cities to Move to." AOL/Homestore.com, March 2001.
6. "Where is the Good Life?" *Area Development - Site and Facility Planning Magazine*, April 2000.
7. Barker, Emily. "The Location Advantage." *Inc. Magazine*, December 2000.
8. Burdorf, Katie S. "50-State Demographics for Site Selection." *Telemarketing & Call Center Solutions Magazine*, February 1998.
9. Burger, Frederick. "The Internet Pervades Site Selection." *Area Development - Site and Facility Planning Magazine*, March 2001.
10. Canup, Buzz. "Demystifying the Site Selection Process." *Area Development - Site and Facility Planning Magazine*, July 2000.
11. Claritas
12. Daddino Marie. "Big Decisions for Medium-Size Firms, Area Development." *Site and Facility Planning Magazine*, January 2000.
13. Porter, Dianne. "The Site Selection Puzzle." *TeleProfessional Magazine*, June 1999.
14. Read, Brendan B. "Accommodating Your Call Center." *CallCenter Magazine*, May 2000.
15. Read, Brendan B. "Applying American Know-How in Site Selection." *CallCenter Magazine*, January 2000.
16. Read, Brendan B. "Call Center Staffing Market Remains Tight." *CallCenter, CommWeb.com*, January 2001.

17. Read, Brendan B. "Caution: U.S. Call Center Location Challenges Ahead." *CallCenter Magazine*, January 2001.
18. Read, Brendan B. "Determining Where To Serve Your American Customers." *CallCenter Magazine*, May 2001.
19. Read, Brendan B. "Finding a New Home for Your Call Center." *Network Magazine*, September 1, 1999.
20. Read, Brendan B. "Latest Stats Dictate Prudent Call Center Decisions." *CommWebb.com.*, February 2001.
21. Read, Brendan B. "Mapping Out Your Site Selection Strategies." *CallCenter Magazine*, November 1999.
22. Read, Brendan B. "Recipes for Effective Staffing." *CallCenter Magazine*, May 2001.
23. Read, Brendan B. "Site Selection Alternatives." *CallCenter Magazine*, February 2000.
24. Read, Brendan B. "Where Call Centers Have Been (and Will Be)." *CommWeb.com*, March 14, 1999.
25. Rosenwein, Rifka. "City Pickers – How to judge whether a city fits your business." *Inc. Magazine*, December 2000.
26. Saywitz, Barry. "When in Doubt, Ask the Experts." *Area Development - Site and Facility Planning*, Online, July 2000.
27. Slepicka, Mary. "Give Me a Home Where the CSRs Roam." *Customer Interface Magazine*, October 2000.
28. Stackhouse, Stephen. "Call Center Activity: A Bright Economic Light." *Area Development Site and Facility Planning* Online, April 2001.
29. U.S. Bureau of Labor Statistics.
30. U.S. Census Bureau.
31. Weiss, Rhett L. "Working with Economic Developers." *Area Development - Site and Facility Planning* Online, July 2000.

AUTHOR'S BIOGRAPHIES

Co-Author



Dr. Jon Anton (also known as “Dr. Jon”) is the director of benchmark research at Purdue University’s Center for Customer-Driven Quality. He specializes in enhancing customer service strategy through inbound call centers, and e-business centers, using the latest in telecommunications (voice), and computer (digital) technology. He also focuses on using the Internet for external customer access, as well as Intranets and middleware.

For the past six years, Dr. Jon has been the principal investigator of the annual Purdue University Call Center Benchmark Research. This data is now collected at the BenchmarkPortal.com Web site, where it is placed into a data warehouse that currently contains over ten million data points on call center and e-business center performance. Based on the analysis of this data, Dr. Jon authors the following monthly publications: “The Purdue Page” in *Call Center Magazine*, “Dr. Jon’s Benchmarks” in *Call Center News*, “Dr. Jon’s Industry Statistics” in *Customer Interface Magazine*, and “Dr. Jon’s Business Intelligence” in the *Call Center Manager’s Report*.

Dr. Jon has assisted over 400 companies in improving their customer service strategy/delivery by the design and implementation of inbound and outbound call centers, as well as in the decision-making process of using teleservice providers for maximizing service levels while minimizing costs per call. In August of 1996, *Call Center Magazine* honored Dr. Jon by selecting him as an Original Pioneer of the emerging call center industry. In October of 2000, Dr. Jon was named to the Call Center Hall of Fame. In January of 2001, Dr. Jon was selected for the industry’s “Leaders and Legends” Award by Help Desk 2000. Dr. Jon is also a member of the National Committee for Quality Assurance.

Dr. Jon has guided corporate executives in strategically re-positioning their call centers as robust customer access centers through a combination of benchmarking, re-engineering, consolidation, outsourcing, and Web-enablement. The resulting single point of contact for the customer allows business to be conducted anywhere, anytime, and in any form. By better understanding the customer lifetime value, Dr. Jon has developed techniques for calculating the ROI for customer service initiatives.

Dr. Jon has published 75 papers on customer service and call center methods in industry journals. In 1997, one of his papers on self-service was awarded the best article of the year by *Customer Relationship Management Magazine*.

Dr. Jon has published thirteen professional books:

1. *e-Business Customer Service*, The Anton Press, 2001
2. *Minimizing Agent Turnover*, The Anton Press, 2001
3. *Customer Relationship Management, The Bottom Line to Optimizing Your ROI*, Prentice Hall, 2nd Edition, 2001
4. *Integrating People with Processes and CRM Technology*, The Anton Press, 2002
5. *Selecting a Teleservices Partner*, The Anton Press, 2002
6. *20:20 CRM A Visionary Insight into Unique Customer Contacts*, The Anton Press, 2002
7. *Call Center Performance Enhancement Using Simulation and Modeling*, Purdue University Press, 2000
8. *Contact Center Benchmarking*, Purdue University Press, 1999
9. *Listening to the Voice of the Customer*, Alexander Communications, 1997
10. *Contact Center Management by the Numbers*, Purdue University Press, 1997
11. *Customer Relationship Management*, Prentice-Hall, Inc., 1996
12. *Inbound Customer Contact Center Design*, Dame Publishers, Inc., 1994
13. *Computer-Assisted Learning*, Hafner Publishing, Inc., 1985.

Dr. Jon is the editor for a series of professional books entitled *Customer Access Management*, published by the Purdue University Press.

Dr. Jon's formal education was in technology, including a Doctorate of Science and a Master of Science from Harvard University, a Master of Science from the University of Connecticut, and a Bachelor of Science from the University of Notre Dame. He also completed a three-summer intensive Executive Education program in Business at the Graduate School of Business at Stanford University.

Dr. Jon can be reached at 765.494.8357 or at DrJonAnton@AOL.com.

Co-Author



John Chatterley is Director of Research with BenchmarkPortal, Inc., the custodian of the Purdue University Center for Customer-Driven Quality contact center database. BenchmarkPortal collects and warehouses performance data on thousands of customer service contact centers, and is the recognized source of best practice standards and benchmarking reports for all major industries within the customer contact community.

John has published numerous custom benchmarking reports and white papers.

During 1995-2000, John was Site Development Director for MicroAge Teleservices, a contact center outsourcing company and subsidiary of MicroAge, Inc., a Fortune 500 company headquartered in Tempe, Arizona. He opened, staffed and managed three 500+ seat contact center sites in Arizona, Nevada, and California, and has extensive contact center operations management experience.

John's professional career spans more than 35 years of experience in high technology customer service, product management, marketing, and sales consulting.

John's professional education was in Engineering & Computer Science at Southern Utah State University, and subsequently at the University of Utah.

Co-Author



Mark W. Seeley is Project Manager, and a member of CB Richard Ellis' Phoenix-based Call Center Solutions Group. This team is a niche group of professionals focused on delivering a high level of site selection consulting services, and real estate strategy implementation solely to the Call Center industry. This team has developed proprietary site selection models and has become a resource for Call Center market intelligence nationwide.

Within CB Richard Ellis' Call Center Solutions Group, Mr. Seeley focuses on researching and evaluating labor markets nationwide. In addition to extensive interviews, city and county officials, and large employers, Mr. Seeley handles on-site labor assessment, taking into account local demographics and wage levels as well as the current and past employment experiences of local employers.

Mr. Seeley also specializes in maximizing the financial incentives offered by city, county, and state governments.

Prior to joining CB Richard Ellis, Mr. Seeley worked for Insignia-ESG, handling both landlord and tenant representation in their office properties division and at Cushman & Wakefield handling office and industrial market research.

As a member of CB Richard Ellis' Corporate Services Group, Mr. Seeley has focused on advising his clients on matters of site selection and real estate. Mr. Seeley has been actively in the commercial real estate industry since 1995.

Awards Mr. Seeley has received include:

- CBRE Innovation Award for Teaming - 2000
- Team of the Year Award – Phoenix Office - 2000

Mr. Seeley graduated with a B.A. in History from the University of Arizona, Tuscon in 1995.

Co-Author



James J. Trobaugh, III is one of the founding partners of CB Richard Ellis' Call Center Solutions Group. This team is a niche group of professionals focused on delivering a high level of site selection consulting services, and real estate strategy implementation solely to the Call Center industry. Jim Trobaugh is recognized as one of the nation's foremost authorities on Call Center site selection strategies, and for the group's business development and marketing efforts.

During 1984-1987, Mr. Trobaugh was responsible for the marketing efforts of Great American Tower, a 335,000 square foot highrise as part of the local development team for Oxford Properties, a major North American development company. He then worked for Grubb and Ellis from 1987-1989 before joining CB Richard Ellis in April of 1989.

In May of 1989, Mr. Trobaugh formed a partnership with Robert Marsh. Since that time, they have concentrated their efforts on representing tenants. The partnership typically completes 80 to 100 assignments annually, with user activity comprising 95%.

Mr. Trobaugh's Awards include:

- CBRE Innovation Award for Teaming - 2000
- Team of the Year Award – Phoenix Office - 2000
- Lippincott Circle Honoree - 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1990

- Most Engagements Award – CB Commercial, Phoenix Office - 1998, 1997, 1996
- CB Commercial Chairman's Club - 2000, 1997, 1996, 1995, 1994
- CBRE Professional Excellence Award - 1999
- Top in Speciality – Corporate Services - 1999
- Founding Partner – Call Center Solutions Group, 1996

Mr. Trobaugh graduated from Arizona State University, Tempe with a B.S. in Business Administration, 1978.