THE PUBLIC SECTOR
SERVICE VALUE CHAIN

REVISITING THE FIRST LINK WITH
BC PUBLIC SERVICE WORK UNITS

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CONTACT INFORMATION

This report was prepared by Julie Hawkins, Angela Matheson and Sean Burley of BC Stats. If you would like to learn more about what we are doing to measure and improve employee engagement, customer satisfaction and public trust and confidence, please contact:

Angela Matheson, Manager of Research & Development
Phone: 250-387-6744
Email: Angela.Matheson@gov.bc.ca
EXECUTIVE SUMMARY

The Public Sector Service Value Chain has the attention from all levels of government in Canada as a key approach to building citizen trust and confidence in public institutions. The model proposes that higher employee engagement in public sector organizations translates into more satisfied customers, and ultimately, greater trust and confidence in public institutions (Heinztman & Marson, 2006).

The proposed set of linkages that form the Public Sector Service Value Chain is in the process of being empirically validated by Canadian researchers. A recent preliminary analysis conducted by BC Stats and Region of Peel confirmed the existence of a two-way relationship between employee engagement and customer satisfaction (BC Stats & Region of Peel, 2008). In other words, in public sector work units where employee engagement was higher, so was customer satisfaction, and vice versa. As well, in work units where employee engagement was lower, customer satisfaction was lower. Furthermore, a clear and statistically significant difference was detected in levels of customer satisfaction between higher and lower engaged work units. The impact of employee engagement on customer satisfaction was found to be a one-point increase in customer satisfaction for every two-point increase in employee engagement.

The objective of this present study is to replicate these findings using a more diverse sample of BC Public Service work units and to delve deeper into the more specific aspects of employee engagement (i.e., organization satisfaction, job satisfaction, BC Public Service commitment), and their individual impact, if any, on customer satisfaction. In this report, BC Stats explored how the engagement of employees in work units directly involved in service delivery contributes to the first link of the service value chain. Employee engagement results were paired with customer satisfaction feedback across 21 work units in the BC Public Service, who participated in both employee and customer surveys in the 2008/09 fiscal year. The results of the analyses are summarized according to two key questions.

1. Can the findings from the previous study between employee engagement and customer satisfaction be replicated?

Finding 1  Similar to the preliminary analysis, there is a moderately strong positive two-way relationship between employee engagement and customer satisfaction ($r = 0.42$). That is, as employee engagement increases so does customer satisfaction, and vice versa. The relationship between employees and their customers is mutually reinforcing. In other words, if scores decrease in one area, we can expect to see a decrease in the other area as well.

Finding 2  On average, work units with high employee engagement scored 13 points higher in customer satisfaction than work units with low engagement (83 versus 69 out of 100 points) – similar to the 11 point spread found in the preliminary analysis.

Finding 3  Employees’ engagement levels still impact the satisfaction of services they provide to their customers: we can continue to expect a one-point improvement in customer satisfaction for every two-point increase in employee engagement.

Finding 4  Employee engagement continues to be an important driver of customer satisfaction; approximately 13% of the variation or differences in customer satisfaction scores can be explained by changes in employee engagement.
scores. However, this relationship has eroded since the preliminary analysis, which explained 20% of variation in customer satisfaction via employee engagement. Furthermore, this finding is only marginally significant.

**Conclusion:** The findings from the previous study testing the relationship between employee engagement and customer satisfaction have been replicated. Employee engagement has an impact on customer satisfaction. Work units with higher employee engagement have higher customer satisfaction scores than do work units with lower employee engagement. The present analysis however, reveals this relationship is not as strong as seen in the preliminary analysis.

| Finding 1 | Individually, there are moderately strong positive two-way relationships between customer satisfaction and employees’ satisfaction with their organization \( (r = 0.517) \) and with their job \( (r = 0.414) \). That is, as employee organization satisfaction increases, so does customer satisfaction, and vice versa; and as employee job satisfaction increases, so does customer satisfaction, and vice versa. As well, if scores decreased in one area, we can expect to see a decrease in the other areas as well. |
| Finding 2 | Employee commitment scores were found to be uncorrelated with customer satisfaction. However, commitment is strongly correlated with both organization satisfaction \( (r = 0.744) \) and job satisfaction \( (r = 0.613) \). |
| Finding 3 | In this present study, employees’ level of organization satisfaction, on its own, does a better job explaining differences in customer satisfaction than any other measure. Overall, approximately 23% of the variation in customer satisfaction scores can be explained solely by changes in employee organization satisfaction scores. |
| Finding 4 | On average, work units with high employee organization satisfaction scored 16 points higher in customer satisfaction than work units with low organization satisfaction (85 versus 69 out of 100 points). |
| Finding 5 | Employees’ levels of organization satisfaction has a clear and significant effect on customer satisfaction. Specifically, for every two-point increase in employee organization satisfaction, a one-point improvement in customer satisfaction will follow. |

**Conclusion:** Organization satisfaction is the best predictor of customer satisfaction. Moreover, work units with higher employee organization satisfaction have higher customer satisfaction than do work units with lower employee organization satisfaction.
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1. INTRODUCTION

1.1 Background

It is commonly known in the private sector that companies with higher employee engagement translates into better services and/or products, more satisfied customers, and ultimately, higher profits. In the public sector, since the success of government is related to the trust and confidence that citizens have in their public institutions, higher profits are replaced by public trust and confidence. Heintzman and Marson (2006) refer to these linkages as the Public Sector Service Value Chain (Figure 1).

**Figure 1. The Public Sector Service Value Chain**

The link between citizens' satisfaction with government services and their trust and confidence in government has been established in *Citizens First 3* (2003). The link between citizens' satisfaction with government services and those government employees' levels of engagement was preliminarily established by BC Stats and the Region of Peel (2008). This preliminary analysis validated the link and demonstrated the impact that engagement has upon citizen satisfaction in a public sector context, by examining work unit data collected by both jurisdictions. However, there were serious limitations of the preliminary analysis mainly due to the inconsistent measures available for study. These limitations led to six recommended next steps. The present study attempts to meet the first recommendation by replicating the preliminary analysis with consistent measures of employee engagement on a more diverse set of BC Public Service work units.

According to the *BC Public Service Engagement Model*, employee engagement is seen as a multidimensional concept influenced by a host of work environment drivers. Employee engagement consists of three characteristics – BC Public Service commitment, job satisfaction, and organization satisfaction. These three characteristics of engagement also influence each other, as if they were drivers. For example, there is a relationship between job satisfaction and organization satisfaction. The more satisfied you are with your job, the more likely you are to be satisfied with your organization. Job satisfaction and organization satisfaction both influence commitment. In fact, organization satisfaction is the strongest direct relationship to commitment in the model. Finally, there is a two-way relationship between job satisfaction and commitment. These mutually reinforcing relationships between the engagement characteristics create dynamic forces at the top of the *BC Public Service Engagement model*, which can significantly boost or quickly detract from engagement (Figure 2).

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1 The indicators of engagement used in the study were inconsistent and limited due to data being used from two different jurisdictions. The other main limitation was that the sample size of work units (41) was large enough for statistical significance, but too small to break up cases into demographic segments to control for factors such as size of work unit, location, and what type or level of service they provide.
INTRODUCTION

Figure 2. BC Public Service Engagement

The scores from these three characteristics are averaged together to produce employee engagement scores for work units across the BC Public Service; however scores from each of these characteristics also can be analysed individually.

1.2 Objective

The main objective of this report is to validate the link between BC Public Service employee engagement and citizens’ service satisfaction (i.e., customer satisfaction) and delve further into how the individual characteristics of engagement impact customer satisfaction. A second objective is to enhance the representation of BC Public Service work units specifically by using work units from only the BC public sector.

BC Stats made the decision to change the methodology so as to allow for improvements to the consistency of engagement measures, workforce characteristics and timing of survey data collection. While these decisions limit the sample size of matched pairs, the cases now include a more varied group of work units, across more ministries, and from a larger number of different surveys. Thus, BC Stats believes that the changes actually increase the validity and applicability of the findings within BC Public Service organizations.

This report demonstrates how the engagement of BC public sector employees directly involved in service delivery contributes to the Public Service Value Chain. Employees’ engagement, and more specifically, the satisfaction with their respective organizations, is explored alongside the satisfaction of their customers – those who accessed or received their services. The findings are summarized according to two key research questions.

1.3 Key Questions

1) Can the findings from the preliminary study between employee engagement and customer satisfaction be replicated?

2) Which of the three employee engagement measures (organization satisfaction, job satisfaction, BC Public Service commitment) most impacts customer satisfaction, and how?

For more information about the research methodology and a breakdown of the engagement and satisfaction measures, please refer to Appendix A.

2 In the preliminary analysis (BC Stats & the Region of Peel, 2008), the BC Public Service data came from five different ministries (with a majority of cases from resource ministries) and 11 individual customer surveys. Data from this round comes from 11 different ministries (administrative, financial, social, resource, independent offices, etc.) and 21 individual customer surveys.
2. KEY FINDINGS

2.1 Can the findings from the preliminary study between employee engagement and customer satisfaction be replicated?

Confirming the Link

Employee engagement and customer satisfaction levels were analyzed using 21 BC public sector work units directly involved with service delivery. Work unit employee engagement scores ranged from 62 to 81 points, averaging at 73 out of 100 points. Customer satisfaction scores across work units were much more diverse, ranging from 53 to 96 points, averaging at 76 out of 100 points.3

Correlation analysis on the two sets of work unit data confirmed a moderately strong positive two-way relationship between employee engagement and customer satisfaction.4 In Figure 2, the employee engagement scores for all work units are plotted with their customer satisfaction scores. The corresponding trend line shows that in work units where employee engagement is higher, so is customer satisfaction, and vice versa. Likewise, in work units where employee engagement is lower, so is customer satisfaction, and vice versa.

Figure 2. As employee engagement increases so do customer satisfaction scores, and vice versa.

The above findings support BC Stats and Region of Peel’s (2008) findings of a two-way link between employee engagement and customer satisfaction. To uncover the difference in customer satisfaction, the employee engagement scores were separated into two groups based on the distribution of their engagement scores.5 Work units classified as “Low Engagement”

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3 As a point of interest, the spread of the scores on both measures is different from the previous analysis. The range of scores is not as wide and responses are skewed slightly more to the positive end of the entire distribution.

4 Pearson Correlation Coefficient = 0.42, p < 0.029 (one-tailed). A one-tailed correlation was used this time to confirm the positive correlation.

5 The groups were based on the percentile ranking of scores. ‘Low Engagement’ represents work unit scores that fall within the 50th percentile (71.71 points and lower). ‘High Engagement’ represents all other work units (71.72 points and higher).
averaged 69 out of 100 points on customer satisfaction; work units classified as “High Engagement” performed better in customer satisfaction, averaging at 83 out of 100 points. Figure 3 below displays how as employee engagement increases by group, there is an improvement in the perceived quality of services these work units provide to their customers. Specifically, a clear and statistically significant difference in customer satisfaction levels (13 points) is observed between work units with high and low employee engagement.6

Figure 3. Work units with high employee engagement scores had significantly higher customer satisfaction scores.

![Graph showing customer satisfaction by engagement level]

Confiming the Nature of the Relationship

But how is this information best used? Knowing how much customer satisfaction will improve when employee engagement increases provides decision-makers with informed intelligence to assist in strategic planning. To assess the practical impact of the relationship between employee engagement and customer satisfaction, BC Stats performed regression analysis on the data and found that customer satisfaction is dependent on the level of engagement of the employees providing service to them. Specifically, regression analysis found that the level of employee engagement explained 13% of the variance in customer satisfaction scores.7 In general, customer satisfaction scores improved by 1 point when employee engagement increased by just over 2 points.8

Keeping in mind that the small number of cases hampers the ability to reach statistical significance, findings again collectively support the employee-customer link proposed in the Public Sector Service Value Chain. Related to the two-way relationship found in the preliminary analysis, how engaged (i.e., satisfied and committed) employees are in any given work unit can be both impacted and reinforced by the way customers view the quality of services the work unit provides. But which of the three individual engagement measures (or combination thereof) has the most effect on customer satisfaction? The section that follows will provide the answer to this question.

6 An Independent T-test of Means determined whether differences in customer satisfaction were statistically significant from the low engagement group to the high engagement group. Analysis revealed a statistical difference at the 0.01 probability level of significance.
7 A linear regression yielded a standardized beta coefficient of 0.42 and an adjusted squared correlation (R²) of 0.133, marginally significant at the 0.058 probability level.
8 Caution should be taken when generalizing the results beyond this study due to small sample size.
2.2 Which of the three employee engagement measures (organization satisfaction, job satisfaction, BC Public Service commitment) most impacts customer satisfaction, and how?

Exploring the Link

Knowing that customer satisfaction will increase when employee engagement increases, and by how much, is useful information, but it is not complete. By determining which specific engagement measures impact customer satisfaction, decision-makers can best focus their efforts and resources to maintaining or improving employee engagement, and through that, the satisfaction of their customers.

By using data with a consistent set of engagement measures, it is now possible to delve into the effects of the individual measures on customer satisfaction. The engagement measure is comprised of three individual aspects, and their associated questions:

- **Organization Satisfaction**: I am satisfied with my ministry/organization.
- **Job Satisfaction**: I am satisfied with my job.
- **Commitment** (an average of two survey topics): I would prefer to stay with the BC Public Service, even if offered a similar job elsewhere. AND Overall, I am satisfied in my work as a BC Public Service employee.

Because the employee engagement score is based on the average of employee organization satisfaction, job satisfaction, and commitment scores, the distributions of scores were similar to employee engagement. That is, work unit employee scores ranged by 19 to 24 points, and averaged between 71 and 74 points out of 100.

Deeper examination of the individual characteristics of employee engagement led to an unexpected result. Specifically, employee commitment scores were found to be uncorrelated with customer satisfaction; consequently, this measure of engagement was dropped from further analysis. However, employee commitment is still important to the BC Public Service Model of Employee Engagement, especially with the strong correlations it has with both organization satisfaction and job satisfaction. As expected, employee job satisfaction and organization satisfaction scores are also highly correlated with each other: as one increases, so does the other, and as one decreases, so does the other.

Correlation analysis of each engagement measurement with customer satisfaction revealed moderately strong two-way positive relationships between customer satisfaction and organization satisfaction and job satisfaction. Figure 4 plots the customer satisfaction scores

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9 Overall, work unit employee engagement scores ranged from 62 to 81, averaging at 73 out of 100 points. As mentioned earlier, customer satisfaction scores averaged at 76 out of 100 points and ranged from 53 to 96 out of 100.

10 Work unit organization satisfaction scores ranged from 60 to 84 points, averaging at 71 out of 100 points. Work unit job satisfaction scores ranged from 63 to 84 points, averaging at 72 out of 100 points. Work unit commitment scores ranged from 63 to 81 points, averaging at 74 out of 100 points.

11 For employee commitment, the Pearson Correlation Coefficient = 0.173 did not approach statistical significance with customer satisfaction. The Pearson Correlation Coefficient = 0.744, p<0.0001 (one-tailed) for commitment and organization satisfaction. The Pearson Correlation Coefficient = 0.613, p<0.003 (one-tailed) for commitment and job satisfaction.

12 Pearson Correlation Coefficient = 0.877, p<0.0001 (one-tailed) for organization and job satisfaction.

13 Pearson Correlation Coefficient = 0.517, p<0.008 (one-tailed) for organization satisfaction and customer satisfaction. Pearson Correlation Coefficient = 0.414, p<0.031 (one-tailed) for job satisfaction and customer satisfaction.
with both the employee organization satisfaction and job satisfaction scores for all work units. The corresponding trend lines show that in both cases, customer satisfaction rises along with increases in either organization satisfaction or job satisfaction, and vice versa. Likewise, in work units where satisfaction (either organization or job-related) is lower, so is customer satisfaction, and vice versa.

Figure 4. Increasing employee satisfaction with either their organization or job leads to improvements in customer satisfaction.

Exploring the Nature of the Relationships

While knowing that relationships between customer satisfaction and both employee organization and job satisfaction exist, a more useful piece of information would be in knowing which aspect (if either) has more influence on customer satisfaction and to what extent.

Regression analysis found that the best predictor of customer satisfaction was organization satisfaction on its own. The analysis also found that employee organization satisfaction scores accounted for 23% of the differences in customer satisfaction scores from the work units. In general, customer satisfaction scores improved by 1 point when employee organization satisfaction increased by approximately 2 points (see Figure 5).

Employees’ satisfaction with their organization is the best predictor of customer satisfaction – more so than employee engagement or a combination of the three measures of engagement.

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14 A stepwise linear regression yielded a standardized beta coefficient of 0.517 and an adjusted squared correlation (R²) of 0.228, significant at the 0.017 probability level.
15 Caution should be taken when generalizing the results beyond this study due to small sample size and research design limitations.
Figure 5. Increasing employees’ organization satisfaction leads to higher customer satisfaction in the services their work unit provides.

Thus, customer satisfaction is dependent on the level of satisfaction employees have with their organization. Since organization satisfaction was the best measure to explain variances in customer satisfaction, work units were divided into three groups based on the distribution of their organization satisfaction scores. Work units classified as ‘Low Organization Satisfaction’ averaged 69 (out of 100 points) on customer satisfaction, while those categorized as ‘Medium Organization Satisfaction’ averaged 73 points on customer satisfaction. Work units with ‘High Organization Satisfaction’ averaged 85 points on customer satisfaction.

Figure 6. Work units with high organization satisfaction scores had significantly higher customer satisfaction scores.

The differences in customer satisfaction between groups are displayed in Figure 6 above. As employee organization satisfaction increases by group, there is a definite improvement in the

16 The groups are based on the percentile ranking of scores. ‘Low Organization Satisfaction’ are work units that fall within the 33rd percentile (67 points and lower). ‘Medium Organization Satisfaction’ are work units with scores ranging from 68 – 74 points. ‘High Organization Satisfaction’ are work units which were on the 66th percentile and above (equalling 75 points and higher).
perceived quality of services these work units provide to their customers. More importantly, a clear difference in customer satisfaction levels (16 points) is observed between work units with high and low employee organization satisfaction.\textsuperscript{17}

\begin{footnotesize}
\textsuperscript{17} A one-way ANOVA tested whether differences in customer satisfaction were statistically significant and revealed a statistical difference at the 0.038 probability level of significance. A Tukey post-hoc test revealed a statistical difference between the Low and High groups at the 0.036 probability level of significance. Due to the small group sizes, a non parametric Krusker Wallis test was also conducted. Results found the differences approached significance at the 0.082 probability level of significance. It is advised future research should retest this analysis on larger samples.
\end{footnotesize}
3. LIMITATIONS

As in the preliminary analysis, a sample size limitation arises out of the availability of data. While the number of work units (21) is large enough for statistical significance, it is too small to break up into demographic segments within those 21 work units. As noted in the preliminary analysis, a larger sample size would allow for the use of control variables such as size of work unit, location, and what level/type of service they provide (i.e., frontline, administrative, etc). Future analysis should factor in the wide variation of employees that exist across work units.

A second limitation in this study became evident with the customer satisfaction measure. Most cases asked an overall summary question, with the same phrase naming the work unit/organization in the question. However, three cases were based on an average of the overall summary question of individual divisions within the work unit/organization. Although these averages were based on the exact same wording to form an overall response, they inherently have more of a divisional service focus than would a summary question of an overall work unit/organization. To improve the consistency of the customer satisfaction measure, organizations across the BC Public Service should be made aware of and encouraged to use the standards from the Institute for Citizen Centred Service’s Common Measurements Tool (CMT), which will enhance the reliability of results and help maximize the sample size of applicable work units for this type of research.

4. NEXT STEPS

This study was designed to be a replication of the preliminary analysis conducted by BC Stats and the Region of Peel (2008) of the two-way relationship between employee engagement and customer satisfaction (i.e., the first link in the Public Sector Service Value Chain). This study further validates the link and demonstrates the impact that engagement, and more specifically, organization satisfaction, has upon customer satisfaction in a public sector context.

Answering questions surrounding the first link of the Public Sector Service Value Chain has led to only more questions. The relationship between employee engagement and customer satisfaction has eroded – is this an effect of the small sample size, or a true difference over time? Do the individual aspects of employee commitment (i.e., preference to stay with the BC Public Service even if offered a job elsewhere, and satisfaction in work as a BC Public Service employee) have separate effects on customer satisfaction that may be hidden in their integration into an overall measure of commitment? Regardless of customer satisfaction, would employee engagement be affected by a change in views or attitudes in public confidence and trust in government? Does employee engagement have a different level of effect on customer satisfaction for different work units (e.g., financial organizations versus resource or administrative organizations)? How does the size of a work unit affect the relationship between employee engagement and customer satisfaction, if at all?

Deeper analysis needs to be undertaken to better understand the benefits underlying this linkage. Some specific suggestions for this research include:

1. Given that organization satisfaction is the dominant driver in the BC Public Service Value Chain, future research could focus on testing the relationship between work unit satisfaction and customer satisfaction. Since customer satisfaction is gauged at the work unit level, is the relationship stronger when we take work unit satisfaction into consideration?
2. Replicating this study while controlling for work unit size and introducing complete consistency in the measure of customer satisfaction, but maintaining consistent measures of engagement.

3. Further building upon the database of match pairs so that sample size can be increased to enhance validity.

4. Introducing control variables (e.g., location, ministry, etc.) to the model to account for demographic differences between work units.

5. Investigating the two individual aspects of employee commitment and their specific relationships, if any, with customer satisfaction.

6. Linking the Common Measurement Tool customer satisfaction drivers, level of service, service type and engagement measures to test and create a robust model that explains variance in customer satisfaction.

7. Implementing a consistent set of service attributes and overall customer satisfaction measure that are essential for all forms of public sector services.

8. Investigating or building upon other areas feeding into the Public Sector Service Value Chain (e.g., aspects of program policy, development, direction and delivery).
APPENDIX A — METHODOLOGY

5. RESEARCH DESIGN

5.1 Methodological Changes

The main objective of this report is to replicate the results of the preliminary analysis conducted by BC Stats and the Region of Peel (2008). That sample was comprised of 41 public sector work units directly involved with service delivery, with 27 from the BC Public Service and 14 from the Region of Peel. As well, the Region of Peel cases were conducted in 2005 and 2006, while the BC Public Service cases were conducted in 2007. Work units from both jurisdictions were included to increase and diversify the sample to enhance the power of the statistical tests and generalisability of the findings. The BC Public Service data was based on five different provincial ministries (Transportation, Labour & Citizen’s Services, Environment, Agriculture & Lands, and Attorney General), while the Region of Peel’s data was based on seven municipal divisions.

For this round of Service Value Chain analysis, three main methodological changes were made:

1. Only BC Public Service work units were included (n=21).
2. Cases only from the 2008/2009 fiscal year were used.18
3. Cases from customer surveys were matched with the employee survey conducted in the shortest time interval since or before the customer survey (i.e., cases were not necessarily matched by calendar year as was done previously).

BC Stats made these decisions so as to allow for improvements to the consistency of engagement measures, workforce characteristics and timing of survey data collection. While these decisions resulted in a failure to increase sample size of matched pairs, the cases now include a more varied group of work units, across more ministries, and from a larger number of different surveys.19 Thus, BC Stats believes that the changes actually increase the validity and applicability of the findings within BC public service organizations.

18 The two exceptions include one survey with customer survey data collection in March 2008, just before the beginning of the 2008/09 fiscal year, and one survey with customer survey data collection in May/June 2009, just following the 2008/09 fiscal year. These two exceptions were included to increase the sample size.
19 In the preliminary analysis (BC Stats & the Region of Peel, 2008), the BC Public Service data came from five different ministries (with a majority of cases from resource ministries) and 11 individual customer surveys. Data from this round comes from 11 different ministries (administrative, financial, social, resource, independent offices, etc.) and 21 individual customer surveys.
5.2 Case Criteria

BC Stats studied the relationship between employee engagement and customer satisfaction at the work unit level. In total, 21 work units were used in the study. Data pairs were selected and matched from employee engagement and satisfaction surveys conducted mostly within the 2008/09 fiscal year.

The matching of employee and customer data was based on the following criteria:

1. The engagement and customer satisfaction score had to be collected within six months of each other for each work unit.
2. The scope defining the work unit had to be identical for both the employees and services customers were evaluating. In other words, scores from employees who provided service x, had to align with customers who received service x.
3. Customer satisfaction data had to be based on a summary question about the satisfaction of services provided with phrasing such as: “Overall, how satisfied are you with service x?”
4. Customer satisfaction and engagement questions were scaled on a 5-point bipolar scale anchored by the following qualifier at each end: Very Dissatisfied/Strongly Disagree and Very Satisfied/Strongly Agree.

The quality of the match of employee and customer data was more important to the validity of results than the total number of work units. Thus, every effort was made to ensure only data that sufficiently met the above criteria was included in the analyses.

6. SAMPLE CHARACTERISTICS

The BC Public Service data was based on 11 different provincial ministries and independent organizations (Attorney General; Community Services in conjunction with Tourism, Sport & the Arts; Education; Elections BC; Employment & Income Assistance; Forests & Range; Integrated Land Management Bureau; Labour & Citizen’s Services; Office of the Ombudsman, Public Service Agency; Small Business & Revenue). The work units varied from 11 to 492 employees, with an average work unit size of 137 employees.\(^\text{20}\)

The work units provided a wide range of BC Public Services in the sample, ranging from employee advisement and government purchasing to legal services and publications.

\(^{20}\) Total based on the total number of employees who completed the survey.
7. ENGAGEMENT AND SATISFACTION MEASURES

Three characteristics of engagement are used in the BC Public Service: job satisfaction, organization satisfaction and commitment. The list below outlines the measures that make up the characteristics of employee engagement as well as the customer satisfaction question used for this study.

<table>
<thead>
<tr>
<th>Characteristics of Employee Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Job Satisfaction:</td>
</tr>
<tr>
<td>• I am satisfied with my job.</td>
</tr>
<tr>
<td>(2) Organization Satisfaction:</td>
</tr>
<tr>
<td>• I am satisfied with my ministry/organization.</td>
</tr>
<tr>
<td>(3) Commitment:</td>
</tr>
<tr>
<td>• I would prefer to stay with the BC Public Service, even if offered a similar job elsewhere.</td>
</tr>
<tr>
<td>• Overall, I am satisfied in my work as a BC Public Service employee.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Customer Satisfaction Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overall, how satisfied are you with &lt;service name&gt;?</td>
</tr>
</tbody>
</table>

8. DATA ANALYSIS

The response scale for both customer satisfaction and employee engagement questions were based on a five-point scale, which ranged from ‘1’ to ‘5’. While the response labels remained the same, not all cases used all the labels. For example, four cases only labeled the anchor points of their scale (response options ‘1’ and ‘5’), while two also labeled the midpoint (‘3’), and the other 15 cases labeled all five points of the scale.

To calculate scores needed for the analysis, the original responses were recoded into new values based on a ‘0’ to ‘100’ point scale.

<table>
<thead>
<tr>
<th>Original 5-point Response Scale</th>
<th>New values out of 100 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Very Dissatisfied/Strongly Disagree</td>
<td>0</td>
</tr>
<tr>
<td>2 – Dissatisfied/Disagree</td>
<td>25</td>
</tr>
<tr>
<td>3(^{21})</td>
<td>50</td>
</tr>
<tr>
<td>4 – Satisfied/Agree</td>
<td>75</td>
</tr>
<tr>
<td>5 – Very Satisfied/Strongly Agree</td>
<td>100</td>
</tr>
</tbody>
</table>

\(^{21}\) Two studies labelled their midpoint as “Neutral”. Others labelled it as “Neither Dissatisfied not Satisfied” or “Neither Disagree nor Agree”.

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Using these new values, an average score was calculated for each engagement characteristic. If an engagement characteristic had more than one question, then scores on questions for the characteristic were averaged together. The overall engagement scores were calculated by averaging the three characteristics of engagement. A Pearson correlation (R) assessed the relationship between engagement and customer satisfaction scores.

An independent-samples T-test was used to determine the statistical difference in scores between two types of engagement groups. That is, the classification of work units was based on how their score ranked with others in the entire distribution for that employee engagement. The cut-offs for each group is based solely on the percentile ranking of scores in the distribution for that measure. ‘Low Engagement’ represents work unit scores that fall within the 50th percentile (71.71 points and lower). ‘High Engagement’ represents all other work units (scores of 71.72 and higher).

Both a parametric and nonparametric one-way analysis of variance (ANOVA) was used to determine the statistical difference in scores in the three types of organization satisfaction. That is, the classification of work units was based on how their score ranked with others in the entire distribution for employee organization satisfaction. The cut-offs for each group of employee organization satisfaction is based solely on the percentile ranking of scores in the distribution for that measure. ‘Low Organization Satisfaction’ represents work unit scores that fall within the 33rd percentile (67 points and lower). ‘Medium Organization Satisfaction’ represents work units with scores ranging from 68 – 84 points. ‘High Organization Satisfaction’ represents work units where scores were on the 66th percentile and above (85 points and higher). A Tukey post-hoc test was run to determine which group comparisons were significantly different.

Linear regressions examined how much customer satisfaction would increase when employee engagement was increased by one unit of measure, and how much customer satisfaction would increase when employee organization satisfaction was increased by one unit of measure. Adjusted square correlations (R²) further determined how much variance in customer satisfaction could be attributed to changes in either employee engagement or employee organization satisfaction.

Statistical significance for all tests was based on the 0.05 probability level of significance.
APPENDIX B — REFERENCES


If you have any questions about the information in this report, please contact BC Stats. 250-387-6744