An In Depth Look into the Management Context

WORK ENVIRONMENT SURVEY 2010
November 2010
CONTACT INFORMATION

This paper was prepared by Taylor Saunders. If you have any questions about the information in this report, please contact Taylor via email at taylor.saunders@gov.bc.ca or by phone at 250-387-8972.

© BC Stats 2010
EXECUTIVE SUMMARY

Supervisors have a foundational role in the BC Public Service’s work environment. Due to their ability to both directly and indirectly influence the engagement of their supervisees, understanding the issues and challenges faced by supervisors is a critical step towards improving the workplace experiences for all employees. In order to develop a clearer picture of these issues and challenges, results from the 2010 BC Public Service Work Environment Survey (WES) were explored alongside a variety of demographic and occupational data. The following report provides a summary of this investigation, with the six major findings highlighted below.

1. In 2010, the Supervisory-level Management driver became a stronger predictor of Teamwork scores.

Prior to 2010, the Supervisory-level Management driver’s relationship with the employee engagement model remained largely unchanged. However, in 2010, the connection between the Supervisory-level Management driver and the Teamwork driver increased in strength. This change indicated that an employee’s view of their supervisor has become more closely aligned with how they view the level of teamwork within their work unit. In other words, high 2010 Supervisory-level Management scores will lead to higher 2010 Teamwork scores.

While it is unclear whether the strength of this connection will remain constant in future WES cycles, it is evident that the actions of supervisors now have a greater impact on their team’s ability to collaborate, communicate and develop positive relationships with one another. As will be seen throughout several sections of this report, this strengthened relationship between the Supervisory-level Management and Teamwork drivers represents a clear and important shift in the work environment.

2. At the BC Public Service level, Supervisory-level Management driver scores have changed little over time.

The Supervisory-level Management driver remained stable between 2009 and 2010.

Compared to the other drivers in the engagement model, the Supervisory-level Management is surprisingly stable. Whereas the majority of drivers experienced a significant decrease in scores between the 2009 and 2010 survey cycles, the Supervisory-level Management driver remained unchanged. Specifically, a BC Public Service Supervisory-level Management score of 68 points (out of 100) was obtained for both 2009 and 2010. The only other driver that maintained a similar stability in scores between 2009 and 2010 was the Teamwork driver. This mutual stability between the Supervisory-level Management and Teamwork drivers points to a key supportive relationship the two drivers share with one another, particularly during times of difficult change.
Responses to the supervisor questions have become more polarised over time.

Despite the lack of variation in Supervisory-level Management driver scores between 2009 and 2010, a slight change did take place with respect to the response trends for the two questions that comprise the driver. In particular, an increase occurred between 2009 and 2010 in terms of the proportion of employees who responded either as ‘Strongly Agree’ or ‘Strongly Disagree’ for each of the Supervisory-level Management driver questions. If viewed within the context of the corporate changes that occurred between the 2009 WES and 2010 WES cycles, the polarised responses point to two important findings. Firstly, the increased proportion of respondents who indicated they ‘Strongly Agree’ with the supervisor questions suggests that some supervisors were able to successfully weather the changes that took place prior to the 2010 WES cycle. On the other hand, the increased proportion of respondents who answered ‘Strongly Disagree’ points to a potential struggle some supervisors had in negotiating the challenges of the past year.

Supervisory-level Management scores split across three separate demographic groups (age groups, service year groups and geographic regions) have converged over the past four survey cycles.

To better track the changes in Supervisory-level Management scores across years, a four year longitudinal comparison was conducted on a group of continuing responders1. When results for each year were split across three demographic groups (i.e. age group, service year group, geographic region), a convergence in scores across the four surveys years was observed. Specifically, a longitudinal comparison revealed that for all three demographic groups, the wide range in Supervisory-level Management scores observed in 2007 became progressively smaller with each passing year.

The interpretation of this finding is that perceptions of supervisors have become normalized. Put differently, perceptions have become more similar, and less varied. It is important to note though, that this normalization has moved towards the BC Public Service average Supervisory-level Management score. In other words, groups that had high scores in 2007 have experienced a decrease in Supervisory-level Management scores over time. This trend was most prominent for respondents less than 35 years of age, and respondents who had been employed in the public service for less than three years. Conversely, groups that typically had low Supervisory-level Management scores in 2007 reported more positive views over time. This improvement was most evident for respondents located in the South Coast region of the province, as well as respondents who have been in the public service for 10 or more years.

While it unclear at this time what may have caused this convergence to occur, it is clear that for those groups of respondents that have had historically below average perceptions of supervisors, their impression of their supervisors have improved.

---

1 In this context, continuing responders are defined as those respondents who completed the WES for each of the years being analysed.
3. **The Supervisory-level Management driver can be improved by taking into consideration the expectations supervisors have regarding the work of their direct reports.**

While the current Supervisory-level Management driver provides an effective means of measuring how respondents’ perceptions of supervisors impact their engagement, it is always possible to further improve the engagement model. For this reason, several supervisor focused WES questions that are not currently in the engagement model were examined in the hope that the Supervisory-level Management driver could either be revised or expanded. The result of this analysis indicated that the addition of a single, non-model WES question into the Supervisory-level Management driver, would provide a more complete picture of the experiences employee’s have with their supervisors. The question identified for inclusion in the drivers is provided below.

> The person I report to provides clear expectations regarding my work.

By introducing the concept of ‘clear expectations’ into the Supervisory-level Management driver, the driver’s focus gets slightly shifted towards the work responsibilities of direct reports. This however, does not reduce the driver’s ability to measure the communication between a supervisor and supervisee. Similar to how the two questions within the current driver focus on a supervisor’s communications surrounding key decision and information relevant to a direct report, the new driver question addresses the clarity of expectations. In all cases, the communication a supervisor engages in with his or her direct reports is the critical element in fostering employee engagement.

4. **Supervisors with positions that were closer to the top of the corporate reporting structure, excluded from the bargaining unit, or located in the education sector received more positive responses from their direct reports.**

   *Based on the analysis of three ‘span of control’ measures, only a supervisor’s level within the corporate reporting structure had a clear relationship with the perceptions of their direct reports.*

To better understand how the scope of a supervisor’s responsibilities relate to the experiences of their direct reports, three separate ‘span of control’ measures were developed. The three ‘span of control’ measures were based on the count of direct reports a supervisor is responsible for, how geographically dispersed a supervisor’s direct reports are, and the reporting level of the supervisor. The ‘span of control’ measures for each supervisor were then compared against responses from their direct reports. Based on this comparison, only the reporting level of a supervisor was found to have a clear relationship with how the supervisor is perceived by their supervisees. The nature of the relationship indicated that supervisors who have fewer reporting levels between themselves and the Head of the BC Public Service, also tend to receive more favourable responses from their direct reports. While this is encouraging news for supervisors near the top of the corporate reporting
structure, it does present a particular challenge for supervisors who are several levels removed from Head of the BC Public Service.

**Supervisors who received favourable responses from their direct reports tended to have positions that were either located on Vancouver Island; excluded from the bargaining unit; within the Strategic Leadership & Executives occupation group; or were found within the Education sector.**

A demographic and occupational comparison revealed that supervisors who received more favourable scores from their direct reports, tended to cluster in certain geographic regions, occupation and sectors. For instance, supervisors on Vancouver Island tended to receive higher supervisor scores from their direct reports, as compared to supervisors located in the rest of the province. In contrast to the results for Vancouver Island, supervisors in Northern BC were found to receive particularly low scores from their supervisees.

Non-union supervisors were found to receive higher scores from their direct reports, as compared to supervisors within the union. A further investigation by occupational groupings, however, indicated that the difference between union and non-union groups may in fact be due to the influence of two specific occupation groups. Looking first at non-union occupations, supervisors within the Strategic Leadership & Executive occupations received scores from their direct reports that were well above the average for non-union supervisors. Similarly, supervisors within the Enforcement & Corrections occupation group received scores from their direct reports that were considerably lower than scores obtained by supervisors in other union occupations. This finding indicates that supervisors may encounter particular successes or challenges as a result of the occupational group they work in. For those supervisors that fall within the Strategic Leadership & Executives group, their high supervisor scores point to a possible set of best practices that could be shared with supervisors throughout other occupations. Conversely, supervisors within Enforcement & Corrections may require specific attention, as their results indicate they have encountered a unique set of difficulties in their supervisory roles.

Finally, a sector based comparison revealed that supervisors within the Education sector received, on average, the highest scores from their direct reports. On the lower end of the spectrum, supervisors within the Justice sector received, on average, the lowest supervisor scores from their supervisees. Given the large number of Enforcement & Correction positions within the Justice sector, this finding is not entirely surprising.

5. **Supervisors who received positive response from their direct reports, tended to have a strong focus on the Teamwork, Respectful Environment and Staffing Practices drivers.**

To explore the relationship between the perceptions of a supervisor and those of their direct reports, a series of correlations were performed with the engagement model drivers. This was achieved by first creating a set of 16 driver scores for each supervisor. These driver scores were based on the supervisor’s individual responses to the WES questions. Each of the driver scores were then compared to their direct reports’ responses to the two supervisor questions. The result of this
analysis revealed that a positive relationship exists between all the driver scores a supervisor provides, and the responses they received from their supervisees. In other words, supervisors who provided high driver scores also tended to receive more favourable assessments from their direct reports. This was particularly evident for the Teamwork, Respectful Environment and Staffing Practices drivers. The presence of the Teamwork driver again points to the critical relationship between a supervisor’s capacity to effectively communicate with their direct reports, and a supervisor’s interest in developing a strong sense of teamwork within their work unit.

6. The Teamwork, Stress & Workload, and Recognition drivers differed the most between supervisors who received consistently high scores from their direct reports and those who consistently received low scores.

To track how a direct report’s score for their supervisor changed over time, a year-over-year analysis was conducted exclusively on a sample of supervisors who completed both the 2009 and 2010 surveys. For each year, supervisors were assigned to one of three categories based on the responses of their direct reports to the two supervisor questions. The categories split the sample into equal thirds, with the top third for a given year labelled Modelling Excellence, the middle third labelled Meeting Expectations and the bottom third labelled Experiencing Challenges.

A comparison was then conducted between the supervisors who were located in the Modelling Excellence category for both years (i.e. consistently high scores) and supervisors located in the Experiencing Challenges category for both years (i.e. consistently low scores). The comparison explored how driver scores differed between consistently high scoring and consistently low scoring supervisors; the result of which indicated that the Teamwork, Stress & Workload, and Recognition drivers lead to the greatest difference between groups. Once again, the Teamwork driver’s close connection to the Supervisory-level Management driver highlighted the important role supervisors have in fostering effective and supportive teams.

Finally, to better understand what issues may have contributed to a supervisor receiving a 2010 score that was either considerably higher or lower than their 2009 result, a comment analysis was performed on two groups of supervisors. The groups consisted of supervisors who moved from the Experiencing Challenges category in 2009 to the Modelling Excellence category in 2010 (i.e. increase in scores) and supervisors who moved from the Modelling Excellence category in 2009 to the Experiencing Challenges category in 2010.

For both the supervisors that received a large increase in scores and those who received a large decrease, comments were largely focused on staffing issues. However, the focus of the staffing comments for those supervisors who had an increase in scores were decidedly strategic and future oriented in scope. In contrast, the staffing related comments for those supervisors who had received a decrease in scores were more reactive in nature. Additionally, supervisors who had a decrease in scores expressed specific concerns regarding the considerable impact workforce adjustments had on the morale of employees.
TABLE OF CONTENTS

1. INTRODUCTION ............................................................................................................................................. 1

2. DEFINING SUPERVISORY-LEVEL MANAGEMENT SCORES .................................................................................. 3

3. KEY FINDINGS – EXPLORING TRADITIONAL SUPERVISORY-LEVEL MANAGEMENT SCORES 5
   3.1. What is the Supervisory-level Management driver’s relationship with employee engagement and the work environment? ........................................................................................................ 5
   3.2. How have Supervisory-level Management scores changed over time? ..................................................... 7
   3.3. Can the supervisory-level management driver be improved through the addition of non-model questions? ........................................................................................................................................ 13

4. KEY FINDINGS – INTRODUCING IMPROVED SUPERVISORY-LEVEL MANAGEMENT SCORES 19
   4.1. Do job specific characteristics, such as span of control and occupation level, influence a supervisor’s Individual score? ..................................................................................................... 21
   4.2. Does a supervisor’s view of the work environment have a relationship with how they are perceived by their direct reports? .................................................................................................. 29
   4.3. How has the distribution of supervisors changed over time and what qualities are shared amongst consistently high performing supervisors? ............................................................. 31

5. CONCLUSIONS AND RECOMMENDATIONS ...................................................................................................... 40

APPENDIX A: MORE ON THE EMPLOYEE ENGAGEMENT MODEL ........................................................................ 45

APPENDIX B: ADDITIONAL CHARTS AND TABLES ............................................................................................ 47
1. INTRODUCTION

A manager’s role within the workplace is both complex and demanding, requiring the careful negotiation of several distinct realities. The support, direction and communication a manager provides can have a considerable influence on their direct reports’ perception of the work environment. At the same time, managers report to a supervisor of their own, which ensures that for many managers, their perceptions of the work environment are influenced both by their role as supervisor and supervisee. These interconnected relationships can have far reaching implications, and have the potential to directly and indirectly influence the experiences of all employees. Due to the ubiquity and strength of these relationships within the context of the BC Public Service, the Supervisory-level Management driver has a foundational position within the Employee Engagement Model (see Appendix A). For this reason, a deep exploration of the Supervisory-level Management driver was conducted in order to obtain insights into the experiences of supervisors, supervisees, and the work environment as a whole.

As with previous years, results obtained from the 2010 BC Public Service Work Environment Survey (WES) confirmed the presence of a hierarchical relationship between the Supervisory-level Management driver, its influence on various characteristics of the workplace, and its eventual impact on employee engagement. This was achieved through the analysis of responses collected from the 21,421 BC Public Service employees who completed WES in 2010. In terms of overall results, a Supervisory-level Management driver score of 68 points (out of a possible 100 points) was obtained for the BC Public Service in 2010. This represented a stabilisation in year-over-year scores, as a 68 point Supervisory-level Management driver score was also observed in 2009. The average score for the Supervisory-level Management driver was calculated based on responses to the following two WES questions:

| The person I report to consults me on decisions that affect me. |
| The person I report to keeps me informed of the things I need to know. |

Focusing on the high-level response trends obtained from the WES 2010 data, a striking similarity was observed between the distributions for the two Supervisory-level Management questions. Specifically, close to two-thirds of respondents agreed that the person they report to consults them on decisions, as well as keeps them informed of things they need to know. The remaining respondents were divided in their opinions and either disagreed or were neutral about their supervisors on these two questions. It is encouraging to find that the majority of public service employees have a positive view regarding the consultation and information they receive from their supervisors. However, the number of respondents who did not agree (i.e. slightly over 7,000 respondents) with the two questions still represented a substantial portion of the work force. This range in perceptions presents a challenge if a unified strategy is to be developed for the improvement of supervisory practices. To help address this
challenge, the following report explores some of the areas of difficulty, as well as success, that supervisors have encountered throughout their work environments.

Due to how the two supervisor questions are worded, some challenges develop with respect to the interpretation of the resulting Supervisory-level Management scores. For this reason, the report begins with a brief discussion as to how Supervisory-level Management scores are defined. Specifically, two distinct score definitions are presented; one definition adopts the typical method for calculating Supervisory-level Management scores, while the other approach introduces an improved method of calculating scores. The key findings throughout the remainder of the report are then presented in two sections, with one section devoted to each score definition. Finally, additional reference material and supplemental charts and figures have been provided in the report’s appendices.

With these considerations in mind, a set of six research questions were developed to guide the analysis of the Supervisory-level Management driver. Three of the six questions focus specifically on the Supervisory-level Management driver in its traditional context. Alternately, the remaining three questions introduce a refinement to how the Supervisory-level Management scores are defined. Together, the six research questions explore general and specific issues affecting supervisors throughout the BC Public Service.

**Research Questions Using Traditional Supervisory-level Management Scores**

1. What is the Supervisory-level Management driver’s relationship with employee engagement and the work environment?

2. How have Supervisory-level Management scores changed over time?

3. Can the Supervisory-level Management driver be improved through the addition of non-model questions?

**Research Questions Using Improved Supervisory-level Management Scores**

1. Have direct reports’ experiences of their supervisor changed over time and what unique qualities are shared amongst consistently high performing supervisors?

2. Is there a connection between a supervisor’s view of the work environment and how they are perceived by their direct reports?

3. Do job specific characteristics, such as span of control and occupation level, influence direct reports’ view of their supervisor?
2. DEFINING SUPERVISORY-LEVEL MANAGEMENT SCORES

To help provide a more complete and precise representation of employees’ perceptions of their supervisors, this report will present two distinct analytic approaches. The first approach examines perceptions in the traditional context of a work unit. In other words, respondents’ scores for all supervisors belonging to a work unit are averaged together to produce the Supervisory-level Management score for that work unit. The second approach takes the analysis one step further by isolating and linking respondents’ scores directly to the person they report to. In other words, respondents’ scores for the person they report to are averaged together to produce the driver score specifically for their respective supervisor.

The primary difference between the two approaches is based on how the base unit of analysis is defined in each case. For the first approach, the base unit is set at the respondent level, and offers similar results to what is contained within the WES 2010 Overall BC Public Service report, as well as what is found in the majority of WES analytics reports. In other words, the resulting Supervisory-level Management mean scores will simply be an average of responses for all employees within the particular group being investigated. For example, consider a work unit comprised of nine employees, where a group of three supervisees (non-supervisors or NS) report to a manager (M), a second group of three supervisees (NS) report to another manager, and the two managers report to a director (D). If a Supervisory-level Management mean score was to be calculated for this work unit, then responses from all nine employees, regardless of whether they were a supervisor or not, would be included in the final averaging of the score. Figure 1 provides a visual summary of how this calculation is performed. It’s important to note the final Supervisory-level Management mean score for the work unit is a combination of perceptions from two differing levels of management, as well employees who do not supervise anyone.

Figure 1: Supervisory-level Management (SLM) Scores – Averaged at the Work Unit Level

100
100 NS 1
100 NS 2
100 NS 3
75
75 M2
75 NS 4
75 NS 5
75 NS 6
100
100 M1
100 D

SLM scores from all nine respondents within the work unit are averaged and the result is assigned to the work unit as a whole.

\[ 72 = \frac{675 \text{ (sum of all SLM scores)}}{9} \]

2 WES defines work unit as the section or program area in which a respondent works.
4 A Supervisory-level Management mean score for a respondent is obtained by taking an average of the respondent’s answer for each of the questions in the driver. It should be noted that the survey responses for all drivers are transformed from a scale of 1 – 5 to a scale of 0 -100.
Rather than an overall measure for the work unit, the second approach shifts the focus to the supervisors themselves, where the base unit of analysis is an aggregate of supervisees’ responses to the Supervisory-level Management questions. This aggregation occurs at the supervisor level, and provides each supervisor with an average Supervisory-level Management score, based on the responses of their direct reports. Returning to the example work unit containing nine employees, the second approach leads to a very different Supervisory-level Management mean score result. Whereas the first approach provided a single Supervisory-level Management driver score for the entire work unit, the second approach leads to a set of three distinct Supervisory-level Management driver scores. Specifically, the director (D) receives a score by averaging the responses from the two managers (M1 and M2). Similarly, the score for the first manager (M1) is created by averaging the Supervisory-level Management scores for M1’s three direct reports (NS1, NS2, and NS3). The same process is also applied to the second manager (M2), where responses from M2’s direct reports (NS4, NS5, and NS6) are averaged and assigned to M2. A diagram summarising how employees are grouped within the work unit, as well as how their driver scores are calculated, is provided in Figure 2.

One final note regarding the supervisor-level example is that the director’s (D) score is not included in any of the calculations. As the director would have answered the supervisor questions with respect to a supervisor not contained within the work unit (e.g., perhaps an executive director), the director’s score was not used in this example for the sake of clarity. In reality though, the director’s score would have been averaged with the scores from other director’s who share the same executive director, and an average assigned to the executive director.

**Figure 2: Supervisory-level Management (SLM) Scores – Averaged at the Supervisor Level**
3. KEY FINDINGS – EXPLORING TRADITIONAL SUPERVISORY-LEVEL MANAGEMENT SCORES

This section provides an analysis of the Supervisory-level Management driver that is consistent with the approach used in many of the previously published WES analytic reports. In other words, mean score calculations, proportions and more advanced statistics all use the respondent as the base unit of analysis. As the employee engagement model was built with this approach in mind, the analyses in the following section will focus heavily on the Supervisory-level Management driver’s role within the model.

3.1. What is the Supervisory-level Management driver’s relationship with employee engagement and the work environment?

As the house shaped structure of the employee engagement model suggests, the relationships between the foundational drivers, the building blocks, and the engagement characteristics are hierarchical in nature (see Appendix A for an overview of the engagement model). At the base of the model rests the Executive- and Supervisory-level Management drivers, both of which have a supportive and driving influence on the model’s building blocks. The management foundation also has a diverse number of connections with employee engagement, some of which directly impact the engagement characteristics, while others indirectly shape employee engagement through a complex relationship with the building blocks. Due to both the strength and breadth of connections the management level drivers have with the model, executives and supervisors are able to have a considerable and lasting influence on the engagement of their employees. A summary of the connections specific to the Supervisory-level Management driver are depicted in Figure 3.

As can be seen in Figure 3, while the Supervisory-level Management driver is only impacted by a single driver (i.e., Executive-level Management), it directly impacts seven of the building block drivers as well one of the engagement characteristic (i.e., BC Public Service Commitment). The complex relationship the Supervisory-level Management driver has with the model goes beyond the large number of paths leading into and out of the driver, and extends to a wide range in connection strengths as well. From the ‘Very Strong’ connections with the Executive-level Management, Staffing Practices and Respectful Environment drivers, to the ‘Minimally Strong’ connection with BC Public Service Commitment, the Supervisory-level Management driver can have both substantial and subtle effects on the perceptions of employees.
While the engagement model’s ability to describe the work environment has remained generally stable since the model’s initial development, the strength of connections between drivers has not been entirely static. As the workplace is a dynamic environment that undergoes both major and minor changes, the strength of connections within the model can fluctuate over time. One such change was observed when the Supervisory-level Management driver’s model connections from the 2009 WES data were compared to those from 2010 data. Specifically, the connection leading from Supervisory-level Management driver to the Teamwork driver increased from a ‘Moderately Strong’ path in 2009 to a ‘Strong’ path in 2010. The increase in strength between these two drivers indicated that the information and consultation an employee received from their supervisor had a stronger influence on teamwork in 2010 than it did in 2009. In other words, a high Supervisory-level Management score lead to higher Teamwork scores in 2010 as compared to 2009. A summary of this path change, as well as an alternate presentation of the connections presented in Figure 3 is provided in Table 1.

---

5 Path strengths are based on the standardized path coefficients that emerged from the structural equation modelling analysis of the employee engagement model.

6 The increase in strength between Supervisory-level Management and Teamwork may be partly due to the introduction of two new paths into the 2010 employee engagement model. The new connections consisted of a path leading from Teamwork to Job Satisfaction and a path leading from Physical Environment & Tools to Vision, Mission & Goals.
Table 1: The strength of the path leading from the Supervisory-level Management driver to the Teamwork driver increased between 2009 and 2010.

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Exogenous Driver (Path exits from this driver)</th>
<th>Strength of Connection</th>
<th>Endogenous Driver (Path enters this driver)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path leads into SLM</td>
<td>Executive-level Management</td>
<td>Very Strong</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Path leads out of SLM</td>
<td>Supervisory-level Management</td>
<td>Moderately Strong</td>
<td>Strong</td>
</tr>
</tbody>
</table>

* Cells highlighted in gray indicate year-over-year changes between 2009 and 2010.

3.2. How have Supervisory-level Management scores changed over time?

As reported in the WES 2010 Overall BC Public Service report, a year-over-year decrease in mean scores was observed for the vast majority of drivers between 2009 and 2010. Of the 12 drivers and three engagement characteristics found within the engagement model, only two drivers maintained the same score across both the 2009 and 2010 survey years. Specifically, both the Supervisory-level Management and Teamwork drivers were stable over time, whereas the remaining drivers and characteristics were found to have mean score decreases between one and seven points. As many of the year-over-year decreases in driver scores could likely be attributed, at least partially, to the corporate wide budgetary and organizational changes that occurred during the 2010 survey year; the stability of the Supervisory-level Management driver points to an important role supervisors have during times of change. Given that the Teamwork driver experienced a similar stabilization in scores over time, as well as a strengthened connection with the Supervisory-level Management driver, it may be that one of the elements that define a supervisor’s role during times of uncertainty is their capacity to develop and maintain supportive and effective teams.

3.2.1. Compared to 2009’s results, a more polarised view of supervisors has emerged in 2010.

Due to the consistency of Supervisory-level Management scores between 2009 and 2010, a reasonable assumption might be that there was little variation in the response distributions for the two questions that comprise the Supervisory-level Management scores.
driver. In terms of variation between questions, this assumption appeared to be correct, as a comparison of the proportions of responses for each interval in the five point scale revealed a nearly identical distribution for each question. Looking at the variation in the response distribution for each question over time however, indicated a slight change in the response trends between 2009 and 2010. While the distributions from both 2009 and 2010 presented a clustering of responses at the 4th and 5th intervals of the agreement scale, a comparison across years suggested the presence of more polarised views in 2010.

For example, as can be seen in Figure 4, results from the ‘The person I report to consults me on decisions that affect me.’ question indicated that 31% of respondents ‘Strongly Agree’ with that statement in 2009, whereas in 2010 the proportion increased to 33%. Similarly, the proportion of respondents who answered ‘Strongly Disagree’ to the question increased from 7% in 2009 to 8% in 2010. As to be expected, the proportion of respondents who provided an answer that fell within the 2nd, 3rd and 4th intervals of the agreement scale decreased from 2009 to 2010.

Figure 4: Compared to 2009, respondents in 2010 provided slightly more polarised views regarding the consultation they receive from their supervisors.

A comparable set of results was also obtained when the 2009 and 2010 response distributions for the ‘The person I report to keeps me informed of the things I need to know.’ question were compared (see Figure 5). In particular, the proportion of respondents who indicated that they ‘Strongly Agree’ with the statement increased from 30% in 2009 to 32% in 2010, whereas the proportion of respondents who indicated they ‘Strongly Disagree’ increased from 6% in 2009 to 7% in 2010.

---

9 A response distribution refers to the proportion and/or count of respondents who provided a response for each interval of a question’s Likert scale (in WES, this is typically an Agreement scale). The distribution provides an indication of the variation of responses for a given question.
Figure 5: Compared to 2009, respondents in 2010 provided slightly more polarised views regarding the information they receive from their supervisors.

While the year-over-year change in the variation of each question’s response distribution was slight, it did draw attention to a potential divergence in the perceptions of employees. This is of particular importance, given the extensive change and uncertainty the BC Public service experienced during the 2010 survey year. The increase in the proportion of respondents who ‘Strongly Agree’ with the two supervisor questions suggests that, despite the widespread changes, some supervisors were able to maintain, and in some instances even improve the level of supervision they provided to their direct reports. In contrast, the increase in the proportion of respondents who ‘Strongly Disagree’ with the two supervisor questions, points to a possible challenge some supervisors encountered in effectively informing and consulting their direct reports regarding relevant changes to the work environment.

3.2.2. Supervisory-level Management Scores Have Remained Stable Over the Past Four Years for Continuing Responders

To better understand how the perceptions of employees change over time, it is sometimes useful to extend a simple two year comparison to a more detailed longitudinal analysis. A longitudinal analysis offers several benefits, including the ability to identify historical trends, as well as providing an effective means of tracking a cohort of continuing responders across several survey years. Within the context of the

---

10 As to be expected, the year-over-year change in the response distributions for both questions was also reflected in their respective standard deviations. For the ‘The person I report consults me on decisions that affect me.’ question, the standard deviation increased from 30.3 in 2009 to 31.1 in 2010. Similarly, the standard deviation for the ‘The person I report to keeps me informed of things I need to know.’ increased from 29.4 in 2009 to 30.3 in 2010.

11 A cohort of continuing responders is considered to be all the respondents who fell within the scope of the survey for each year of the longitudinal analysis. Additionally, for each year the respondents must have completed the survey, as well as completed all the component questions of a given driver (in this case, the Supervisory-level Management driver).
Supervisor-level Management driver, a comparison of scores from multiple years can clarify whether the stabilization in scores between 2009 and 2010 was an unexpected shift or the continuation of an established trend. This comparison can also be extended to various demographic groups (e.g., region, age group, union status, etc.), in order to identify whether yearly changes in Supervisory-level Management scores follow a similar longitudinal trend for all employees.

As a public service wide work environment survey has been fielded since 2006, it is possible to track the responses for a sub-group of respondents who have completed the survey every year. The experiences offered by this cohort provide an excellent insight into how employees’ perceptions of their supervisors have changed (or remained constant) over time. In order to obtain a sufficiently large sub-group of continuing responders, as well as to ensure comparability across years, a cohort of continuing responders was limited to the past four survey years (i.e. from 2007 to 2010). Once this cohort was defined, Supervisory-level Management scores were calculated for each of the four survey years, in addition to four years of mean scores for the two component supervisor questions.

A comparison of the scores quickly revealed that only a small amount of variation has occurred in the Supervisory-level Management driver over the past four years. In particular, only two significant differences were found between years. The first significant difference was found between 2007 (67) and 2009 (68), whereas the second difference was found between 2007 and 2010 (68). This result indicates that, for continuing responders at least, the observed stabilization in BC Public Service wide Supervisory-level Management scores between 2009 and 2010 extends to 2008 as well. This finding suggests that perceptions of supervisors (as represented by mean scores) tend to remain constant over time, regardless of improvements and/or challenges that may be introduced into other areas of work environment. The stability of the Supervisory-level Management driver is of particular note, given the year-over-year volatility of its only driver; Executive-level Management. The Supervisory-level Management’s longitudinal stability, as well as the small amount of variation in the two component supervisor questions, is presented in Figure 6.

\[\text{Mean differences were assessed through a repeated measures ANOVA (p > 0.01). A Bonferroni adjustment for multiple comparisons was used to minimize the incidence of Type I errors.}\]
3.2.3. Supervisory-level Management Scores for Several Demographic Groups of Continuing Responders Have Converged Over the Past Four Years

While overall mean scores offer an effective way to summarise the experiences of a large number of respondents, differences between groups of respondents can sometimes be lost in the averaging process. For this reason, a more detailed longitudinal analysis was performed by splitting the cohort of respondents across several demographic characteristics. Beyond providing an additional level of detail, the demographic breakdown also addressed whether Supervisory-level Management scores remained stable for all employees, or only for certain groups.

The longitudinal results for the cohort were crossed separately with five demographic variables: employees’ age group, gender, geographic location (PSA region), service years and union status. The results for each combination were then analysed to see firstly, whether differences existed between groups (e.g., included versus excluded employees), and secondly, whether differences between groups were present across all survey years or appeared only for certain years (e.g., did included employees scores increase year-over-year while excluded employees scores remained constant).

---

13 All demographic variables were based on data from the BC Government Corporate Human Resources Information and Payroll System (CHIPS).

14 The analysis used to determine the significance of these differences was a full-factorial ANOVA ($p > 0.01$). Differences between groups were determined through a main effect comparison (the main effect across survey years was already established in section 2.1.2), while as differences between combined groups and years was tested through an interaction effect comparison.
The result of the longitudinal group analysis indicated that a significant interaction effect existed between survey years and demographic groups for three of the five demographic variables. Specifically, an employee's age group, geographic region and service years were all found to produce significant interactions across survey years, whereas no noticeable interaction was observed for the gender and union status variables. Perhaps even more interesting is that the interaction observed for the age group, geographic region and service year variables all followed a distinctly similar trend. In each case, large score differences were present between one or more groups in 2007. With each subsequent survey year, the magnitude of these differences became reduced in size, as the groups scores began to converge in 2010. In other words, the variation in scores between groups became progressively smaller with each passing year. This finding is most clearly illustrated by the longitudinal results for the service year group variable (see Figure 7 below). Figures depicting the convergence in Supervisory-level Management Scores across four age groups as well as PSA regions, have also been included in Figure 18 and Figure 19 respectively (see Appendix B).

Figure 7: Supervisory-level Management scores converged between 2007 and 2010 across four service year groups.

An important note regarding the trends in Figure 7 is that the convergence in scores appears to be approaching an average or median of all four groups. This indicates that

---

15 An interaction effect occurs when two separate variables have a combined effect on the data under investigation, whereas a main effect represents the effect a single variable has on the data. For example, in Figure 7 an interaction effect between survey years (2007, 2008, 2009, 2010) and service years (0-2.9, 3-9.9, 10 -19.9, 20+) was observed, leading to a convergence of Supervisory-level Management scores over time when split across service years. Two main effects were also present; the influence survey years have on scores, independent of service year (this is actually the results presented in 3.2.2), and the influence service years have on scores, independent of survey years.
the usual driver score discrepancies between the service year groups may no longer apply to perceptions of supervisors, and are instead, becoming replaced by a more centralised perspective of supervisors. As the age group variable overlaps to some extent with the service year variable, there may also be a generational component to the normalization. With that said, the presence of a similar convergence across geographic regions suggests that the normalization may go beyond age differences, and instead represents a more substantial shift in the corporate wide view of supervisors.

Identifying what factors are driving the convergence is challenging, as it is likely due to a wide variety of interconnected causes. The high-level implications however, are less ambiguous, and provide a clear insight into the successes and challenges encountered by certain portions of the public service. As the convergence is approaching a median, or average, of the demographic groups, the inference is that groups with historically low Supervisory-level Management scores have managed to improve over time, whereas groups that have had high scores in past years may be experiencing more difficulties with the supervision they receive. In either case, employees’ experiences from all groups can offer direction for which strategies have facilitated or hindered a supervisor’s ability to provide information and consultation to their direct reports.

3.3. Can the supervisory-level management driver be improved through the addition of non-model questions?

The process for identifying which survey questions should or should not be included in a model driver requires an approach that is informed both by theory and empirical findings. Within the context of WES, the theoretical knowledge needed to properly measure and understand employee engagement requires a comprehensive understanding of several topics, including: the issues faced by employees in the workplace, the relationships that exist between various characteristics of the work environment, the elements necessary for developing a valid and reliable questionnaire, and perhaps most importantly, a working definition of employee engagement. The empirical findings on the other hand can be approached in a more systematic fashion, and are largely directed by the findings from related research, as well as the specific type of analysis being applied. In the case of WES, the analytic approach involved a process known as structural equation modelling (SEM), and was chosen for its capacity to accurately model the work environment’s complex causal relationships with employee engagement.

As with all the drivers in the employee engagement model, the Supervisory-level Management driver required the distillation of a broad range of topics into a small number of related survey questions. As the choice of which supervisor questions to include in the survey was based on a combination of theoretical knowledge and prior research, a common ‘Supervisor theme’ was assumed to exist between the questions, but not necessarily guaranteed. In order to confirm the presence of this common theme, data first had to be collected through a survey. Once the survey results had been obtained, the relationships between survey questions were explored through a process known as factor analysis. Factor analysis helps to identify questions that

---

16 Some of the foundational research upon which the BC Public Service employee engagement model was built, clearly identify a strong causal relationship between the supervision and employee engagement. One such article is: Gibbons, J. (2006). Employee engagement: A review of current research and its implications: The Conference Board.
measure a shared construct (or factor) and in the case of the Supervisory-level Management driver, a set of questions that captured the qualities and actions of a supervisor that help to drive employee engagement.

Since the engagement model’s initial development in 2006, both the BC Public Service work environment and the WES questionnaire have undergone changes. While the engagement model continues to provide a well fitting representation of the work environment, the changes that have taken place over the past four years have prompted BC Stats to revisit the model’s development and structure. Of particular interest to this report is whether the current structure of the Supervisory-level Management driver could benefit from the inclusion of one or more additional supervisor focused questions. What follows is a description of the process used to identify and test which non-model questions could be included in a refined Supervisory-level Management driver. Additionally, consideration is given to how a revised Supervisory-level Management driver would impact the findings from 2010 WES.

3.3.1. Two non-model questions, in addition to the two current Supervisory-level Management questions, were found to measure a shared construct

To identify which questions could be used to expand the existing Supervisory-level Management driver, a specific method of factor analysis called principal component analysis (PCA) was performed on a wide range of WES questions. More specifically, the range of questions included in the PCA consisted of a large portion of the non-model WES questions, as well as the two model questions already contained within the Supervisory-level Management driver. Based on the PCA, a set of seven questions emerged as measuring a common supervisor related factor (also known as a component). A list of the seven questions is provided in Table 2 below. An important note is that the presence of the two original Supervisory-level Management driver questions in the seven question construct provided in Table 2, indicate that they both continue to provide strong measures for how supervisors are perceived.

Table 2: Four questions from the WES 2010 were identified as being viable candidates for a refined Supervisory-level Management driver.

<table>
<thead>
<tr>
<th>Supervisor Related Questions Identified through Principal Component Analysis</th>
<th>Present in the 2010 Employee Engagement Model</th>
<th>Actionable</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person I report to listens to my suggestions and ideas for improvement.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The person I report to provides clear expectations regarding my work.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The person I report to consults me on decisions that affect me.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>The person I report to keeps me informed of things I need to know.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>The person I report to is an effective manager.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>The person I report to maintains high standards of honesty and integrity.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>I am satisfied with the quality of supervision I receive.</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

17 Model questions are those questions in WES that comprise the drivers and engagement characteristics in the employee engagement model. Non-model questions are the remaining WES questions that are not used in the engagement model.

18 PCA was conducted using the following specifications and criteria: Varimax rotation, Communalities ≥ 0.5, Factor Loading ≥ 0.7, Kaiser Meyer Olkin Measure ≥ 0.6, Diagonal of Anti-Image Correlation Matrix ≥ 0.05, Barlett’s Test ≤ 0.01, Eigen values ≥ 1.0
When the engagement model was initially developed, one of the guiding principles that helped direct which questions were to be included in the model was whether the questions were ‘actionable’ or not. A measure obtained from an actionable question is typically solution focused, and provides a clear indication of how a situation can be improved if a low score is obtained for the question. For instance, a supervisor can address a low score on the ‘The person I report to consults me on decisions that affect me.’ by simply consulting with their direct reports more frequently. A low score on the ‘The person I report to is an effective manager.’ question however, is more ambiguous as the term ‘effective’ could be interpreted in several different ways. In other words, it’s not clear what is required for a supervisor to become more ‘effective’. Applying this rationale to the set of seven questions identified helped to reduce the factor to include only those questions that would provide supervisors with a meaningful measure. Once the reduced set of four questions was determined, they were introduced into the engagement model and tested through the structural equation modelling (SEM) process.

3.3.2. The engagement model was improved by introducing the ‘The person I report to provides clear expectations regarding my work.’ question into the Supervisory-level Management driver

Structural equation modelling is a sophisticated analytic tool, used to measure the causal relationships between drivers. As applied to WES, SEM provides a means of identifying the ways through which the various characteristics of the work environment drive employee engagement. By definition, a SEM analysis provides a model of causal relationships, and as a result, it offers only an approximate representation of the BC Public Service’s work environment. It is, however, possible to distinguish whether one model provides a better approximation of reality than another. This determination is achieved through a comparative process, where each model’s fit (i.e., how closely the model approximates reality) is contrasted with the other. It is through this comparative process, that the four supervisor questions identified above were tested in various combinations within the engagement model.

Due to the extensive connections the Supervisory-level Management driver has throughout the engagement model, even a small change to the driver’s composition can have wide ranging impacts. For example, the introduction of a new question into the Supervisory-level Management driver may have little effect on the model’s fit, but its presence could both positively and negatively influence the driver’s connections to other components within the model. For this reason, a total of seven different combinations of supervisor questions, including the unmodified Supervisory-level Management driver, were tested and their resulting model fit statistics compared. A summary of these comparisons, including the combination of questions for each version of the driver, is provided in Table 3 below.
Table 3: Driver version three offered an improvement in the model's fit over the original model.

<table>
<thead>
<tr>
<th>Actionable Supervisor Related Questions Identified Through PCA</th>
<th>Combination of Supervisor Questions</th>
<th>Alternate Driver Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Original Model</td>
<td>1</td>
</tr>
<tr>
<td>The person I report to listens to my suggestions and ideas for improvement.</td>
<td>Out</td>
<td>In</td>
</tr>
<tr>
<td>The person I report to provides clear expectations regarding my work.</td>
<td>Out</td>
<td>In</td>
</tr>
<tr>
<td>The person I report to consults me on decisions that affect me.</td>
<td>In</td>
<td>In</td>
</tr>
<tr>
<td>The person I report to keeps me informed of things I need to know.</td>
<td>In</td>
<td>In</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Fit Indices and Statistics</th>
<th>Covariance Issues Between Supervisor Questions</th>
<th>No</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/df (lower the better)</td>
<td>25.54</td>
<td>27.70</td>
<td>25.89</td>
<td>25.34</td>
<td>25.57</td>
<td>25.55</td>
<td>26.24</td>
</tr>
<tr>
<td>CFI (higher the better)</td>
<td>0.981</td>
<td>0.979</td>
<td>0.980</td>
<td>0.981</td>
<td>0.980</td>
<td>0.980</td>
<td>0.980</td>
</tr>
<tr>
<td>RMSEA (lower the better)</td>
<td>0.034</td>
<td>0.035</td>
<td>0.034</td>
<td>0.034</td>
<td>0.034</td>
<td>0.035</td>
<td>0.035</td>
</tr>
</tbody>
</table>

*Several additional fit indices, statistics and parameter estimates were used during the comparison process. The values included in this table, however, are those that were used to make the final determination of model fit.

As can be seen from Table 3, each driver variation provided a set of slightly different model results. For driver version one (i.e., the version that contained all four supervisor questions), a clear assessment of model fit was not possible as considerable issues were present with respect to the covariance modification indices between questions. Put more simply, when all four questions were introduced to the model at once, a great deal of overlap and redundancy became apparent between the questions. A similar situation was also observed for model version two (i.e., the driver comprised of the original two supervisor questions as well as the ‘The person I report to listens to my suggestions and ideas for improvement.’ question). However, the degree of overlap between questions for driver version two was less extreme than what was found for version one, and as a result, it was possible to give some consideration to the fit results for version two. Once driver version one was removed from consideration, fit indices for the remaining versions were compared with one another and contrasted against the original model. The result of this comparison revealed that model version three (i.e., the driver comprised of the original two supervisor questions as well as the ‘The person I report to provides clear expectations regarding my work.’ question) provided a slightly improved representation of the data over the unmodified driver. In contrast, model versions two, four, five and six all offered models that did not fit as well as the unmodified version.

The unmodified Supervisory-level Management driver was primarily focused on the communication supervisors provide to their direct reports. Whether it was providing supervisees with the information they need to know, or consulting supervisees on decisions that affect them, the original Supervisory-level Management driver was concerned with the exchanges between supervisors and supervisees. With the introduction of the ‘The person I report to provides clear expectations regarding my work’, communication remains central to the driver, but the dialogue between supervisors and their direct reports shifts towards work specific responsibilities. As a
result, the driver’s role in the model remains largely the same, as it continues to provide a clearly defined measure of supervisory-level communication. The main benefit of the expanded driver over the original driver (beyond simply offering a better fitted model) is that it now paints a more comprehensive picture of which supervisory-level actions have the greatest impact on employee engagement.

3.3.3. Including a Third Question in the Supervisory-level Management Driver Would Have Little Effect on the Driver’s Mean Scores

As the engagement model was never intended to provide an unchanging, definitive description of the work environment, regular improvements and/or refinements to the model are not only expected, but required. Assuming that future iterations of the engagement model incorporate an expanded Supervisory-level Management driver, then it may prove useful to have a WES 2010 baseline measure for the expanded driver. In addition to supporting benchmarking efforts, a baseline score taken from the WES 2010 data will help define what impact, if any, the addition of the clear expectations question will have on future Supervisory-level Management driver scores.

Whereas the mean score for the unmodified Supervisory-level Management driver is calculated by taking the average of its two supervisor questions, a mean score for the expanded driver would simply be an average of the three supervisor questions. As it turns out, the impact the ‘The person I report to provides clear expectations regarding my work’ has on the resulting average score is fairly minor. For both the unmodified and expanded Supervisory-level Management drivers, the resulting mean scores were calculated to be 68 points out of 100. This result is not entirely surprising, as all three of the questions are highly correlated with one another. The close relationship the three questions share can be easily observed when their response distributions are compared. A chart depicting the response proportions for each of the three questions is provided below (see Figure 8).

**Figure 8: Response proportions for the ‘The person I report to provides clear expectations regarding my work’ question closely follow results from the two original supervisor questions.”**
One small observation regarding the response distribution for the three supervisor questions was that, despite the negligible impact the clear expectations question had on the overall mean score, the distribution for the new question did differ slightly from the two original questions. In particular, responses for the new supervisor question were more clustered around the 3rd and 4th intervals of the response scale. This indicated that respondents’ level of agreement with the new question were less polarised (i.e. not clustered around the 1st and 5th intervals) when compared to the two original questions.
4. KEY FINDINGS – INTRODUCING IMPROVED SUPERVISORY-LEVEL MANAGEMENT SCORES

In order to capture employee perceptions that are relevant to the work environments throughout the public service, the questions within WES have respondents shift their frame of reference from the BC Public Service level (‘Overall, I am satisfied in my work as a BC Public Service employee’), to the organization level (‘I am satisfied with my organization’), and the work unit level (‘I am satisfied with my work unit’). The WES questionnaire also contains a range of questions that do not specify a particular frame of reference, and instead have employees provide their perceptions independent of their location within the public service’s corporate structure (‘I am satisfied with my job’). While these questions provide excellent insights into the hierarchical structure of government, as well as the broader perceptions of employees, an additional frame of reference is needed in order to move the focus to supervisors. For this reason, all WES questions focusing on employees’ perceptions of their supervisors are prefaced with the phrase ‘The person I report to’.

The inclusion of the ‘The person I report to’ phrase helps to ensure that supervisees’ responses can be directly aligned to their respective supervisors. While this provides respondents with a more precise frame of reference when answering supervisor questions, it does introduce a challenge in the interpretation of BC Public Service level, organization level and even work unit level Supervisory-level Management scores. As the calculation of the Supervisory-level Management score for a particular organizational grouping is simply the average of all individual Supervisory-level Management scores within the group, it becomes difficult to distinguish whether the score is a reflection of supervising trends within the group or a product of the group’s reporting structure.

For instance, if a work unit was comprised only of a single supervisor and his or her direct reports, then a work unit level Supervisory-level Management score for that work unit could be used as a proxy measurement for the supervisor within the work unit. This would be a case where a work unit Supervisory-level Management score would closely match the perception of respondents within the work unit. In contrast, if a work unit contained several supervisors, spread across differing management levels (e.g. frontline managers, middle managers, directors, executive directors, etc.) the resulting Supervisory-level Management score for the work unit would end up being an aggregation of scores from several differing levels of management as well as non-supervisors. Due to the complexity of the work unit’s reporting structure in this case, the resulting Supervisory-level Management score may not accurately reflect the characteristics of certain supervisors within the work unit. This situation would be particularly problematic if the work unit contained a wide range of high performing and low performing supervisors.

Based on these considerations, it was decided that creating a Supervisory-level Management score for each supervisor who completed 2010 WES, would provide a more relevant unit of analysis. More specifically, by maintaining the supervisor as the base unit, it was possible to ensure that a respondent’s frame of reference for the two questions within the Supervisor-level Management driver (i.e. ‘The person I report to’) could be preserved throughout the entire analysis. For the sake of clarity, these
supervisor specific Supervisory-level Management scores will be referred to as Individual Supervisor scores or Individual scores for the remainder of the report.

While Individual Supervisor scores offered a direct estimate of each supervisor’s Supervisory-level Management score, they were subject to one significant limitation. Despite the high response rate for 2010 WES, the small portion of employees who did not respond to the survey did have an impact on the accuracy of the survey’s results. This effect was slight at the BC Public Service and organization levels, but for some smaller groupings, the response rate was low enough that it was not possible to calculate reasonably accurate estimates.

In total, a sample of 5,534 supervisors was identified in the 2010 WES in-scope population; 4,847 of which also completed the survey. Of the sample of 4,847 supervisors, 1,692 were found to supervise only a small number of direct reports (i.e., less than three). For this group, even a single missing survey completion substantially reduced the accuracy of the resulting Individual Supervisor scores, and as a result, they were excluded from the analysis. Accuracy concerns were further complicated by the fact that not all respondents who completed the survey completed the two Supervisory-level Management driver questions. For this reason, a final subset of 1,940 supervisors was found to have a sufficiently high supervisee response rate for the analysis. A depiction of how response rates could limit the number of supervisees that ultimately contribute to their supervisor’s Individual score is provided in Figure 9.

Figure 9: An Individual Supervisor score for a manager who supervises 10 direct reports was calculated based on the responses from five respondents.

*M represents a manager, whereas NS 1 through 10 represent the 10 non-supervisors that directly report to the manager.

19 Confidentiality limitations, as described by the BC Statistics Act, also directed the final number population of supervisors included in the analysis. It should also be noted, that specific responses rates did not provide the final criteria for which respondents would or would not be included the population of supervisors. Rather, a standard error was calculated for each supervisor based on the response rate of their supervisees, and a ± 25 point maximum margin of error on their respective Individual Supervisor score was used as the cut off for exclusion.
The following sections explore how a supervisor’s Individual score was related to the characteristics of their position. In particular, a supervisor’s span of control, including count of supervisees, geographic dispersion and reporting level, was contrasted with the supervisor’s Individual scores. Additionally, a range of demographic and position specific characteristics for each supervisor (i.e. union status, time in current position, etc.) were compared against Individual Supervisor scores. This supervisor-level analysis was also extended across survey years, which provided a means of tracking the changes in the distribution of Individual Supervisor scores between 2009 and 2010.

4.1. Do job specific characteristics, such as span of control and occupation level, influence a supervisor’s Individual score?

Being able to clearly define a set of qualities that are shared amongst a range of effective supervisors is a considerable challenge, particularly given the diversity of occupations, service areas, skill sets and personal preferences throughout the BC Public Service. While many of the factors that influence a working relationship between a supervisor and supervisee fall outside the scope of what is measured in WES (e.g. compatible personalities), it is still possible to explore how certain demographic and/or occupation specific traits contribute to a direct report’s perception of their supervisor. To aid in this analysis, supervisor-level scores for a sample of 1,940 supervisors were contrasted and tested against a variety of WES questions, as well as a number of relevant fields from the CHIPS database.

4.1.1. Supervisors Near the Top of the BC Public Service’s Reporting Structure Tended to Have Higher Individual Scores

As the BC Public Service has a clearly hierarchical reporting structure, a supervisor’s span of control provided a key occupational characteristic upon which an analysis could be developed. While span of control can be generally defined as the number of direct reports a supervisor is responsible for, the concept can also be expanded to more accurately reflect the reporting structure of a work environment. Given the considerable breadth and depth of the public service, a more detailed span of control definition can be developed that takes into consideration both the geographic dispersion and reporting level associated with a supervisor and his or her direct reports. Using this expanded definition, the relationships between a supervisor’s Individual score and three distinct span of control measures were analysed. The three span of control measures consisted of the following:

- A count of the direct reports a supervisor is responsible for, as defined by the SUPERVISEES field in the CHIPS database
- Geographic dispersion, as defined by the number of unique FSA’s a supervisor’s direct reports are spread across
- Reporting level, as defined by the number of reporting levels between a supervisor and the Head of the Public Service

---

20 An FSA is the abbreviation used by Canada Post to identify the Forward Sortation Area for each postal code. This is represented by the first three digits of postal code. The last three digits of a postal code is identified by Canada Post as Local Delivery Unit, or LDU.
21 This measure was originally defined in a separate BC Stats publication. For a detailed description of how this measure was derived, refer to: BC Stats (2010). Testing the Organizational Landscape. BC Stats.
Beginning with the count of direct reports, a correlation was performed between each supervisor’s Individual score and the number of supervisees they were responsible for\(^22\). The result of the correlation indicated that no significant relationship existed between the number of direct reports a supervisor is responsible for, and a supervisor’s Individual score\(^23\). It is important to note though, that a correlation only tests for linear relationships. If, for instance, a moderate number of direct reports (e.g. about 4) was found to be the ideal span of control for a supervisor, and would lead to the highest supervisor-level score, it is possible that a correlation would not detect this relationship. This would be particularly true, if both small numbers of direct reports (i.e. less than 4) and large numbers of direct reports (i.e. greater than 4), were associated with lower Individual Supervisor scores. As a result, an additional analysis was performed to identify whether a non-linear relationship existed between the number of direct reports and supervisor-level scores.

To determine whether an ideal number of direct reports could be identified based on Individual Supervisor scores; an average Individual Supervisor score was calculated for each count of direct reports. The resulting averages were then compared and tested for significant differences. Consistent with the correlation analysis, no discernable relationship was noted between the count of direct reports, and the average supervisor-level scores\(^24\). Put differently, the way in which a supervisee perceives their supervisor, has no connection to how many direct reports the supervisor manages. The result of this additional analysis is presented below in Figure 10.

**Figure 10: The number of direct reports a supervisor was responsible for had no effect on their Individual Supervisor scores.**

While these average Individual Supervisor scores appear to differ, no significant differences were found between the 10 groups included in this figure.

To ensure the accuracy of supervisor-level scores, supervisors with fewer than three direct reports were excluded from the analysis.

As only a small number of supervisors had more than 12 direct reports, they were also excluded from this figure.

---

\(^22\) The rationale for using a correlation analysis was that, in the event a relationship existed between Individual Supervisor scores and the count of direct reports measure, it would be possible to understand both the direction and strength of the connection between the two variables. If a significantly positive correlation coefficient was obtained (i.e. between 0 and 1), then it would indicate that as the number of direct reports increases, so does a supervisor’s Individual score. Conversely, if a significantly negative relationship was observed (i.e. correlation coefficient between -1 and 0), it would imply that supervisor’s with larger numbers of direct reports would tend to have lower Individual Supervisor scores.

\(^23\) Pearson correlations were tested at the \(p > 0.01\) level.

\(^24\) Mean differences were assessed through a repeated measures ANOVA (\(p > 0.01\)). A Bonferonni adjustment for multiple comparisons was used to minimize the incidence of Type I errors.
While a relationship was not found to occur between the number of direct reports a supervisor manages and a supervisor’s Individual score, a significant connection was found for the two remaining span of control measures. A summary of the correlation results between the three span of control measures and supervisor-level scores is provided in Table 4.

**Table 4: Supervisors with fewer reporting levels between themselves and the Head of the BC Public Service were correlated with higher Individual Supervisor scores.**

<table>
<thead>
<tr>
<th>Span of Control Measures</th>
<th>Are Correlated With...</th>
<th>Pearson Correlation Coefficient</th>
<th>p Value</th>
<th>Significant (p Value &lt; 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count of direct reports</td>
<td>Individual Supervisor scores</td>
<td>-0.007</td>
<td>0.748</td>
<td>No</td>
</tr>
<tr>
<td>Geographic dispersion</td>
<td>Individual Supervisor scores</td>
<td>0.056</td>
<td>0.014</td>
<td>Yes</td>
</tr>
<tr>
<td>Reporting Level</td>
<td>Individual Supervisor scores</td>
<td>-0.179</td>
<td>0.000</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Focusing first on geographic dispersion, a correlation analysis was performed between the count of unique FSA’s a supervisor’s direct reports are spread across, and the supervisor’s Individual score. The correlation’s finding revealed that a slight positive relationship existed between the geographic dispersion measure and Individual Supervisor scores (see Table 4). This indicated that supervisors who had a geographically dispersed group of direct reports, also tended to have higher Individual Supervisor scores. Conversely, supervisors who had direct reports that were geographically clustered, or contained in a single FSA, were found to have lower Individual Supervisor scores. However, due to the weak strength of the correlation, it was hypothesized that the relationship being investigated may actually represent an indirect measure for a third, related variable.

As higher level supervisors are more likely to oversee the work of several work units and/or divisions, it is reasonable to assume that their direct reports are spread over multiple FSA’s. In fact, a correlation performed between the geographic dispersion measure and a supervisor’s reporting level indicated the presence of just such a relationship. The resulting correlation provided a moderately negative coefficient, indicating that supervisors who had fewer reporting levels between themselves and the Head of the BC Public Service also tended to have direct reports that were more geographically dispersed.

A correlation analysis between this third span of control measure (i.e. reporting level) and Individual Supervisor scores confirmed the presence of a moderately strong negative relationship between the variables. In other words, supervisors with fewer reporting levels between themselves and the Head of the BC Public Service received

---

25 As the geographic dispersion measure is defined at the FSA level, it provides a relatively fine grained geographic stratification of the province’s major urban centres (e.g. Vancouver, Victoria, Abbotsford, Kelowna, etc.). Within these urban centres, dispersion across FSA’s may simply indicate that a supervisor’s direct reports are spread across several offices throughout the city. In non-urban centres though, a FSA may be comprised of several smaller towns, as well as the geographic areas between the towns. As a result, a supervisor who has direct reports scattered across several non-urban FSA’s, may in fact be managing supervisees in several different regions of the province (e.g. Northern Vancouver Island, Central Vancouver Island, etc.). Since the geographic dispersion measure was not developed to distinguish between urban and non-urban FSA’s, it should be viewed as providing a general, rather than specific measure of geographic dispersion.

26 Pearson correlations were tested at the p > 0.01 level.

27 Pearson correlations were tested at the p > 0.01 level.

28 Pearson correlations were tested at the p > 0.01 level.
more favourable supervisor-level scores from their direct reports. This result supported the hypothesis that the geographic dispersion measure provided an indirect measure of a supervisor's reporting level. The strength of the correlation also highlighted the importance the hierarchical reporting structure of the BC Public Service has with respect to the perceptions of direct reports.

To better illustrate the relationship between a supervisor's reporting level and their Individual Supervisor scores, a chart was created (see Figure 11) depicting the average Individual Supervisor score for each reporting level. The average Individual Supervisor scores were calculated by identifying all of the supervisors with the same reporting level. Once identified, the Individual Supervisor scores for each reporting level were averaged by the total number of supervisors within the reporting level.29

**Figure 11:** Supervisors with fewer reporting levels between themselves and the Head of the BC Public Service were found to have higher average Individual Supervisor scores.

![Average Individual Supervisor Scores](chart_image)

The reporting level is defined as the number of reporting levels between a supervisor and the Head of the BC Public Service. For instance, Deputy Minister's with a reporting level of 1 report directly to the Head of the BC Public Service, whereas Assistant Deputy Minister's with a reporting level of 2, report to Deputy Minister's.

29 An important note regarding the interpretation of Figure 11 is that the average Individual Supervisor score for a particular reporting level does not represent only the perceptions of supervisors in the reporting level directly below them. Rather, the average Individual Supervisor score for each reporting level is a combination of responses from both supervisors (most likely from the reporting level directly below) as well as non-supervisors.
While reporting level was the only span of control measure found to have a clear relationship with Individual Supervisor scores, it is important to note that the exploratory nature of this analysis may not have detected the presence of certain relationships. A deeper analysis, focused specifically on a supervisor’s span of control, may reveal that in certain circumstances, the number of direct reports a supervisor is responsible for does in fact have impact a supervisor’s capacity to inform and consult his or her supervisees. As such, these findings should not be viewed as offering a definitive overview of the topic.

4.1.2. Supervisors In Certain Demographic, Geographic and Occupational Groups Were Found to Have Particularly High Individual Supervisor Scores

As described in the preceding section, a supervisor’s reporting level has a significant relationship with how the supervisor is perceived by his or her direct reports. While this association points to an important role the public service’s reporting structure has in improving or lower supervisor performance, the correlation does not tell the entire story. A variety of factors, including a supervisor’s demographic and occupational characteristics, as well as the supervisor’s individual perceptions of the work environment, can either limit or support the supervisor’s ability to provide relevant information to their direct reports. These same characteristics and perceptions can also have a beneficial or detrimental effect on the supervisor’s capacity to consult with their supervisees. To identify which characteristics and perceptions had the strongest relationship with a supervisor’s Individual score, several mean score comparisons and correlation analyses were performed.

Beginning with the occupational and demographic characteristics, a series of tests were performed on four separate variables. Specifically, average Individual Supervisor scores taken from 2010 WES were split across a supervisor’s PSA region, union status, occupation and sector\textsuperscript{30}. The resulting comparisons were then investigated for significant mean differences between groups.

When supervisor’s Individual scores were averaged across the four PSA regions, a 6 point range in scores was obtained, with Northern BC providing the lowest score (67) and Vancouver Island offering the highest score (73). The discrepancy in average Individual Supervisor scores between Northern BC and Vancouver Island was also the only significant difference that was observed between the four regions\textsuperscript{31}.

\textsuperscript{30} Mean comparisons were actually performed on several additional CHIPS variables, including both age and service year groupings. However, only PSA region, union status, occupation and sector produced statistically significant differences.

\textsuperscript{31} Mean differences were assessed through a repeated measures ANOVA (p > 0.01). A Bonferroni adjustment for multiple comparisons was used to minimize the incidence of Type I errors. It should also be noted that the differences between PSA regions adds some additional context to the longitudinal results reported in section 3.2.3 (see also Figure 19 in Appendix B).
Figure 12: Supervisors in Vancouver Island were found to have the highest average Individual Supervisor score, whereas supervisors in Northern BC were found to have the lowest.

![Graph showing average Individual Supervisor scores by PSA region](image)

When split across the four PSA regions, the only significant difference in average Individual Supervisor score was found between Northern BC and Vancouver Island.

Using a similar analysis to the PSA region comparison, an average supervisory-level score was calculated for supervisors within the bargaining unit and for supervisors excluded from the union. A comparison of the resulting averages revealed another significant difference, with excluded supervisors having an average Individual Supervisor score (73) four points higher than their bargaining unit counterparts (69)\(^{32}\). As evidenced in several previously published WES analytic reports, this finding provides further confirmation of the gap in perceptions between included and excluded staff\(^{33}\). However, given the excluded group’s disproportionately large concentration of supervisor specific positions (i.e. positions in the Applied, Business and Strategic Leadership bands), this difference may be more a reflection of the differing occupational breakdowns for excluded and included supervisors. A figure detailing the average Individual Supervisor scores for union and non-union staff is provided in Figure 13.

---

\(^{32}\) Mean differences were assessed through a repeated measures ANOVA (p > 0.01). A Bonferonni adjustment for multiple comparisons was used to minimize the incidence of Type I errors.

\(^{33}\) Mean score differences have been noted between union and non-union staff across the majority of drivers in the engagement model. One such example, focusing on the Staffing Practices driver, is described in the following report:

Turning the focus to occupational characteristics, average Individual Supervisor scores were calculated for ten job class groups. A comparison of the resulting average scores revealed a range of 19 points, where supervisors within the Enforcement & Corrections occupations provided the lowest average score (58), and supervisors within the Strategic Leadership & Executive occupations produced the highest average score (77). As might be expected, the discrepancy between the Enforcement & Corrections and Strategic Leadership & Executives groups was found to be significant. However, several additional significant differences were also found. In particular, the average Individual Supervisor score for the Strategic Leadership & Executives group was found to be higher than the average score for the Administrative Support, Business Leadership and Science & Technical Officers occupation groups. Relative to the Enforcement & Corrections groups, six occupation groups, including Strategic Leadership & Executives, were found to have higher average Individual Supervisor scores. Specifically, supervisors in the Business Leadership, Health Education & Social Work, Information Technology, and Senior Administration & Research occupation groups all had higher average Individual Supervisor scores than the Enforcement & Corrections group. Based on these differences, it may be that the disparity in average scores between included and excluded employees can be largely attributed to the exceptionally high average score for Strategic Leadership & Research and the low average score for Enforcement Corrections. In other words, the discrepancy between union and non-union supervisors can be mainly credited to the influence of only two occupation groups. A figure summarising these findings is provided below (see Figure 14).

---

34 Mean differences were assessed through a repeated measures ANOVA (p > 0.01). A Bonferroni adjustment for multiple comparisons was used to minimize the incidence of Type I errors.
KEY FINDINGS – INTRODUCING IMPROVED SUPERVISORY-LEVEL MANAGEMENT SCORES

Figure 14: Average Individual Supervisor scores broken out by occupation group and union status.

*As a small number of excluded supervisors had positions in occupations that were predominately comprised of included employees, the bars shaded in gray should not be viewed as containing only included supervisors.
The final average score comparison explored differences between the BC Public Service’s sectors (Table 10 in Appendix B provides a summary of the organizations within each sector). As with the previous comparisons, average Individual Supervisor scores were calculated for each of the eight sectors within government. Findings from the comparison indicated that a great deal of similarity existed between sectors. From all the sector scores, the only single significant difference that was found was between the Education sector (78) and the Justice sector (69). As expected, these two sectors provided the end points for the range of sector scores, differing by a total of nine points. The low score for the Justice sector is likely due in part to the prevalence of Enforcement & Corrections supervisors within the sector. A figure summarising the sector-level results is provided below (Figure 15).

**Figure 15: Only the Education and Justice sectors were found to have significantly different average Individual Supervisor scores**

<table>
<thead>
<tr>
<th>Economy</th>
<th>Education</th>
<th>Finance</th>
<th>Health</th>
<th>Justice</th>
<th>Natural Resources</th>
<th>Service</th>
<th>Social Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>78</td>
<td>74</td>
<td>74</td>
<td>69</td>
<td>71</td>
<td>72</td>
<td>71</td>
</tr>
</tbody>
</table>

A significant difference was found between the average Individual Supervisor scores for the Education and Justice sectors.

4.2. **Does a supervisor’s view of the work environment have a relationship with how they are perceived by their direct reports?**

The difficulty when analysing demographic data is determining the underlying causes that lead to a difference in scores. In order to help contextualize the results provided in section 4.1, an additional comparison was performed looking specifically at the perceptions of supervisors. This was achieved by correlating each supervisor’s Individual score with their own driver scores. In effect, this comparison measured how
a supervisor’s perception of the work environment was related to the Individual Supervisor score created by their direct reports.\textsuperscript{35}

In total, 16 correlations were performed. Of the 16 correlations, 12 included comparisons with the engagement model’s drivers, three included comparisons of engagement characteristics, and one correlation compared overall engagement scores. In every case, a significant and positive correlation was found between a supervisor’s Individual Supervisor score and their perception of various elements of the work environment.

The strongest relationship was found between a supervisor’s Individual score and the Teamwork driver (i.e. leading to a correlation coefficient of 0.241). This finding indicates that supervisors who agreed that their team communicates effectively with each other, helps them to get the job done and has positive working relationship with co-workers, tended to have higher supervisor-level scores. The implication is that supervisors who view their teams as being strongly supportive also receive more positive feedback from their direct reports. This relationship offers further evidence for the findings in section 2, and provides some critical context as to why the model connection between the Supervisory-level Management driver and the Teamwork driver strengthened in 2010.

Correlation coefficients of more than 0.15 were also found for two additional drivers. Specifically, both the Respectful Environment and Staffing Practices drivers were found to correlate well with Individual Supervisor scores. In the case of the Respectful Environment driver, the positive correlation indicated that supervisors who viewed their work unit as being free from discrimination and harassment, valuing diversity and offering a healthy atmosphere (e.g. trust, mutual respect), also received higher Individual Supervisor scores from their supervisees. Similarly, results for the Staffing Practices driver revealed that supervisors who viewed their work unit as offering a fair and merit based selection process obtained more favourable Individual Supervisor scores from their direct reports. A summary of these results are provided in Table 5 (see Table 11 in Appendix B for the correlation results for all drivers).

Table 5: Individual Supervisor scores correlated well with Teamwork driver

<table>
<thead>
<tr>
<th>Supervisor's Driver Scores Are Correlated With...</th>
<th>Pearson Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork</td>
<td>Individual Supervisor scores</td>
</tr>
<tr>
<td>Respectful Environment</td>
<td>0.241</td>
</tr>
<tr>
<td>Staffing Practices</td>
<td>0.155</td>
</tr>
</tbody>
</table>

\textsuperscript{35} There were two reasons for not correlating supervisor’s Individual score with a set of similarly calculated driver scores (i.e. based on the responses of direct reports). Firstly, as the frame of reference for the supervisor questions focused specifically on ‘The person I report’ for each respondents, the creation of a Individual Supervisor scores based on the responses of direct reports makes intuitive sense. The same frame of reference however, does not exist for the other drivers. Secondly, even if a set of scores could be calculated based on the responses of direct reports for all model drivers, standard error issues for the resulting scores would substantially limit the useable sample size.

In terms of interpreting the results of the correlation, a positive correlation would suggest that a supervisor who had favourable perceptions of the work environment tended to receive higher Individual Supervisor scores from their supervisees. In contrast, a negative correlation would indicate a somewhat unusual situation, where a supervisor with negative perceptions of the work environment tended to have high Individual Supervisor scores. Finally, no relationship between a supervisor’s Individual score and their driver scores would indicate that their perception of the work environment neither influences, nor is influenced by, the ratings they receive from their direct reports.
While these correlation results do not specify causality, the positive and significant coefficients found for all of the drivers indicate that an important connection exists between a supervisor’s view of the work environment and how they are perceived by their direct reports. One possible explanation for the presence of this relationship is that a supervisor’s attitude, specifically with respect to teamwork, influences how they are perceived by their direct reports. If a supervisor works toward developing a supportive and team focused work unit, then their capacity to provide relevant information and consult their direct reports on key decisions may also increase. In order to better understand the nature of this complex relationship, further research is recommended.

**4.3. How has the distribution of supervisors changed over time and what qualities are shared amongst consistently high performing supervisors?**

A comparison of WES results over time provides an indication of how the perceptions of respondents have shifted from one year to the next. This is of value as it can highlight areas throughout the work environment that have either remained stable or fluctuated over time. Whereas the longitudinal analysis detailed in section 2.2 revealed several historical trends, both at the BC Public Service level and specific to certain demographic groups, the nature of the analysis was limited to a comparison of overall Supervisor-level Management mean scores. In other words, only the average Supervisory-level Management score for each year was compared, while the specific changes that occurred within the distribution of scores across survey years was not considered. This limitation was partially due to the base unit of analysis that was used; specifically, respondents acted as the smallest unit of analysis and the mean scores being compared were an average of the Supervisory-level Management scores for each respondent. If however, a change in the year-over-year methodology was made so that supervisors became the base unit of analysis, then it becomes possible to track how perceptions changed between survey years based on their Individual Supervisor scores.

Using this approach, a set of Individual Supervisor scores was generated for both 2009 and 2010. However, as the analysis was a year-over-year comparison, only a subset of supervisors was needed. Specifically, in order to track how supervisors’ Individual scores changed between 2009 and 2010, it was necessary to identify a group of supervisors that not only completed the survey for both years, but also had an Individual Supervisor score that was based on a sufficiently high response rate for both 2009 and 2010. While the group of supervisors that was identified through this filtering process represented only a portion of the overall population of supervisors, the criteria for selection ensured that the Individual Supervisor scores used in the analysis were accurate.

---

36 Technically, the repeated measures ANOVA’s used to compare the four years of longitudinal data did take into consideration the distribution of scores for each year, as it used each mean score’s variance estimate to calculate the final significance tests. Tracking actual shifts in the distribution (e.g. identifying respondents who had very low scores in one year and very high scores in another year) however, goes beyond what a repeated measures ANOVA provides.

37 The total count of supervisors who completed the 2010 WES was 4,847, whereas the count of supervisors used in the year-over-year analysis was 852. It should be noted that of the 4,847 supervisors, only 1,940 supervisors in 2010 had both a sufficiently large response rate amongst their direct reports as well as a sufficiently large overall total of direct reports. As a result, the 852 supervisors does not represent as small a proportion as the over total population of supervisors might suggest.
KEY FINDINGS – INTRODUCING IMPROVED SUPERVISORY-LEVEL MANAGEMENT SCORES

Once the subset of supervisors was identified for the year-over-year comparison, a distribution of scores for each year was examined. Based on the resulting distributions, scores from each year were grouped into three equal portions; with scores in the lower third being labelled “Experiencing Challenges”, scores in the middle third labelled “Meeting Expectations”, and the upper third labelled “Modelling Excellence”. The intention of the categories was to provide a quick means of determining how a supervisor’s Individual score category in 2009 and 2010, it was possible to determine what type of change in supervisor-level scores, if any, the supervisor experienced over time. It should be noted that, while a more specific set of categories (e.g. grouping each year’s score distribution into eight equal proportions) would offer a greater level of precision in tracking year to year changes, the resulting number of category combinations would make the final set of results overly complex. A table summarising how the score categories were defined for both 2009 and 2010 is provided below (see Table 6).

Table 6: A supervisor’s Individual score was placed into one of three categories for both 2009 and 2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>Supervisor-level Score Category</th>
<th>Category Definition</th>
<th>Proportion Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Experiencing Challenges</td>
<td>SLM &lt; 66</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Meeting Expectations</td>
<td>66 ≤ SLM ≤ 80</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Modelling Excellence</td>
<td>80 &lt; SLM ≤ 100</td>
<td>34%</td>
</tr>
<tr>
<td>2010</td>
<td>Experiencing Challenges</td>
<td>SLM &lt; 66</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>Meeting Expectations</td>
<td>66 ≤ SLM ≤ 81</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>Modelling Excellence</td>
<td>81 &lt; SLM ≤ 100</td>
<td>35%</td>
</tr>
</tbody>
</table>

After the three score categories were defined for each year, a total of nine category combinations were created for the year-over-year combination. All of the supervisors in the analysis were then assigned to one of the nine category combinations based on their 2009 and 2010 results. A 2009 and 2010 mean score was then obtained for each category combination, based on the supervisor’s Individual score contained within each category combination. A table summarising these results is provided below (see Table 7).

Table 7: A total of nine unique combinations were obtained when categories were combined across 2009 and 2010.

<table>
<thead>
<tr>
<th>2009 Score Category</th>
<th>2010 Score Category</th>
<th>Category Change</th>
<th>2009 Mean Score</th>
<th>2010 Mean Score</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modelling Excellence</td>
<td>Modelling Excellence</td>
<td>Remained the same</td>
<td>90</td>
<td>90</td>
<td>173</td>
</tr>
<tr>
<td>Modelling Excellence</td>
<td>Meeting Expectations</td>
<td>Slight decrease</td>
<td>87</td>
<td>73</td>
<td>82</td>
</tr>
<tr>
<td>Modelling Excellence</td>
<td>Experiencing Challenges</td>
<td>Large decrease</td>
<td>88</td>
<td>55</td>
<td>37</td>
</tr>
<tr>
<td>Meeting Expectations</td>
<td>Modelling Excellence</td>
<td>Slight increase</td>
<td>74</td>
<td>87</td>
<td>104</td>
</tr>
<tr>
<td>Meeting Expectations</td>
<td>Meeting Expectations</td>
<td>Remained the same</td>
<td>73</td>
<td>73</td>
<td>120</td>
</tr>
<tr>
<td>Meeting Expectations</td>
<td>Experiencing Challenges</td>
<td>Slight decrease</td>
<td>73</td>
<td>52</td>
<td>71</td>
</tr>
</tbody>
</table>

Three categories for both survey years lead to nine possible category combinations (3 X 3). If eight categories were used for each year, the resulting number of category combinations would total 64 (8 X 8).
An alternate representation of the results in Table 7 can be obtained by plotting the relevant data in a bubble chart format (see Figure 16). To create the bubble chart, the 2009 and 2010 mean scores were assigned to the X and Y axes respectively, while the count of supervisors for each category combination was used to define the size of the bubbles. The category combinations were further differentiated by assigning a colour scheme to the bubbles, such that the groups which fell in the ‘Experiencing Challenges’ category in 2010 were coloured red, groups that fell in the ‘Meeting Expectations’ category in 2010 were coloured orange, and groups that were assigned to the ‘Modelling Excellence’ category in 2010 were coloured green. Finally, in an effort to highlight groups that remained in the same score category for both years (e.g. ‘Modelling Excellence’ in 2009 and 2010) their corresponding bubble colours were slightly faded. \(^{39}\)

**Figure 16: Changes in Individual Supervisors scores between 2009 and 2010.**

---

\(^{39}\) The bubble chart presented in Figure 16 is essentially a modified version of the scatter plot included in Appendix B (see Figure 20). Within the context of this analysis, the scatter plot contains 852 separate points; one point for each supervisor included in the year-over-year sample. Each point is defined by the supervisor’s 2009 Individual score (Y-coordinate) and 2010 Individual score (X-coordinate). The bubble chart and the categories used to define the score groupings within the chart were used to more clearly differentiate the regions of the scatter plot. The grid lines included on the scatter plot highlight the regions where the nine category combinations are located.
An examination of the results summarised in Table 7 and Figure 16 reveals several compelling yet distinct trends. Perhaps the most obvious finding is that slightly over half of the 852 supervisors in the analysis remained in the same score category for both 2009 and 2010. This finding supports the longitudinal results in section 2.2, which indicated that perceptions of the Supervisory-level Management driver have not changed substantially over time. A further implication of this finding is that the underlying composition of the score distribution has largely remained static over time.

In terms of identifying areas where supervisors have been able to maintain consistently high levels of performance, the 173 supervisors who obtained a score category of ‘Modelling Excellence’ for both survey years represent a cohort that is deserving of particular attention. Conversely, for the 158 supervisors who received an ‘Experiencing Challenges’ score category for both 2009 and 2010, the lack of change in Individual Supervisor scores points to possible difficulties some employees have encountered on an on-going basis.

The stability in Individual Supervisor scores however, was not observed for all supervisors. Whereas slightly over half of supervisors did not have a change in the score categories, slightly under a quarter of supervisors had an improvement in their score categories, while the remaining supervisors experienced a decrease in their score categories between 2009 and 2010. Of the supervisors that experienced a year-over-year change in their score categories, the two groups that provided the most intriguing results were those that went from one extreme category (i.e. ‘Experiencing Challenges’ or ‘Modelling Excellence’) to the other. Specifically, 37 supervisors were found to be in the ‘Modelling Excellence’ category in 2009, but shifted to the ‘Experiencing Challenges’ category in 2010. In contrast, 41 supervisors were placed in the ‘Experiencing Challenges’ category in 2009, but received more favourable scores from their direct reports in 2010, leading to a ‘Modelling Excellence’ category in 2010.

### 4.3.1. Supervisors with consistently high Individual scores have more positive views regarding teamwork than supervisors who have received consistently low Individual scores

In order to contrast the supervisors who maintained consistently high Individual scores with those that maintained consistently low Individual scores, a comparison was made between the model driver scores for both groups. The intention of this comparison was to reveal what elements of the work environment differed between each group, as well as to identify whether the groups shared any similar workplace experiences. Similar to the method used in section 3.1, the model driver scores that were analysed were those provided by the supervisors themselves, rather than an aggregate of the scores from each supervisor’s direct reports. In effect, this analysis provides a means of measuring how the perceptions of high performing supervisors differ from the perceptions of supervisors who have received low Individual scores.

Mean score differences were calculated for each model driver, as well the three engagement characteristics and overall engagement. The result of these comparisons indicated that the two groups significantly differed across all elements of the engagement model. In all cases, supervisors from the ‘Modelling Excellence’ category were found to have higher driver scores than the supervisors from the ‘Experiencing Challenges’ category. Mean differences were tested through an independent sample t-test (p > 0.05).
Challenges’ category. This indicates that high performing supervisors have a perspective of the work environment that is uniformly more positive than their counterparts.

As all the driver comparisons provided significant results, focus was given to the magnitude of difference between driver scores. By concentrating on the magnitude of score differences, it was possible to obtain a clearer picture of which drivers lead to the greatest discrepancy between groups\textsuperscript{41}. Specifically, the three drivers that lead to the largest difference between the ‘Modelling Excellence’ and ‘Experiencing Challenges’ groups were Teamwork, Stress & Workload and Recognition. A summary of these results are provided in Table 8 (for a table containing a comparison of all model drivers, see Table 12 in Appendix B).

Table 8: Scores for the Teamwork driver were found to have the greatest difference between consistently high scoring and consistently low scoring supervisors.

<table>
<thead>
<tr>
<th>Model Drivers</th>
<th>Supervisor-level Mean Score</th>
<th>p Value for Mean Difference*</th>
<th>Effect Size of Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supervisors in the “Modelling Excellence” Group</td>
<td>Supervisors in the “Experiencing Challenges” Group</td>
<td></td>
</tr>
<tr>
<td>Stress &amp; Workload</td>
<td>66</td>
<td>54</td>
<td>0.00</td>
</tr>
<tr>
<td>Teamwork</td>
<td>90</td>
<td>77</td>
<td>0.00</td>
</tr>
<tr>
<td>Recognition</td>
<td>77</td>
<td>66</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* p values were determined through an independent sample t-test

Within the context of the employee engagement model, the three drivers highlighted in Table 8 are all directly impacted by the Supervisory-level Management driver. As described in section 2.1, the increased path strength between the Supervisory-level Management driver and the Teamwork driver may help explain why the Teamwork driver provided the greatest difference between the “Modelling Excellence” group and the “Experiencing Challenges” group. The interpretation of this finding is that supervisors with consistently high Individual Supervisor scores strongly agree that they have positive working relationships with their team, their team communicates effectively with each other, and members of the team help get the job done. This however, is not the case for supervisors with consistently low supervisory-level scores, as their view of their team is more moderate. This is consistent with the findings in section 3.2, in which high Individual Supervisor scores were most strongly correlated with supervisors who provided favourable views on the Teamwork driver.

4.3.2. Supervisors with consistently high Individual scores were found to be clustered on Vancouver Island, as well as being in excluded positions

In terms of demographic characteristics, two notable differences were found between supervisors in the “Modelling Excellence” and “Experiencing Challenges” groups. The first difference was found when the geographic locations of both groups were

\textsuperscript{41} The magnitude of mean differences was evaluated using Cohen’s D measure of effect size, with pooled standard deviations. Typically, effect sizes less than 0.1 are considered ‘trivial’, sizes between 0.1 and 0.3 are ‘small’, sizes between 0.3 and 0.5 are moderate, and sizes larger than 0.5 are large.
contrasted. Using a PSA geographic definition, WES respondents were grouped into one of four regions: Northern BC, South Coast, Southern Interior, and Vancouver Island. The clustering of respondents within each region was then analysed with a Chi-square test. Results from the Chi-square revealed that supervisors with consistently high Individual scores were disproportionately clustered in the Vancouver Island Region, whereas supervisors with consistently low scores clustered in the Northern BC region. See Table 9 for a summary of these results.

Table 9: Supervisors consistently in the “Modelling Excellence” category were found to be clustered on Vancouver Island and in excluded positions.

<table>
<thead>
<tr>
<th>Supervisors Consistently in the...</th>
<th>Characteristics Where Supervisors Were Found in Disproportionately High Numbers</th>
<th>Average Number of Direct Reports*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Modelling Excellence&quot; Category</td>
<td>PSA Region: Vancouver Island, Union Status: Excluded</td>
<td>4.99</td>
</tr>
<tr>
<td>&quot;Experiencing Challenges&quot; Category</td>
<td>PSA Region: Northern BC, Union Status: Included</td>
<td>4.85</td>
</tr>
</tbody>
</table>

*Note that the mean scores for the two groups did not significantly differ.

A similar Chi-square comparison was also conducted on the union status of the “Modelling Excellence” and “Experiencing Challenges” groups. The results indicated that supervisors who had consistently high Individual Supervisors scores were in a disproportionately large number of excluded positions. Conversely, the number of supervisors with consistently low Individual scores, who were also in a bargaining unit position, was higher than expected.

Taken in combination, the region and union status results point towards a possible organizational and/or occupational factor influencing how supervisors are perceived by their direct reports. Unfortunately, the sample of supervisors in the “Modelling Excellence” and “Experiencing Challenges” groups was not large enough to allow for this level of detailed analysis. As a result, additional research is required to better understand whether or not this hypothesis is correct.

One final analysis involved a comparison of the average number of direct reports for the “Modelling Excellence” and “Experiencing Challenges” groups. The mean number of direct reports for supervisors who had scores consistently in the “Modelling Excellence” category was 4.99, while the mean number of direct reports for supervisors consistently in the “Experiencing Challenges” category was 4.85. An independent sample t-test was used to compare the two averages; the result of which indicated that no significant difference existed between the mean number of direct reports for the “Modelling Excellence” and “Experiencing Challenges” groups. This finding provides further evidence that the number of direct reports a supervisor is responsible for does not have a clear relationship with how the supervisor is perceived by his or her direct reports.

42 Clustering of supervisors was tested using a Chi-Square comparison of proportions (p > 0.05)
4.3.3. Comments from supervisors who had a large increase in their Individual scores were focused on strategic solutions to staffing issues. In contrast, comments from supervisors who received a large decrease in Individual scores centred on the demoralizing effect of workforce adjustments.

Despite representing a relatively small portion of the public service’s population, the experiences of supervisors who underwent a large shift in score categories (e.g., from “Experiencing Challenges” in 2009 to “Modelling Excellence” in 2010), are particularly valuable. Specifically, they can offer insights into what strategies were either effective or ineffective when negotiating organizational change. In the case of supervisors whose Individual scores increased substantially over time, the fact that they were able to improve their scores, points to ways in which communication and consultation can be fostered in times of change. Conversely, supervisors whose Individual scores fell between 2009 and 2010, suggests that even high performing supervisors may encounter challenges that compromise their capacity to communicate and consult with their supervisees.

Due to the small sample size for both groups, a meaningful quantitative analysis was not feasible. As an alternative, a qualitative analysis was used, with a focus on supervisor’s responses to the 2010 WES open ended comment question. The wording for the open comment is provided below.

| What one thing would you like your organization to focus on in the next 12 months to improve your work environment? |

The response rate for the open ended question was found to be quite high for both groups and nearly identical in proportion. In the case of supervisors who had a large increase in supervisor-level scores (i.e. from “Experiencing Challenges” in 2009 to “Modelling Excellence” in 2010), a little over 70% of respondents provided a comment. For supervisors who experienced a large decrease in supervisor-level scores (i.e. from “Modelling Excellence” in 2009 to “Experiencing Challenges” in 2010), the response rate was closer to 71%. Once the total number of comments was obtained for both groups, each comment was reviewed individually and considered within the context of comments for both groups.

As consideration was given to the content and range of comments, several clear themes began to emerge. For the most part, both groups shared a set of common themes. These shared themes focused on a number of interrelated topics, including concerns with the vision, mission and goals of their organization, communication problems within and between work units, staffing issues and challenges addressing stress and workload resulting from work force adjustments. The following comment encapsulates several of the challenges faced by both groups of supervisors.

“Communicating the changes expected and the resulting fall out of changes made in light of the work force adjustment activities to balance budgets. We are told that we need to tighten belts, find efficiencies and focus on cost savings but the tools and communication are not present to explain what this should look like and how we are to do more with less. We currently are doing the same work with fewer resources (staff
and budgets). Need to lower the bar on expectations or we are going to lose staff that haven't already been impacted.”

While both groups provided many similar recommendations, a theme did emerge that was unique to each group. Specifically, for the 41 supervisors who received an increase in their Individual scores, a disproportionately large number of comments were made regarding staffing issues. In addition to having a larger number of staffing themed comments, the content of the staffing comments also differed from those provided by supervisors who experienced a decrease in Individual scores. Whereas the comments made by supervisors who received a decrease in Individual scores were largely critical in content, comments from supervisors who had an increase in Individual scores focused on strategic and future impacts of staffing issues. The comment below describes some areas requiring particular focus:

“A clear description of the Ministry’s service delivery vision over the next three years. Improved succession planning and funding to support related training/activities. Support to staff at higher levels”

For the 37 supervisors who experienced a decrease in Individual scores, several comments were made that focused specifically on the demoralizing effect work force adjustments had on employees. While supervisors who had an increase in Individual scores expressed general concerns regarding the impacts of work force adjustments, only supervisors who had a decrease in Individual scores made an explicit link between job cuts and the morale of their work units. Specifically, the decrease in morale was seen as arising from the fear of future work force reductions, the loss of skilled colleagues and friends from past job cuts, and a widespread increase in workload. These concerns are summarised well by the following comment.

“Too much change too fast - you can't change the financial model, slash the staff, reorganize the organization and most of the reporting relationships, and redo business processes all at once. The few staff that are left are reeling from the change and the enormous workloads. People are demoralized from the change and from the leadership of the former CEO. Given the economy, there are a lot of hostages here. When the economy picks up we will lose many more good people, and we may not recover.”

Given the focus on morale, it’s possible that supervisors who had a decrease in Individual scores encountered considerable difficulties in maintaining a positive working environment for their direct reports. Alternately, comments regarding the demoralization of the work force may be a reflection of the supervisors’ own attitude as a role model. It would not be surprising then, for a demoralized supervisor to face greater challenges regarding their ability to effectively consult and communicate with their supervisees. The result in both cases would likely be a decrease in the perceptions of a supervisor’s direct reports, which in turn, would lead to a decreased Individual Supervisor score. It should be noted though, that due to the qualitative nature of this analysis and limited sample size, these relationships are purely speculative. To determine whether these challenges are faced by the wider community of public service supervisors, further research is required.
While the majority of comments for both groups of supervisors centred on the challenges arising from a frequently changing BC Public Service, four responses focused specifically on supervisory concerns. While few in number, these responses provided a unique insight into how supervisors view their own role, as well as the role of their fellow supervisors. One such comment, made by a supervisor who received an increase in Individual scores, addressed a range of concerns with the underlying hierarchy of supervisors and/or managers.

“Nothing changes here. The upper levels of management are only there to keep their jobs safe, not worried about people they manage below. Supervisors / team leads are not hired on merit. Employees below supervisor are not fairly treated. Acting manager status (still in the union) is not effective and should be not allowed.”

To develop a deeper understanding of how supervisors have faced the challenges of workforce adjustments, future research will need to go beyond a qualitative analysis. While the WES instrument does not presently capture this type of information, triangulation with additional data sources may help clarify what strategies allowed some supervisors to successfully negotiate changes to their workforce and/or organization.
5. CONCLUSIONS AND RECOMMENDATIONS

The role supervisors have within the work environment is at times both readily apparent and deeply complex. At present, one of the most effective tools for understanding these relationships is the BC Public Service engagement model. By applying the engagement model to the experiences of supervisors, as well their direct reports, it is possible to clearly measure how supervisors impact various aspects of the workplace. However, as the engagement model was developed as a means of describing the key drivers of employee engagement, scores for the Supervisory-level Management driver must also be viewed through the lens of engagement. As a result, it is important to consider the findings within this report, less as measures of supervisory performance, and more as measures of how supervisors throughout the public service impact both the work environment and engagement of their direct reports. With this in mind, the final section of this report will address the implications for several of the findings, as well as what aspects of the supervisor experience could be further explored through future research.

**The Supervisory-level Management driver is uniquely stable.**

Unlike the majority of drivers within the engagement model, the Supervisory-level Management driver has experienced little variation in scores between survey cycles. This is particularly surprising, given the large score decreases in all but one of the other model drivers observed between the 2009 and 2010 iterations of the WES. Within the context of the workforce adjustments that took place prior to the 2010 WES; the stability of the Supervisory-level Management driver is particularly unusual. While a clear causal connection has yet to be established between the decrease in driver scores that occurred in 2010 and the corporate wide changes that took place between 2009 and 2010, the lack of change in Supervisory-level Management scores during this time suggests the driver may not be subjected to the same pressures that challenged other aspects of work environment.

Perhaps even more striking is that the large amount of variation the Executive-level Management driver has experienced over the past few years appears to have had little impact on the Supervisory-level Management driver. Given the engagement model’s strong causal connection leading from Executive-level Management to Supervisory-level Management, is it unclear at this time why the two drivers have experienced such different year-over-year changes. One possible explanation for this outcome is that there is one or more factors and/or paths not accounted for in the engagement model, which are helping to stabilize the Supervisory-level Management.

Further confirmation of the stability of the Supervisory-level Management driver was indicated by the year-over-year convergence in driver scores for certain demographic and geographic groupings. Taken on its own, this convergence could simply indicate that supervisory practices are becoming more normalized across the BC Public Service. In other words, supervisors are providing comparable levels of information and consultation to their direct reports, regardless of their age, service years or geographic location. However, when viewed within the context of the Supervisory-level Management driver’s year-over-year stability, the score convergence represents a point of concern for future iterations of WES. As the engagement model depends heavily on the causal relationships between drivers, then the reduction in score
variation for a particular driver may compromise the driver’s ability to influence other elements of the work environments.

A final note regarding the Supervisory-level Managements driver’s stability focuses on its application as a Deputy Minister salary holdback measure. As the Supervisory-level Management driver has experienced only minor fluctuations over time, even during periods of significant change, then it is unlikely that the actions of a Deputy Minister will have a large impact on the scores. At most, changes to the distribution may take place (i.e. scores become less polarised), but significant alterations to the actual mean score might prove to be difficult to achieve. For this reason, it is recommended that consideration is given to whether the Supervisory-level Management driver continues to be an appropriate indicator of corporate change.

In order to develop a clearer understanding of why the Supervisory-level Management driver has remained largely unchanged over time and what the long term impacts of this stability might be, further investigation in needed.

The Supervisory-level Management driver can be improved by taking into account the clarity of expectations a supervisor provides to his or her direct reports.

An examination of the engagement model revealed that it was possible to improve the Supervisory-level Management driver through the addition of a third question. Specifically, the inclusion of the ‘The person I report to provides clear expectations regarding my work’ question into the Supervisory-level Management driver improved the overall fit of the model. Expanding the driver to three questions also helped to create a more comprehensive measure of supervisors, which in turn, offered a better means of understanding the impact supervisors have on the work environment and employee engagement. While the current, two question, Supervisory-level Management driver continue to provide valid and reliable measure of supervisors, future iterations of WES will likely benefit from the introduction of an expanded supervisor focused driver. With that said, as the BC Public Service is a dynamic and constantly changing work environment, BC Stats intends to continue exploring how the Supervisory-level Management driver can be further expanded and/or revised.

It is important to note though, that regardless of which questions are included in the Supervisory-level Management driver, the driver should always be interpreted within the context of employee engagement. In other words, the Supervisory-level Management driver was designed specifically to represent which supervisory actions have the greatest impact on engagement. The driver, therefore, should not be thought of as offering a proxy measure of a supervisor’s performance. While it is possible that a dedicated measure for supervisory performance would contain some of the concepts found within the Supervisory-level Management driver, this is not guaranteed. Moreover, if a measure of supervisory performance were to be developed, the questions within the Supervisory-level Management drivers would likely represent only a portion of what constitutes a high performing supervisor. If in the future, supervisory performance becomes a topic that requires specific attention, then a supervisor focused measurement tool (such as a 360 review process) developed in concert with a performance model, would provide much more accurate and valid indicators of performance.
Understanding the importance of teamwork is critical for supervisors.

Perhaps the most frequently recurring finding described throughout this report was the relationship between the Supervisory-level Management and Teamwork drivers. While these two drivers have had a strong connection since the inception of the engagement model, the increase in path strength that was observed in 2010 highlighted the importance of this relationship. Both drivers shared a unique position in 2010, in that they were the only drivers in the model not to experience a year-over-year decrease in scores. Not only did this mutual stability play a role in increasing the path strength between the two drivers, but it also offered an explanation of why the Teamwork driver repeatedly emerged as one of the key differentiators between supervisors with high Individual scores and those with low Individual scores.

The Teamwork driver focuses specifically on whether or not members of a team help to get the job done, communicate effectively with each other, and positive relationships exist between co-workers. Given the Supervisory-level Management driver’s relationship with the Teamwork driver, the responsibility for developing and maintaining effective and supportive teams primarily falls on the shoulders of supervisors. The development of strong teams can be achieved directly through the information and consultations a supervisor provides to his or her direct reports. Additionally, an indirect influence can also be achieved through a supervisor’s contribution to the Staffing Practices and Respectful Environment drivers. In particular, supervisors who ensure that staffing processes are fair and merit based, as well as fostering work units that value diversity, are free from discrimination and harassment, and offer a healthy atmosphere, can indirectly support members of their team. While a strong focus on teamwork is important in and of itself, the Teamwork driver’s connections with the remainder of the model will also help to ensure that efforts towards team building will ultimately result in a more engaged workforce.

The specific nature of the relationship between the Supervisory-level Management and Teamwork driver is still largely unexplored. The findings provided in this report provide a first look into what may be an extremely promising avenue of research. A deeper investigation of the influence supervisors have on team building efforts, as well as the impact teams may have on their supervisors, will help to clarify whether these drivers actually have a reciprocal relationship with one another. In other words, the stability of both drivers over time may in fact be the result of a two way relationship, where each driver directly influences the other.

Supervisors with high Individual scores tend to cluster in certain regions, occupations, reporting levels and sectors.

The ability to define supervisory best practices first depends on identifying which supervisors have in fact, been able to develop and implement effective practices in their work environments. Within the context of this report, those supervisors who have received high Individual scores from their direct reports, represent a set of supervisors who been able to effectively promote the engagement of their supervisees. While these high scoring supervisors cannot be identified individually, it is possible to determine whether they share common demographic, geographic or occupational characteristics. In the event that these supervisors cluster together in small enough

Comment regarding confidentiality and accuracy errors for identifying individual errors.
groups, then it also possible to identify through additional surveys, interviews or focus groups, which best practices were employed by these groups. Using this same process, groups of supervisors who received low Individual scores could also be identified. For low scoring supervisors, follow-up surveys, interviews and focus groups would offer insight into what type of challenges limited the supervisors’ ability to provide adequate information and consultation to their direct reports.

Supervisors with the highest Individual scores were found to cluster in four distinct groups: the geographic region of Vancouver Island, the Strategic Leadership & Executives occupation group, near to the top of the corporate reporting structure, and within the Education sector. Conversely, supervisors with low individual scores also clustered in four groups: the geographic region of Northern BC, the Enforcement & Corrections occupation group, near the bottom of the corporate reporting structure, and within the Justice sector. The characteristics unique to high scoring and low scoring supervisors points to a fundamental disparity between certain portions of the BC Public Service. The differences in supervisory responsibilities for directors in the Ministry of Education are likely very different in scope from those of frontline managers in the Prince George Regional Correction Centre. For this reason, it may prove challenging to translate best practices identified within the Education sector or employed by Strategic Leadership & Executives, to the work environment of a Enforcement & Corrections supervisor. With that said, if attention is given specifically to how low scoring and high scoring supervisors consult with and inform their direct reports of key decisions, then it may be possible to bridge this gap in experiences. It may also prove beneficial to consider how supervisors in both groups communicate their expectations to their direct reports.

Future research into the experiences of direct reports and supervisors would be greatly supplemented by a performance evaluation program focused specifically on the management context.

The findings included in this report offer several insights into how supervisors throughout the BC Public Service have either succeeded in or been challenged with supporting the engagement of their direct reports. The scope of the findings, however, is limited to the ways in which the Supervisory-level Management driver relates to the various elements of the work environment. If a deep understanding of supervisory experiences is to be achieved within the context of the public service, then a detailed, supervisor focused research program would provide findings that are more reliable, valid and specific than what can be achieved through WES. As a result, this report can be viewed as providing an initial framework for the development of one or more supervisor specific evaluation tools. Whether these evaluation tools consist of traditional questionnaires, 360 peer-review processes, or a combination of both, the findings contained in this report can be used to focus the development of the tools on areas of particular interest or concern.
APPENDIX A: MORE ON THE EMPLOYEE ENGAGEMENT MODEL

In the Work Environment Survey, there are over 70 questions that cover a wide range of topics in the workplace. The questionnaire topics were developed from an extensive literature review of public and private sector research, and in consultation with other jurisdictions across Canada and leading experts in the field. In 2008, the questionnaire was further refined based on the growing expertise in BC Stats and feedback from the program partners. Each question is important and provides useful information, but some questions have a greater impact on engagement than others. However, it is difficult to know which questions are most strongly linked to engagement. BC Stats uses a sophisticated analysis technique, called structural equation modeling, to determine which questions or groups of questions have the biggest impact on engagement. The analysis uses the responses of all employees to develop a model of what matters most to employees. Model building has two main steps:

1. Identifying the important survey questions and grouping them into drivers
2. Uncovering the links and connections between the workplace concepts

The researchers who built the model started with a deep theoretical and practical knowledge of what contributes to engagement in the workplace. Their knowledge helped identify workplace concepts and relationships for testing during model building. The initial model was built from the survey responses of 17,400 BC Public Service employees in 2006. A software program uses the survey responses to identify groups of survey questions that predict patterns in the engagement characteristics. The resulting model is custom designed for the BC Public Service. The model is re-tested with each year’s survey results to ensure it accurately represents the work environment experiences of employees.

Once the modeling process identified the drivers, the next step was to identify connections within the model. The parts of the model are all interconnected, like a spider web. The pattern of connections between drivers and characteristics form the overall structure of the engagement model.

The structure of the engagement model was graphically introduced in the Exploring Employee Engagement reports as a ‘house’, with a foundation, building blocks, and a roof. The house diagram is a visual metaphor that describes the relationships between the different parts of the work environment.

The model rests on two drivers – Executive and Supervisory-level Management – which are connected to every other driver in the model. As management is the foundation of the engagement model, it is depicted as the foundation of the ‘house’ diagram. The building blocks identify the workplace functions and concepts influencing engagement. The characteristics of engagement – BC Public Service Commitment, Job Satisfaction, and Organization Satisfaction – are the outcomes of the model. The Engagement score is a single number, calculated from the three engagement characteristics.
To visually represent the model, the *house diagram* was designed to show what is most important in the workplace and how all the pieces fit together. The model is complex and should be thought of as multi-dimensional.

**Figure 17: The Model as a House Diagram**

For more specific details on the statistical processes and results guiding the development and testing of this model, please refer to the technical report produced in April 2010 called *Modelling the 2009 Work Environment Survey Results.*

---

44 Available online at: [http://www.bcstats.gov.bc.ca/data/ssa/analysis.asp](http://www.bcstats.gov.bc.ca/data/ssa/analysis.asp)
APPENDIX B: ADDITIONAL CHARTS AND TABLES

Figure 18: Supervisory-level Management score convergence by age group

Figure 19: Supervisory-level Management score convergence by region
### Table 10: Organizational breakdown of BC Public Service sectors

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>Community and Rural Development</td>
</tr>
<tr>
<td></td>
<td>Small Business, Technology and Economic Development</td>
</tr>
<tr>
<td></td>
<td>Tourism, Culture and Arts</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
</tr>
<tr>
<td>Education</td>
<td>Advanced Education and Labour Market Development</td>
</tr>
<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>Finance</td>
<td>Finance</td>
</tr>
<tr>
<td></td>
<td>Olympic Games Secretariat</td>
</tr>
<tr>
<td>Health</td>
<td>Healthy Living and Sport</td>
</tr>
<tr>
<td></td>
<td>Health Services</td>
</tr>
<tr>
<td>Justice</td>
<td>Attorney General</td>
</tr>
<tr>
<td></td>
<td>Labour</td>
</tr>
<tr>
<td></td>
<td>Public Safety &amp; Solicitor General</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>Aboriginal Relations and Reconciliation</td>
</tr>
<tr>
<td></td>
<td>Agriculture and Lands</td>
</tr>
<tr>
<td></td>
<td>Energy, Mines and Petroleum Resources</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
</tr>
<tr>
<td></td>
<td>Environmental Assessment Office</td>
</tr>
<tr>
<td></td>
<td>Forests and Range</td>
</tr>
<tr>
<td></td>
<td>Integrated Land Management Bureau</td>
</tr>
<tr>
<td>Service</td>
<td>Citizens’ Services</td>
</tr>
<tr>
<td></td>
<td>Intergovernmental Relations Secretariat</td>
</tr>
<tr>
<td></td>
<td>Office of the Premier</td>
</tr>
<tr>
<td></td>
<td>Public Affairs Bureau</td>
</tr>
<tr>
<td></td>
<td>Public Service Agency</td>
</tr>
<tr>
<td>Social Services</td>
<td>Children and Family Development</td>
</tr>
<tr>
<td></td>
<td>Housing and Social Development</td>
</tr>
</tbody>
</table>
Table 11: Correlation results between supervisor’s driver scores and their Individual Supervisor score. Note that all correlations were found to be significant at the 0.001 level.

<table>
<thead>
<tr>
<th>Supervisor's Individual Driver Scores</th>
<th>Are Correlated With...</th>
<th>Pearson Correlation Coefficient*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork</td>
<td>Individual Supervisor score</td>
<td>0.241</td>
</tr>
<tr>
<td>Respectful Environment</td>
<td></td>
<td>0.155</td>
</tr>
<tr>
<td>Staffing Practices</td>
<td></td>
<td>0.150</td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td>0.146</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td></td>
<td>0.143</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td>0.133</td>
</tr>
<tr>
<td>Supervisory Level</td>
<td></td>
<td>0.128</td>
</tr>
<tr>
<td>Stress &amp; Workload</td>
<td></td>
<td>0.124</td>
</tr>
<tr>
<td>Organization Satisfaction</td>
<td></td>
<td>0.113</td>
</tr>
<tr>
<td>Empowerment</td>
<td></td>
<td>0.107</td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
<td>0.106</td>
</tr>
<tr>
<td>Physical Environment &amp; Tools</td>
<td></td>
<td>0.100</td>
</tr>
<tr>
<td>Professional Development</td>
<td></td>
<td>0.100</td>
</tr>
<tr>
<td>Executive Level</td>
<td></td>
<td>0.096</td>
</tr>
<tr>
<td>Pay &amp; Benefits</td>
<td></td>
<td>0.090</td>
</tr>
<tr>
<td>Vision, Mission &amp; Goals</td>
<td></td>
<td>0.079</td>
</tr>
</tbody>
</table>

* In terms of interpreting the results of the correlations, a positive correlation coefficient suggests that a supervisor who had favourable perceptions of the work environment tended to receive higher Individual Supervisor scores from their supervisees. In contrast, a negative correlation indicates a somewhat unusual situation, where a supervisor with negative perceptions of the work environment tended to have high Individual Supervisor scores. Finally, no relationship between a supervisor’s Individual score and their driver scores would indicate that their perception of the work environment neither influences, nor is influenced by, the ratings they receive from their direct reports.
Figure 20: Scatter plot of 2009 and 2010 Individual Supervisor scores with bubble chart categories superimposed
Table 12: Driver score differences between supervisors who received consistently high Individual scores and supervisors who received consistently low Individual scores.

<table>
<thead>
<tr>
<th>Model Drivers or Engagement Characteristics</th>
<th>Supervisor-level Mean Score</th>
<th>p Value for Mean Difference</th>
<th>Effect Size for Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supervisors in the &quot;Modelling Excellence&quot; Group</td>
<td>Supervisors in the &quot;Experiencing Challenges&quot; Group</td>
<td></td>
</tr>
<tr>
<td>Engagement</td>
<td>77</td>
<td>68</td>
<td>0.00</td>
</tr>
<tr>
<td>Engagement Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>77</td>
<td>69</td>
<td>0.00</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>80</td>
<td>71</td>
<td>0.00</td>
</tr>
<tr>
<td>Organization Satisfaction</td>
<td>73</td>
<td>62</td>
<td>0.00</td>
</tr>
<tr>
<td>Model Drivers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empowerment</td>
<td>80</td>
<td>72</td>
<td>0.00</td>
</tr>
<tr>
<td>Stress &amp; Workload</td>
<td>66</td>
<td>54</td>
<td>0.00</td>
</tr>
<tr>
<td>Vision, Mission &amp; Goals</td>
<td>70</td>
<td>60</td>
<td>0.01</td>
</tr>
<tr>
<td>Teamwork</td>
<td>90</td>
<td>77</td>
<td>0.00</td>
</tr>
<tr>
<td>Physical Environment &amp; Tools</td>
<td>80</td>
<td>75</td>
<td>0.07</td>
</tr>
<tr>
<td>Recognition</td>
<td>77</td>
<td>66</td>
<td>0.00</td>
</tr>
<tr>
<td>Professional Development</td>
<td>72</td>
<td>64</td>
<td>0.01</td>
</tr>
<tr>
<td>Pay &amp; Benefits</td>
<td>68</td>
<td>60</td>
<td>0.01</td>
</tr>
<tr>
<td>Staffing Practices</td>
<td>83</td>
<td>74</td>
<td>0.00</td>
</tr>
<tr>
<td>Respectful Environment</td>
<td>87</td>
<td>80</td>
<td>0.00</td>
</tr>
<tr>
<td>Executive-level Management</td>
<td>66</td>
<td>55</td>
<td>0.00</td>
</tr>
<tr>
<td>Supervisory-level Management</td>
<td>79</td>
<td>73</td>
<td>0.04</td>
</tr>
</tbody>
</table>
If you have any questions about the information in this report, please contact BC Stats.
250-387-8972