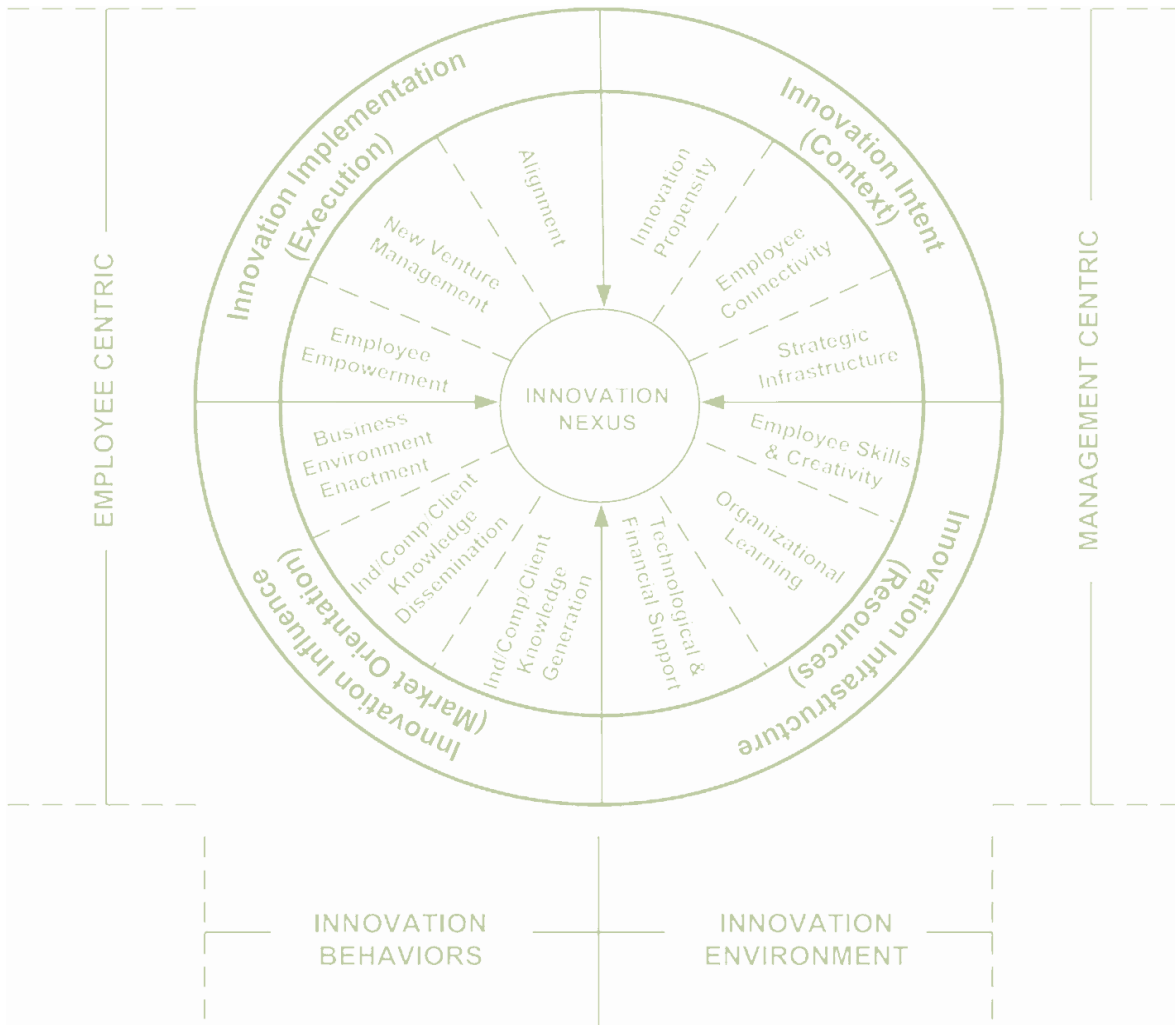


Innovation Health inside the Province of Saskatchewan





September, 2013

Innovation Saskatchewan
314-111 Research Drive
Saskatoon, Saskatchewan S7N 3R2
Attention: Mr. Scott Adams, Senior Strategist

Dear Scott:

Strategian would like to thank you for the opportunity to undertake this project for your organization. We trust that the following report will satisfy the agreement made between us, and hope that the information contained in this report will be useful to your organization as was intended.

Dr. Brooke Dobni
Strategian

Dr. Mark Klassen

www.innovationone.org

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Table of Contents

1 Consultant Overview and Comments	4
1.1 Report Highlights	4
1.2 Project Summary and Discussion Points	7
2 Survey Methods, Coverage, Reporting and Demographics	13
2.1 Survey Methods	13
2.2 Survey Coverage, Validity and Reliability	13
2.3 A Note on Data Presentation	14
2.4 Demographics	15
3 Understanding Innovation	18
3.1 Defining and Measuring Innovation	18
3.1.1 Defining Innovation	18
3.1.2 Measuring Innovation	19
3.2 Why Innovation is Important	20
4 Survey Results	23
4.1 The <i>InnovationOne</i> Innovation Health Index Score	23
4.1.1 Innovation Intent (Leadership)	24
4.1.2 Innovation Infrastructure (Resources)	25
4.1.3 Innovation Influence (Knowledge Management)	26
4.1.4 Innovation Implementation (Execution)	26
4.2 Comparing the Saskatchewan Score to Other Jurisdictions	28
4.3 The Four Quadrants of Innovation	30
4.4 Results by Industry Sector	32
4.5 Results by Level of Optimism	43
4.6 Results by Level of Performance	44
4.7 Results by Organization Size	45
4.8 Results by Role	46
5 Qualitative Responses	47
5.1 Respondents' Perspective on the Greatest Innovation Challenge	47
5.2 Respondents' Perspective on how the Saskatchewan Government Might Act to Improve Innovation in the Province	49

1.1 Report Highlights

Innovation Saskatchewan is interested in developing a benchmark study on innovation health in Saskatchewan organizations. This benchmark would have multiple objectives including that of a general comparative measure with other economies and jurisdictions, and consideration for policy development aimed at enhancing the innovation of sectors specifically and the Province of Saskatchewan generally.

This report measures innovation health in the Province of Saskatchewan using the InnovationOne assessment metric.

Saskatchewan's aggregate Innovation Health Index Score (IHI) is 69%. Saskatchewan's profile displays a good balance across the 12 drivers of innovation.

Saskatchewan's score of 69% compares favourably to the Canadian score of 65% and similar to the Fortune 1000 organizations in the United States at 68%.

Saskatchewan ranks lower than countries such as Sweden, Switzerland, Germany but higher than countries like the United Kingdom, Netherlands and the European Union average.

The primary mandate of this project was to measure the innovativeness of Saskatchewan organizations overall, and within sectors specifically. The rationale for this approach resides in the understanding that the growth and sustainability of an economy is correlated to the differential value that organizations create and the 'health' of organizations specifically. The degree to which this can be accomplished by organizations is also tempered by such things as economic inputs, quality of assets, and government policy supporting economic development.

There has been significant discussion around the impact of innovation on economies, and more specifically advancing innovation given the knowledge that innovation impacts economic growth and sustainability. The innovation orientation of an organization is highly correlated with its relative performance. Our approach to innovation is anchored in the belief that organizations create value in economies, and therefore the ability for organizations to enhance respective innovation orientations is correlated with, among other things, GDP growth. This is particularly the case in maturing and commodity-based economies, such as what we have in Saskatchewan. One of the roles that governments play in innovation is to create an environment that allows organization to generate differential value on a sustained basis. Collectively, if an economy is successful at advancing the innovation agendas of

organizations, it is more likely that growth and sustainability will be heightened.

As detailed further in this report, the innovation health of an organization is measured through the drivers of innovation in an organization. The aggregate measurement of each driver presents a score of the overall innovation capabilities and environment of an organization, and collectively, measuring a representative sample of organizations within a jurisdiction presents the level of innovation within the sector. From the Provincial Government's perspective, the results of this report should be used to supplement the macro-drivers and government policy to support the advancement of innovation at the Provincial level.

This report presents a measure of the innovation health amongst organizations and sectors in the Province of Saskatchewan using *Strategian's* innovation measurement metric, *InnovationOne*.

This is the largest study to date of innovation performance of organizations in Saskatchewan, overall and from a sector perspective. On an aggregate level, it is an assessment of the Province's innovation health. The *InnovationOne* metric (outlined in Figure 1.1 that follows) is a diagnostic assessment tool that measures innovation health across economic sectors by considering the innovation orientations of a representative sample of organizations within a sector. The outcome is an aggregate innovation health index (IHI) as well as prescriptive factors and conditions that will enhance innovation health. We have outlined a number of discussion points for Innovation Saskatchewan to consider with the objective of advancing the Province's innovation health.

The index, developed by *Strategian*, provides a valid and reliable measure of innovation levels in organizations in the Province of Saskatchewan. It appraises the innovation environment by surveying a representative sample of Saskatchewan organizations across 9 sectors. *InnovationOne* is predicated on years of empirical research by *Strategian* including factor analysis of innovation drivers and best practices, converged with leading edge knowledge in the area of strategy and innovation.

InnovationOne assesses innovation health on a balanced approach. It considers four dimensions and twelve drivers of innovation. Although the index utilizes standard measures that are grounded in research, the questionnaire used for this study has been customized to suit a sector-based focus. In total, for this assessment 20 constructs that possessed the highest predictor levels of the drivers were used. Each of these innovation dimensions/drivers are assessed and further discussed in this report. The comprehensive score is compared to other jurisdictions so that the general question, "How are we doing?" can be answered.

Innovation is anchored in the belief that organizations create value in economies, and therefore the ability for organizations to enhance respective innovation orientations is correlated with, among other things, GDP growth. This is particularly the case in maturing and commodity-based economies, such as what we have in Saskatchewan.

By assessing each driver, a number of discussion points are presented for Innovation Saskatchewan to consider as the Province moves forward with the innovation agenda. The following are the dimensions and drivers of the *InnovationOne* model:

- **Innovation Intent (Leadership for innovation – 6 constructs)**
 - Innovation propensity
 - Employee connectivity
 - Strategic infrastructure

- **Innovation Infrastructure (Resources for innovation – 3 constructs)**
 - Employee skills & creativity
 - Organizational learning
 - Technological & financial support

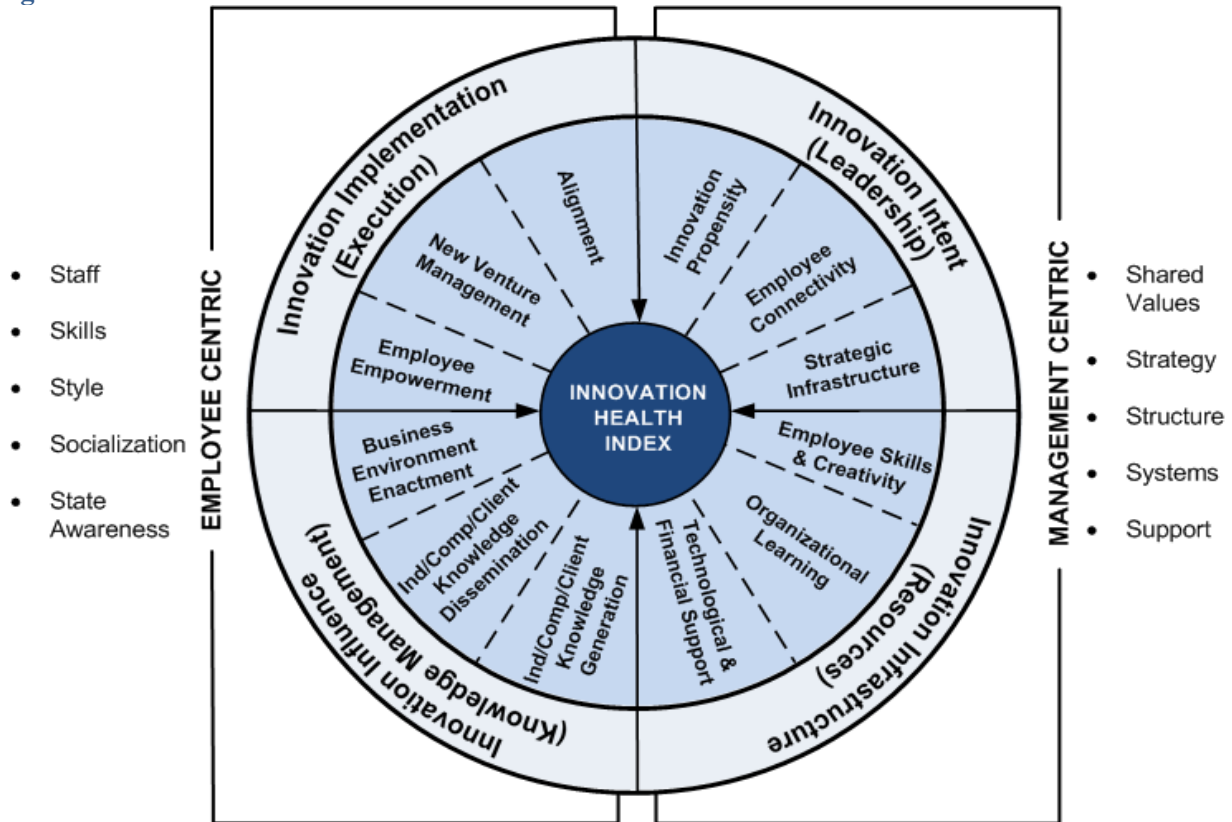
- **Innovation Influence (Knowledge Management for innovation – 5 constructs)**
 - Knowledge generation
 - Knowledge dissemination
 - Business environment enactment

- **Innovation Implementation (Execution for innovation – 6 constructs)**
 - Employee empowerment
 - New venture management
 - Alignment

This is the largest study to date of innovation performance of organizations in Saskatchewan, overall and from a sector perspective using the InnovationOne metric. On an aggregate level, it is an assessment of the Province's innovation health. The InnovationOne metric is a diagnostic assessment tool that measures innovation health across economic sectors by considering the innovation orientations of a representative sample of organizations within a sector. The outcome is an aggregate innovation health index (IHI) as well as a prescriptive factors and conditions that will enhance innovation health.

The following figure presents the *InnovationOne* model that is used in this report. The model is explained in detail in Section 4 - Survey Results.

Figure 1.1: The *InnovationOne* Model



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1.2 Project Summary and Discussion Points

The following section provides a summary and general overview of the survey results and observations. Included in this section are a number of “discussion points”. The intent of the discussion points is to engage dialogue on how the innovation agenda may be moved forward in the Province of Saskatchewan. Although our mandate was to assess the state of innovation in Saskatchewan by surveying Saskatchewan organizations, our belief is that the discussion points can be used to enact thought on how innovation can be moved forward in the Province.

1. *Innovation in Saskatchewan Organizations is “Average”.*

The innovation health index score using the *InnovationOne* diagnostic was 69% in the organizations surveyed in the Province of Saskatchewan. Using comparable measures (the *InnovationOne* survey), this compares favourably to the Canadian score of 65% and similar to the Fortune 1000 organizations in the United States at 68%. These scores can be compared to other surveys using different methodologies. When this is done,

Saskatchewan ranks lower than jurisdictions such as Sweden, Switzerland, Germany but higher than jurisdictions like the United Kingdom, Netherlands and the European Union average.

Discussion Point: Now that a benchmark has been created (69%), consideration should be given to setting a target for innovation improvement. Many large organizations set a target of 3-5% in three years.

2. *Innovation in Saskatchewan Organizations varies by Industry Sector*

Our analysis included collecting data related to industry sectors. We found that the highest scoring sectors were information technology/telecommunications and health and life sciences, whereas the lowest scoring sectors were utilities and transportation. This is not surprising in that some industries by the nature of their work orient themselves toward innovation (e.g. an IT organization is more oriented towards innovation compared to a traditional utilities organization). Although an industry sector may score higher it does not mean that competitive advantage can be realized as industry sectors in other jurisdictions are likely scoring higher as well.

Discussion Point: The industry sector results are interesting as it creates an opportunity to focus innovation efforts. For example the sectors of utilities, mining, manufacturing, transport and agriculture all scored average or below average compared to the Provincial average. These particular industries represent a significant amount of the Provincial GDP. Consideration should be given to an industry focused approach to moving innovation forward.

Discussion Point: Further analysis reveals that utilities scored the lowest of all sectors (61%). Given that in Saskatchewan a significant amount of utilities organizations are publically-owned, this presents an opportunity for the Province to directly affect the innovation of publically-owned utilities organizations. A material improvement in publically owned utilities would result in an improvement in the overall Saskatchewan innovation score.

3. *Innovation in Saskatchewan Organizations varies by Size*

The survey results suggested that smaller organizations (less than \$1 Million in Sales) were the most innovative (74%), whereas large organizations (greater than \$100 Million in Sales) were less innovative (65%). There was relative consistency with organizations between \$1 Million and \$100 Million in sales (69% to 70% range).

The top 3 barriers of innovation in organizations are...

-Lack of an innovation strategy that is communicated to employees.

-Inadequate process and governance to move ideas forward.

-Misaligned performance measurement and management systems.

Discussion Point: An opportunity exists to focus innovation efforts by size segment. Each segment has different barriers to innovation. For smaller organizations access to capital was noted repeatedly in the qualitative analysis as a barrier to innovation. Mid-level organizations had similar barriers to innovation as large organizations. There is an opportunity to work directly with mid-level organizations to educate them on innovation, the drivers of innovation and how to execute innovation. We are highlighting this group because our experience in implementing change in smaller/medium organizations is generally easier than in large institutional organizations.

4. Innovation in Saskatchewan Organizations varies by Role

Similar to many other studies we have conducted, the more senior the level of role within an organization, the more innovative the respondent believes the organization is. The reality is that innovation needs to be embedded throughout the organizational employees and business processes in order to gain innovation traction.

Discussion Point: This issue is really an awareness statement for Innovation Saskatchewan. Quite often discussions with senior leadership in organizations create the impression that the organization is very innovative, when in fact the organization is not. A diagnostic on the individual organization can be quite informative to assess this issue.

5. Innovation in Saskatchewan Organizations is largely, “Random and Incremental”

Based on the four quadrants of innovation as discussed in Section 4, an IHI score of 69% suggests that for many Saskatchewan organizations, innovation occurs randomly and incrementally. The 70% threshold is an important benchmark as organizations that score higher than 70% tend to have enough maturity in the innovation drivers so that innovation is systematically managed.

Discussion Point: Our comments have suggested setting a goal for innovation improvement of 3-5% in three years. If this target was achieved, innovation in a significant number of Saskatchewan organizations would be systematically managed as opposed to random.

6. The Top 3 Barriers of Innovation in Organizations Are...

- **Lack of an Innovation Strategy that is Communicated to Employees:** The survey illustrated that leaders of Saskatchewan organizations are only beginning to discuss innovation as a key strategy. Leaders are even less successful at entrenching innovation into their strategic plans and developing innovation goals and objectives that can be used to communicate to their employees in a meaningful way. Research shows that employees, “pays attention to whatever their leader pays attention to”.
- **Inadequate Process and Governance to Move Ideas Forward:** The survey results indicate that employees were not the issue with Saskatchewan Organizations (although we do temper this statement with the issue that a labour shortage was noted in the qualitative analysis). The highest scoring innovation drivers related

to employees skills and creativity and employee empowerment. This means that organizations have the capability and willingness to create new ideas. However, organizations struggle with implementing a process that turns an idea into reality. This issue becomes systemic as employees culturally will be less inclined to suggest new ideas if the challenges of moving the idea forward are significant.

- *Misaligned Performance Management Systems:* Organizations also struggle with creating a performance management system that rewards employee innovation. This barrier is even more pronounced because of the lack of innovation strategy, goals and objectives within the organization. The end result is the performance management systems end up rewarding the status quo instead of innovation.

The top 3 barriers were identified though the lowest scoring innovation drivers in the survey. Interestingly the qualitative response to the question, “What are your biggest innovation challenges?” supported the quantitative analysis. The top 2 themes of challenges qualitatively were identified as organizational malaise and a lack of tools and processes.

7. *Saskatchewan Organizations are Optimistic*

An interesting finding was the level of optimism within Saskatchewan organizations. When asked to rate the level of optimism, 76% of respondents were either very optimistic or somewhat optimistic.

Discussion Point: The high level of optimism is encouraging in the broader sense. Saskatchewan organizations have a strong sense of confidence in the future.

8. *Optimistic and High Performing Organizations have a Higher Innovation Score*

When the innovation scores were analyzed based on level of optimism, there was a strong polarization. The higher (lower) level of optimism in an organization meant a higher (lower) innovation score for the organization. For example “very optimistic” organizations had an innovation score of 75% compared to very pessimistic organizations which had an innovation score of 43%. A similar correlation was observed with high performing organizations.

Discussion Point: This report argues, based on available research, that innovative organizations perform better (growth, profit). Organizations that feel strong and confident about their future and consider their organization as a high performer are statistically more innovative in Saskatchewan organizations. This finding provides some confidence for the Province in that investments targeted towards improving innovation will lead to superior performance from organizations and increased economic growth for the Province.

9. *What Should the Province Do (from a Macro Perspective)*

The scope of this engagement was not to assess the economy and policies of the Province of Saskatchewan. Our scope was specific to measuring innovation in the Province by collectively measuring innovation in Saskatchewan organizations. There has been ample

research related to the topic of environmental factors that are necessary to create an innovative environment in a jurisdiction. Organizations such as the OECD, Conference Board of Canada as well as Consulting firms such as Deloitte and PWC have assessed this topic. Generally, the following example areas are known to impact the innovative state of a jurisdiction:

- Innovation governance and policy
- Support for research and development
- Legal environment and Patenting
- Commercialization and clustering
- Facilitating access to capital
- Education and higher level skill development
- Tax System

Discussion Point: Our report focused on the organizational aspects of innovation and this focus should be used to supplement existing and further analysis and attention to the macro drivers of innovation in an economy.

10. What Should the Province Do (from an Organizational Perspective)

In addition to the discussion points already noted, the following discussion points highlight areas we feel the Province should consider. The next set of discussion points are identified on the belief that the Province can improve Saskatchewan's innovativeness by collaborating more directly with Saskatchewan organizations in addition to the macro level drivers identified previously.

Discussion Point: Focus on directly helping organizations become more innovative through innovation training. The fact that Saskatchewan has a relatively small population and number of organizations can be a distinct advantage. Saskatchewan has an opportunity to reach many organizations directly. Some of the low scoring drivers of innovation could be improved through training and awareness. For example, we know that an organization's innovation score will improve if leaders of the organization understand what innovation is, and identify innovation as an important aspect of their strategy. Similarly, we know through research that an organization's innovation score will improve if they know what the drivers of innovation are and create plans to address innovation barriers. Basic training on innovation can assist organizations to become more innovative. If a reasonable percentage of organizations attended innovation training, this may be the most significant way the Province can improve their innovation score.

Discussion Point: Focus on directly helping organizations by providing training on organizational support mechanisms that lead to innovation (the top 3 barriers). In many ways this is a subset of the previous discussion point. Although each organization is unique, the diagnostic revealed consistent patterns in innovation drivers where organizations collectively scored low. Discussion point 6 revealed the top 3 barriers to innovation that Saskatchewan organizations are facing. These are not unsolvable problems as many organizations have solved this riddle. The government has an opportunity to provide training and/or resources to support organizations to better

execute their ideas. Many organizations could benefit from learning how other organizations have developed business processes to move ideas through to implementation. Government could assist in the communication of these ideas through training or developing an innovation centre that Saskatchewan organizations could access.

11. Develop and Promote a Provincial Innovation Strategy

Like many jurisdictions, the Province of Saskatchewan has policies and programs that impact innovation. However, similar to an organization unless a clear innovation strategy is presented and articulated, it is difficult to increase the innovation score. An innovation strategy drives innovation by communicating the “intent” to innovate.

Discussion Point: Our mandate did not include evaluating the existing Innovation Strategy of the Province. However, we do know that similar to an organization, developing a strategy, objectives and goals related to innovation and communicating them drives innovation through leadership. Therefore, consideration should be given to developing/reviewing an innovation strategy and communicating it Province-wide.

2.1 Survey Methods

The primary objective of this study was to produce a benchmark score of innovation health in Saskatchewan across 9 commonly used sector profiles.

We received 384 useable responses from 610 who accessed the survey electronically. This number supports an overall level of statistical significance of .95 with a margin of error of +/- 5%.

The primary objective of this study was to produce a benchmark score of innovation health in Saskatchewan across 9 commonly used sector profiles. This is a unique study, and the first of this nature that has been undertaken in Saskatchewan. To accomplish this objective, we developed an email list of approximately 800 business leaders across Saskatchewan. These leaders were representative of a cross-section of organizations within the nine sectors. The goal was to have a large enough sample to develop a statistically significant score Province-wide, and trend scores within the sectors. This was accomplished. The methodology for the Innovation Saskatchewan study is further outlined below.

The *InnovationOne* survey instrument was developed by *Strategian*. Minor adjustments were made to survey wording and select constructs to accommodate the Province-wide sampling approach. As indicated, there were 20 scaled constructs to assess innovation health, as well as an additional 7

questions to support demographic profiling. Finally, there were 2 open-ended questions allowing survey participants to provide verbatim comments.

The survey was administered electronically by Litchfield Research of Atlanta, Georgia. The survey was emailed to the sample and the results were captured utilizing the consultant's survey administration software. Data was collected electronically between April 17th and June 25th, 2013. Surveys on average took less than 20 minutes to complete.

Survey results were downloaded into (SPSS v19). *Strategian* then undertook a comprehensive analysis of the data and produced a report on the findings, including means, frequencies, and interpretation of the results. The SPSS data file was cleaned (recoding of missing variables and 'not applicable' responses) prior to analysis.

2.2 Survey Coverage, Validity and Reliability

The results shown in this report are drawn from a survey of Saskatchewan business leaders. The goal for this inaugural survey was to get as broad as coverage as possible, with the view to

consider expanded options in the future. Although nearly 800 invites were sent out, we cannot confirm the total sample size as we followed a ‘snowball’ approach, that is, we encouraged invitees to share the survey invite link with others in their organization, and those outside their organization. We have no way of tracking secondary invites. In the end, we received 384 useable responses from 610 who accessed the survey electronically. This number supports an overall level of statistical significance of .95 with a margin of error of +/-5%. Data collection followed a ‘Dillman’ protocol as 3 invite reminders were sent out at regular intervals after the initial invite.

In respect to validity and reliability of the survey instrument, the constructs were developed on the basis of proven empirical research protocols. The scales presented high alpha levels suggesting high levels of reliability (i.e. the intended measure versus the actual measure were highly correlated).

2.3 A Note on Data Presentation

As indicated, there were a total of 20 constructs across 12 drivers of innovation used in the index. For most questions, participants were asked to respond utilizing a 7 point Likert scale for measuring perceptions.

The statements were all worded in the same direction and the responses could range from 1 to 7 where 1 was “strongly disagree”, 4 was “neutral” and 7 was “strongly agree.” The scale is presented below:

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The scale used allowed for sufficient latitude and variability in responses. Data in this report is presented as a group overall (for example, n = 384 respondents). As indicated, sector and demographic-level analysis was undertaken in situations where there was a sufficient ‘n’ to support this level of analysis.

In respect to reporting the output, means are reported for all respondents. There are also some points to note. First, since this is the first *InnovationOne* survey for the Province of Saskatchewan, there is no longitudinal data. Also, because a portion of the data is reported as mean scores and percentages, responses have been rounded up to the closest whole percentage or decimal place. As well, not all who returned surveys responded to all of the questions. If there was no response to a question or a ‘not applicable’ response, it was coded as a missing variable, and therefore did not figure into the statistical analysis. Other verbatim information was collected and reported on a summary basis in Section 5.

2.4 Demographics

The demographic profile of the survey respondents is presented in the next three Figures (2.1-2.3). Information was collected for the survey respondents according to size (sales), industry sector, and position. The percentages represent the proportion of the sample response for the demographic category. For example 39% of the respondents worked for organizations with sales greater than \$100 million. Cross-tabulated analysis was undertaken with respect to IHI scores and demographics, as well as with optimism and relative performance perceptions. These are reported in Section 4 Survey Results.

This is the first InnovationOne survey for the Province of Saskatchewan, there is no longitudinal data.

Figure 2.1 presents the demographic profile of the survey respondents by the size of organization that the respondent was employed. The highest response rate was with organizations greater than \$100 Million in sales. Response rates for smaller organizations were relatively balanced across the remaining four categories (\$50M-99.9M, \$10M-49.9M, \$1M-10M and less than \$1M). If these four smaller categories are collapsed the demographic representation is approximately 40% large organizations and 60% small/medium organizations.

Figure 2.1: Demographics by Organization Size (Sales)

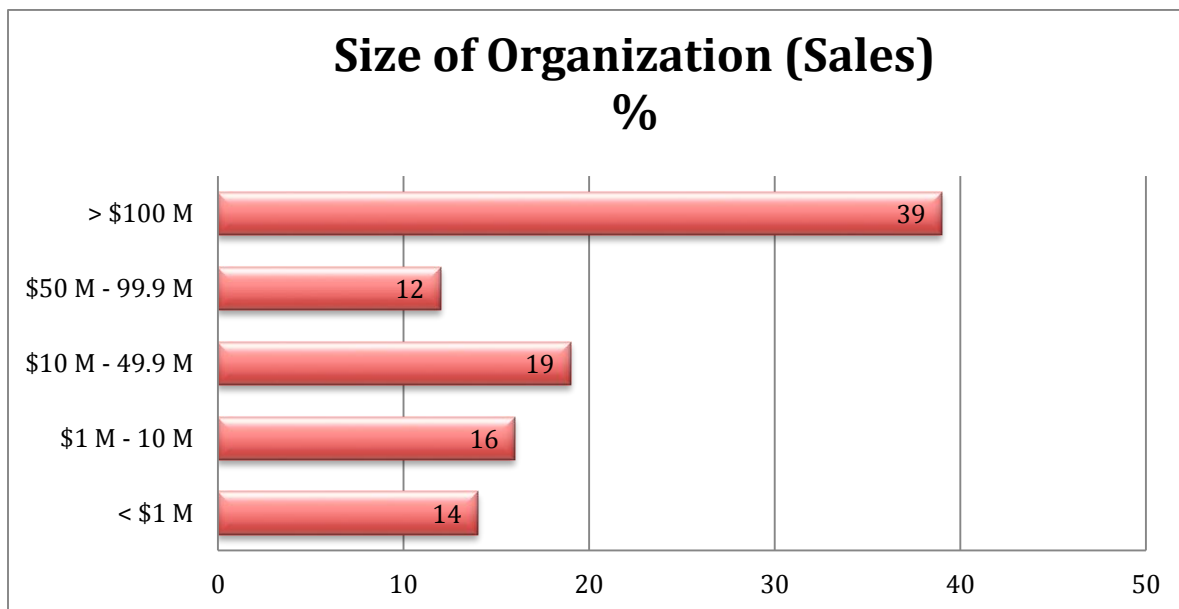


Figure 2.2 presents the demographic profile of the survey respondents by industry sector. As explained in Section 2 Survey Methods, a list of leaders in Saskatchewan organizations was compiled across industry sectors. The percentage response rates by sector are as follows:

Figure 2.2: Industry Sector Profile

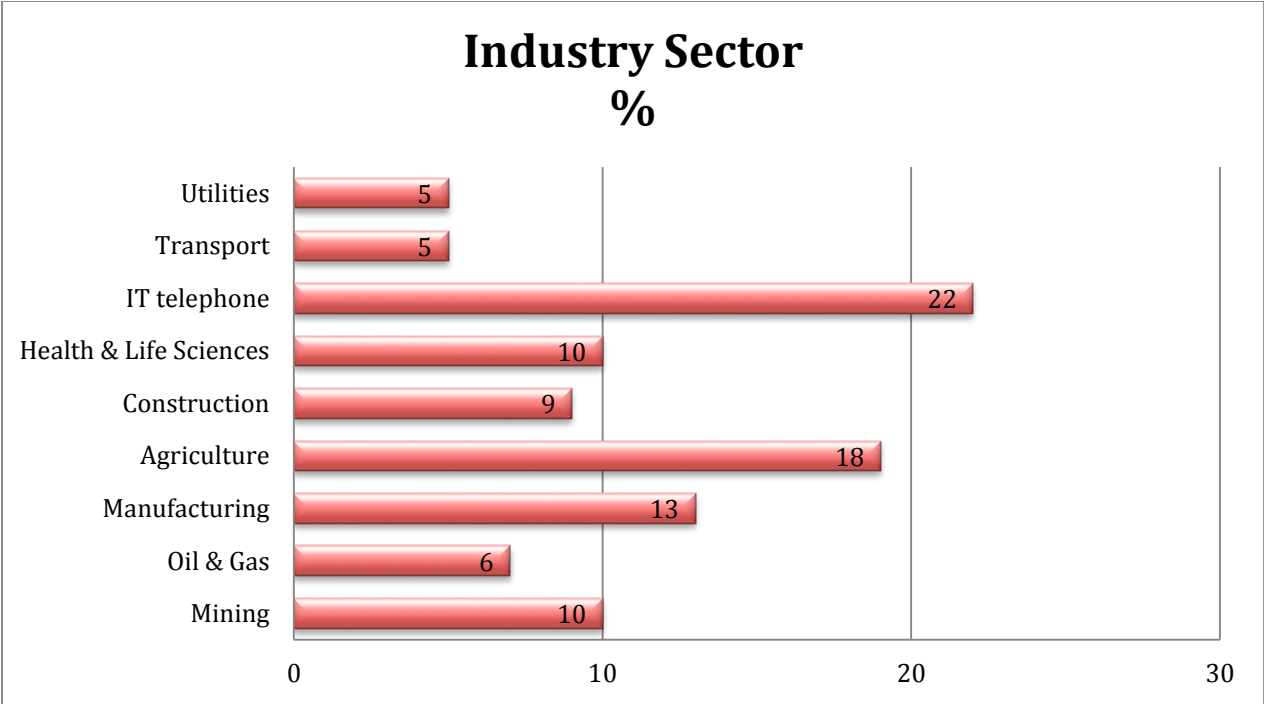
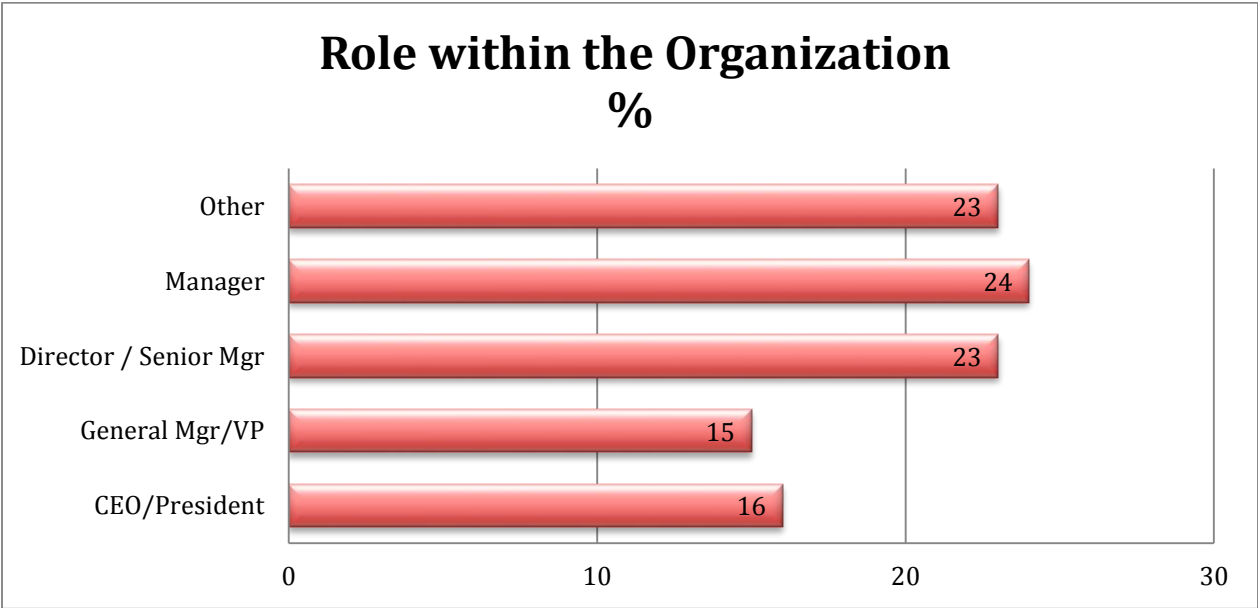


Figure 2.3 presents the demographic profile of the survey respondents by role within the organization. Seventy-eight percent of respondents indicated their role was at Manager level or above. Twenty-three percent of respondents indicated “other”, which may be a senior role within the organization but the categories presented did not fit their role. The respondents overall would represent a senior level within the organizations.

Figure 2.3: Role within the Organization



3.1 Defining and Measuring Innovation

3.1.1 Defining Innovation

Common definitions of innovation range from the simple one-dimensional approach (e.g. how much an organization spends on research and development or how many patents an economy produces) to multi-dimensional, such as an enterprise approach to innovation which includes multiple drivers and outcomes (i.e. products, services, systems, and processes).

Our definition of innovation is enterprise-based and multi-dimensional. We define innovation as the creation, development and implementation of a new product, service, process or business model, with the aim of improving efficiency, effectiveness or competitive advantage. Innovation may apply to products, services, manufacturing processes, managerial process or the design of an organization.

Strategian’s definition of innovation is enterprise-based and multi-dimensional. We define innovation as *the creation, development and implementation of a new product, service, process or business model, with the aim of improving efficiency, effectiveness or competitive advantage. Innovation may apply to products, services, manufacturing processes, managerial process or the design of an organization.* This is a more commonly accepted definition of innovation today. At the organizational level, the output of enterprise level innovation, and subsequently economic growth and sustainability, is ultimately reflected through how much value is created by organizations in an economy.

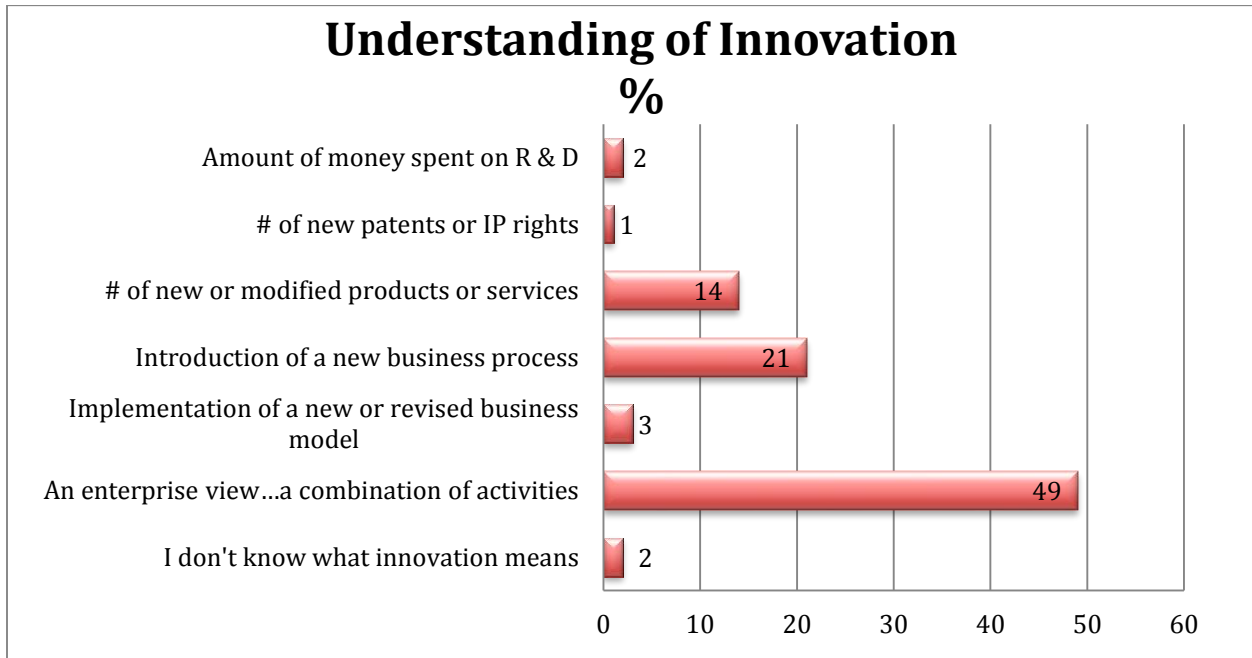
Less than 50% of respondents identified innovation as enterprise-oriented and multi-dimensional. The majority of respondents narrowly defined innovation as something very specific or uni-dimensional. This is not surprising as our experience in innovation training is that many people do not think of innovation in the broader sense and this often acts as an impediment to moving an innovation agenda forward.

There are many tenants that “drive” innovation but ultimately innovation is cultural and embedded in people’s thoughts and actions, or behaviors. From a cultural perspective we can discuss innovation in terms of *the way people think and act.* The magnitude of innovation experienced is related to the how innovation is perceived.

The survey results are discussed in Section 4 that follows. However, respondents were asked to interpret their understanding of how they defined innovation. Interestingly when given options to define innovation, less than 50% of respondents identified innovation as enterprise-oriented

and multi-dimensional. The majority of respondents defined innovation as something very specific or uni-dimensional (e.g. number of new products, improving a business process, amount spent on research and development). This is not surprising as our experience in innovation training is that many people do not think of innovation in the broader sense and this often acts as an impediment to moving an innovation agenda forward.

Figure 3.1: Respondents' Understanding of Innovation



*8% of the sample did not respond

3.1.2 Measuring Innovation

Measuring innovation has proven to be challenging. In research and in practice there have been two approaches to measuring and analyzing innovation. The macro level approach assesses the jurisdiction (e.g. country, nation) whereas the micro level approach assesses the innovativeness of an organization. However, the micro-level approach can also be used to measure the innovativeness of a jurisdiction by measuring the innovativeness of a representative sample of organizations within the jurisdiction. In fact the micro-level approach to measuring a jurisdiction's innovation state is the method used by *Strategian*. Both approaches consistently show that innovation leads to superior performance. Innovative jurisdictions have higher growth (GDP) and innovative organizations outperform their competitors (growth and profit).

As outlined in Figure 3.2 below, the approaches are sophisticated and varied, and include measuring organizational level innovation through to assessing a country's outputs such as GDP, knowledge and technology outputs (through patents), to inputs such as political and business environments, and market and business sophistication. As Figure 3.2 illustrates, whether at the jurisdictional level or organizational level the drivers of innovation lead to an innovation culture

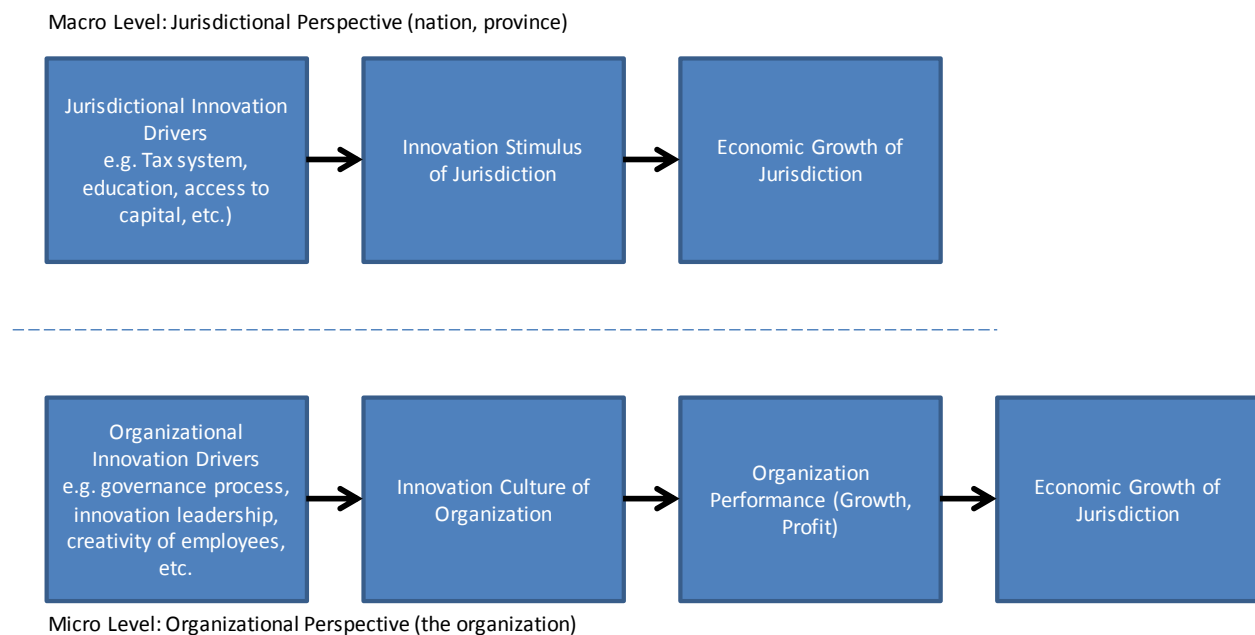
Innovation is one of the most important factors driving economies, as the aggregate level of innovation is correlated with economic growth and sustainability. Innovative jurisdictions have higher growth (GDP) and innovative organizations outperform their competitors (growth and profit).

which then leads to superior performance. Both approaches generally result in a composite or aggregate score as a percentage out of 100.

There has been a good deal of research on innovation – some of which involved the F1000 by firms like Strategos,

McKinsey, Accenture, Harris Interactive, and others. Other significant surveys of innovation include a 2005 study by Arthur D. Little and Companyⁱ, the Innovation Union Scoreboard annual survey, and the Economist’s Global Innovation Indexⁱⁱ. No matter which way innovation is measured, the varied approaches are reasonable proxies for the innovation health of a country or jurisdiction.

Figure 3.2: Approaches to Measuring Innovation



3.2 Why Innovation is Important

Innovation is one of the most important factors driving economies, as the aggregate level of innovation is correlated with economic growth and sustainability. Research has consistently shown that innovation leads to superior performance. As our own research and other studies have demonstrated, innovation and performance are highly correlated. Innovation is also linked to competitive positioning and value creation.

Although there is no optimal level of innovation health, as every economy is unique, we do know is that being more innovative is better than being less innovative. Generally speaking, jurisdictions that present composite innovation scores of 70% and higher have more consistent GDP output, and are leading economies in the world. This fact will become more evident in the section of score comparisons that follows.

Generally speaking, jurisdictions that present composite innovation scores of 70% and higher have more consistent GDP output, and are leading economies in the world.

As an example, the U.S. has recently re-focused their efforts on innovation at the organizational level, as they have realized that for sectors to remain competitive and to grow, they must innovate. Our own study of the U.S.'s top 1000 firms (as measured by top-line revenues) presents a composite innovation health index score of 68% - suggesting that much of the innovation generated by organizations is random. This score is indicative of the fact that the U.S. is not a leading innovation economy when compared to other world innovation leaders such as Sweden and Germany. The U.S. ranks anywhere from 4th to 10th on the innovation scale depending on the measure used and the factors assessed. It is also important to note that many of the world's larger economies (and GDP growth leaders) have not been assessed by standard measures commonly used due to the fact that information is either not reliable and consistent, or available.

In a recent survey done by the Boston Consulting Groupⁱⁱⁱ in the U.S., metrics including the relative priority of innovation and innovation spending are at their highest level in more than 5 years, suggesting that leaders in the U.S. are courting innovation as a source of competitive advantage. As a result, recently the Obama administration has created an environment for innovation in the U.S. to assist companies to access regional innovation clusters. These 56 clusters across the U.S. are in place to support innovation in organizations, recognizing that innovation at the organization level is the key factor in spurring GDP growth. These clusters provide, among other things:

- infrastructure for advanced collaborations amongst sectors;
- support for new processes and systems to support innovation advancements;
- innovation skills development; and
- matching funding to support innovation initiatives.

This is consistent with business needs in the U.S., many of which are at the front end of an innovation system: for example, innovation goals are being discussed, cultures re-jigged, and for the first time efforts are being made to tie performance metrics to innovation outcomes.

As provinces, states and countries re-orient their attention to innovation, organizations are likewise pursuing an innovation agenda to achieve superior performance. The following table illustrates recent research related to innovation focus and performance.

Table 3.1: Innovation Research Related to Organizational Performance

Research Illustrating how Innovative Organizations have Superior Performance	
<i>Booz & Company Global Innovation 1000 Study, 2010</i>	Companies that focus on a set of innovation capabilities most consistent with their innovation strategy and tightly aligned with their overall corporate strategy reported higher profit margins than their competitors, by up to 22%.
<i>Arthur D. Little Consulting Innovation Survey, 2005</i>	Innovation excellence can boost EBIT by 4% and top innovative companies have 2.5 times higher sales of new products, and get more than ten times higher returns from their innovation investments.
<i>Accenture Process & Innovation Performance Survey, 2009</i>	89% of executives agree that innovation is as important as cost management for success, yet only 15% of companies are <i>satisfied</i> with their innovation platform. Most companies say innovation is critical, but do not take the bold steps necessary to maximize success.
<i>Boston Consulting Group Senior Executive Innovation Survey, 2009</i>	64% of senior executives agree that innovation remains a top strategic focus.
<i>Harris Interactive Fortune 1000 Executives' Perspectives on Enterprise Innovation, 2010</i>	The vast majority of executives say enterprise innovation is extremely or very important for driving business growth and profitability. It is also a factor in attracting and keeping talent, and brand prestige.
<i>Strategian peer reviewed research on 'The Relationship between an Innovation Orientation and Competitive Strategy,' 2010</i>	Enhancing the innovative ability in organizations is one of the most important levers to increasing profitability and growth in organizations.

To summarize, the key message of why innovation is important is because innovation leads to superior performance, whether at the organization level or collectively at the jurisdiction level.

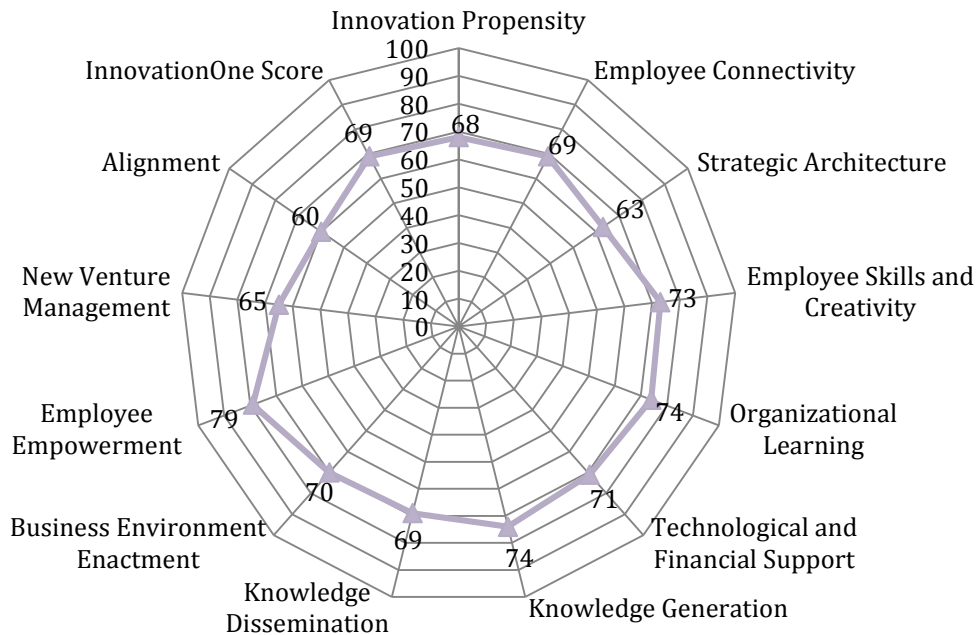
4 Survey Results

4.1 The *InnovationOne* Innovation Health Index Score

Figure 4.1 represents the innovation score of the organizations surveyed in the Province of Saskatchewan. As the figure indicates the overall innovation health index (IHI) score is 69%. This is a respectable score, but certainly a score that allows room for improvement. The following section discusses the score as compared to other jurisdictions and from an innovation driver perspective.

Figure 4.1: *InnovationOne* Innovation Health Index Score for Saskatchewan

Saskatchewan - All: *InnovationOne* Profile Score - 69%



The *InnovationOne* diagnostic contains twelve drivers of innovation in an organization. These drivers can be framed or grouped into four dimensions as Figure 1.1 illustrates: Innovation Intent (Leadership), Innovation Infrastructure (Resources), Innovation Influence (Knowledge

Management) and Innovation Implementation (Execution) as illustrated in the *InnovationOne* Model.

4.1.1 Innovation Intent (Leadership)

Saskatchewan organizations are starting to identify innovation as a priority focus and traction is starting to cascade to the employee level.

Every organization and divisions within organizations are unique, and the elements that comprise an innovation orientation will vary depending on the current culture of the organization. There is however a common starting point for innovation. This point is concerned with organizational readiness and commitment to become innovative. The essence of innovation leadership is to establish organizational readiness and communicate a commitment to becoming innovative.

The survey results suggest that Saskatchewan organizations are starting to identify innovation as a priority focus and traction is starting to cascade to the employee level. This is seen through the scores of innovation propensity (68%) and employee connectivity (69%). However, there is significant room for improvement on this front. In our experience organizations can impact the innovation propensity and employee connectivity scores relatively easily through enhanced efforts in communicating the commitment to innovation to all employees.

Saskatchewan organizations are less successful in the strategic infrastructure driver (63%). What this means is that Saskatchewan organizations find it difficult to create strategic infrastructure to promote and encourage innovation. In other words, although an organization may have identified innovation as a strategic priority and communicated this intent to employees, the planning processes, goals and objectives remain anchored in the past.

It is not enough to communicate your innovation intent. Inadequate planning and governance processes will act as a barrier to innovation and will impede the organization's ability to communicate their innovation intentions. Innovative organizations that excel and score high on strategic infrastructure have a clear innovation strategy; they have created and communicated innovation goals and objectives; and they have aligned them to their strategic agenda.

Saskatchewan organizations are less successful in the strategic infrastructure driver (63%). What this means is that Saskatchewan organizations find it difficult to develop the strategic infrastructure to promote and encourage innovation.

4.1.2 Innovation Infrastructure (Resources)

Pursuing an innovation orientation is a long-term commitment that requires both financial and human resources. For many organizations, this involves a major change in mindset and fundamentally different ways of doing things. Innovation Infrastructure involves the resources that are either available (or committed) to support innovation efforts. The tenants that improve innovation infrastructure are related to employee skills and creativity, organizational learning and technical/financial support.

Saskatchewan organizations generally feel that their employees have the skill and creativity to be innovative. The organization has a basic ability to learn from their environment to the extent that the learning can contribute to innovation. This was an interesting finding in that compared to a recent Fortune 1000 survey, US companies scored much lower on this driver.

Saskatchewan organizations scored higher in this quadrant compared to the overall average. Scores for employee skills and creativity (73%) and organizational learning (74%) were 4-5% higher than the overall innovation score. This suggests that Saskatchewan organizations generally feel that their employees have the skill and creativity to be innovative. Further the organization has a basic ability to learn from their environment to the extent that the learning can contribute to

innovation. This was an interesting finding in that compared to a recent Fortune 1000 US companies who scored 63% on organizational learning Saskatchewan organizations are doing much better at organizational learning. The variation in the organizational learning driver between Saskatchewan organizations and US Fortune 1000 is likely explained through the smaller size of Saskatchewan organizations. This provides an opportunity for Saskatchewan organizations. Whereas large US organizations were challenged to leverage their investments in training and development into innovation, this appears to be less of an issue with smaller Saskatchewan organizations.

The lowest scoring driver in this quadrant was technology and financial support (71%). However, this driver still scored higher than the overall innovation score of 69%. Technology and financial support is predicated on the principle that in order to be innovative, the financial and technology infrastructure needs to be in place to support innovation. We know from existing research that access to capital is a significant driver that many nations and provinces focus on, and rightly so. A score of 71% indicates room for improvement but technology and financial support are not the biggest barriers to innovation in Saskatchewan organizations according to the survey results. A closer look at the demographic segments suggested that the technology and financial support driver did score lower for smaller organizations. However, there was an insufficient sample size to statistically support this proposition. What this suggests is that the larger organizations (greater than \$100 million in sales) may be skewing this driver as large organizations feel there is adequate technology and finances within their organizations to innovate compared to smaller organizations.

4.1.3 Innovation Influence (Knowledge Management)

The foundation for innovation is knowledge and innovation and the foundation is realized in the ability to use knowledge to identify and pursue opportunities and initiatives. This capability will be evident in the organization's ability to equip employees with the necessary knowledge management environment and behaviours to support idea generation and engagement.

Knowledge management describes the market sensing and contextual awareness behaviours of employees. This involves the extent to which employees generate knowledge on stakeholders, customers, competitors, the industry, as well as their understanding of value chain or cluster in

which they operate. This form of knowledge is broad-based and should involve all employees, allowing them to more effectively anticipate stakeholder or customer needs, and consider the impact of changing competitive landscapes. Its aim is to develop an understanding in these areas and integrate this information into decision making processes. The ability for employees to influence their relevant 'opportunity space' and identify potential vulnerabilities will map paradigm shift ideas and drive product and service modifications and new offerings.

Saskatchewan organizations are doing a better job at generating knowledge (74%) than they are with disseminating knowledge (69%) internally and using the knowledge to impact their business environment (70%). Saskatchewan organizations have invested in an abundance of systems oriented towards enhancing their knowledge (i.e. customer relationship management, business intelligence, learning management, supply chain management), and this survey shows that from an innovation perspective, a gap still remains in respect to leveraging knowledge generation so that employees can more effectively enact with their environment.

For example, organizations are better at collecting information about their customers, but less successful at communicating the information collected in a meaningful manner – to the right people in the organization. Additionally, the ability to convert customer information into new products or services or alternative value chain models is less successful than the organization's ability to generate knowledge. It is also apparent that employees generally lack sufficient knowledge outside of what we would consider their 'relevant boundaries' to generate value added or disruptive innovations.

4.1.4 Innovation Implementation (Execution)

Innovation Implementation assesses the organization's ability to execute value-added initiatives. There are three drivers within this dimension – employee empowerment, new venture management, and alignment.

Saskatchewan organizations are doing a better job at generating knowledge (74%) than they are with disseminating knowledge (69%) internally and using the knowledge to impact their business environment (70%).

The most significant innovation gap was found in the execution dimension. To effectively innovate, employees need to be empowered to embrace new ideas and be comfortable with the associated risk. Saskatchewan organizations clearly felt that it was not the employees that were the barrier to new ideas and risk, scoring the employee empowerment driver at 79%. The perception of executives was that employees were capable and willing to create new ideas and enact opportunities.

The most significant innovation gap within Saskatchewan organizations was found in the execution dimension. The barriers to execution were more operationally and strategically oriented. Saskatchewan organizations felt that the 'processes' and 'institutions' organizations created internally impeded the employee's ability to manage new ideas and ventures. Further, respondents felt that these processes and institutions were not aligned in a manner that enabled employees to embrace innovation.

Rather, the barriers to execution were more operationally and strategically oriented. Saskatchewan organizations felt that the 'processes' and 'institutions' organizations created internally impeded the employee's ability to manage new ideas and ventures (65%). Further, executives felt that these processes and institutions were not aligned in a manner that enabled employees to embrace innovation (60%).

Qualitative responses described organizations that had a multitude of processes, goals, innovation priorities and performance management programs loosely oriented towards innovation. However, understanding how these drivers "fit" and "align" is a complicated puzzle impeding the innovation culture.

4.2 Comparing the Saskatchewan Score to Other Jurisdictions

Our findings would suggest that Saskatchewan is relatively average when compared to other jurisdictions. Although this score is respectable, it indicates that Saskatchewan organizations, on average, are only marginally innovative, and that there is room for improvement.

Our findings would suggest that Saskatchewan is relatively average when compared to other jurisdictions. There is no doubt that Saskatchewan is home to some innovative organizations. The mean IHI result for Saskatchewan survey respondents is 69%. Although this score is respectable, it indicates that Saskatchewan organizations, on average, are only marginally innovative, and that there is room for

improvement. While a composite score of 69% compares favorably with scores in Canada, the United Kingdom, the Netherlands, the EU 27 Average, and Greece, it lags Finland, Switzerland, Sweden and Germany.

Figure 4.2: Saskatchewan Score Comparisons

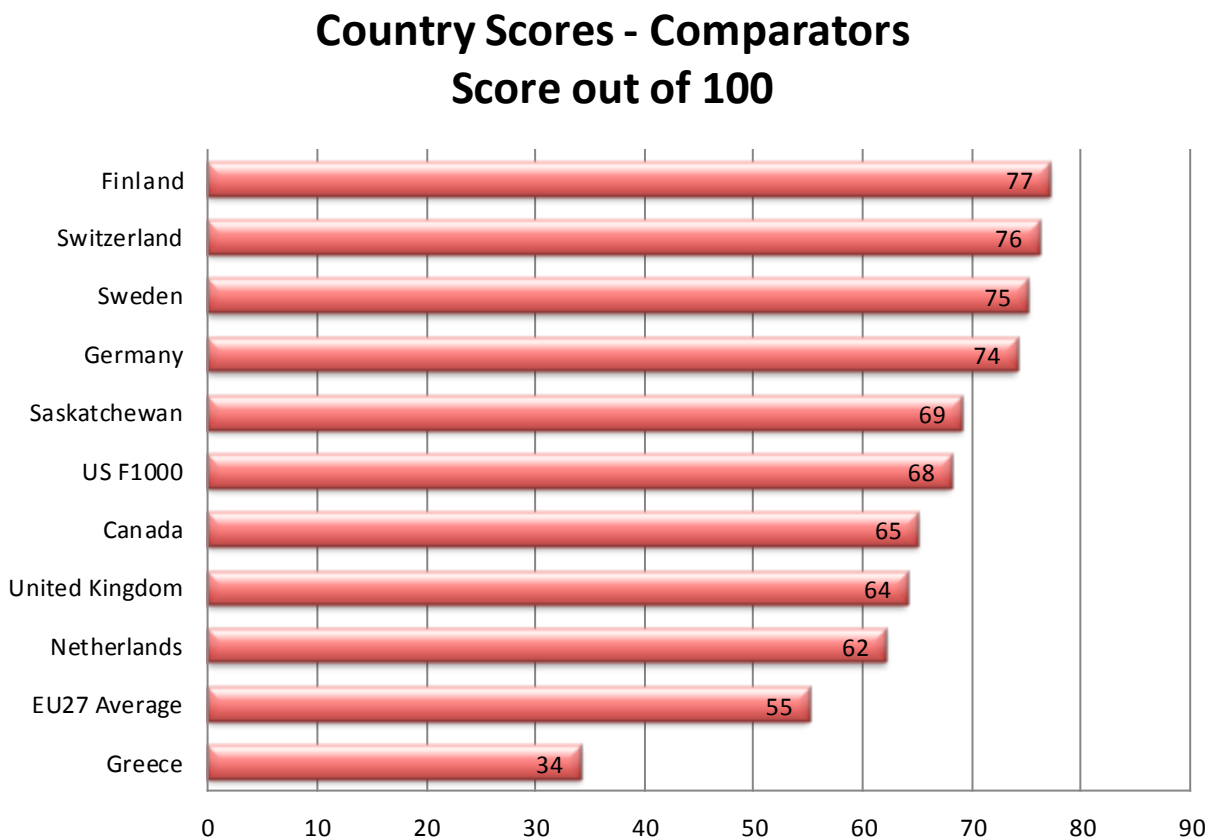


Figure 4.2 above is based on *Innovation Union Scoreboard 2011* (Research and Innovation Union Scoreboard -- Pro Inno Europe Inno Metrics). This provides measures of innovation for member countries using the European Innovation Scoreboard (EIS) methodology.

The broad conclusion that can be drawn from looking at multiple country-based innovation health rankings is that Saskatchewan remains in the middle of the pack.

The 69% IHI aggregate score for Saskatchewan organizations suggests that most innovation that happens is an event, that is to say, it is random. Although many organizations have the intention to be innovative, many companies surveyed do not have an explicit innovation strategy.

The following figure provides an assessment of the Saskatchewan innovation score compared to Canada using the *InnovationOne* profile.

Figure 4.3: Saskatchewan and Canada Score Comparisons

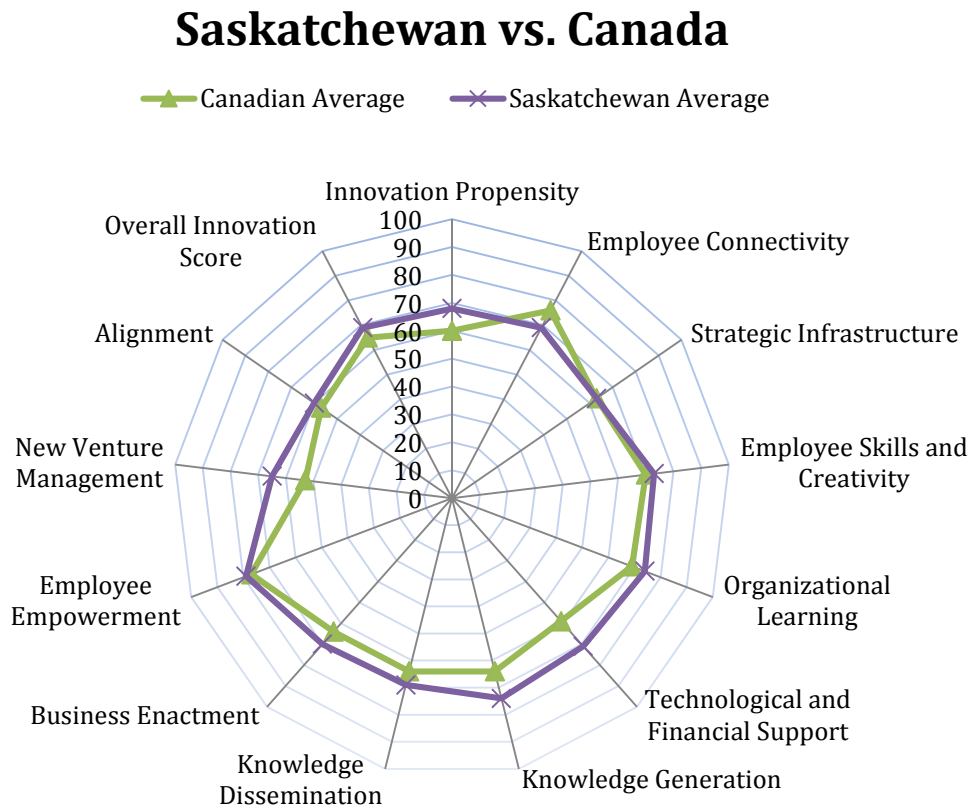


Figure 4.3 illustrates that Saskatchewan has a similar pattern compared to Canada, but generally outperforms Canada on most individual drivers. The conclusion reached is that Saskatchewan is slightly more innovative than Canada in general.

4.3 The Four Quadrants of Innovation

Innovation in organizations can be systematically managed. Most organizations – as determined on the basis of their IHI, can be placed in one of the four quadrants of innovation presented in Figure 4.4.

Incremental and Random

The first quadrant is the “incremental and random” quadrant, which typically involves organizations who score between 60%-69%. Innovation may occur in these organizations, but innovation is not being systematically managed. Therefore, when innovation does occur it is usually a result of a random event versus the organization’s efforts to manage innovation. When innovation does occur, it is usually on a smaller scale or incremental. A significant number of Saskatchewan organizations would be in this quadrant, although many organizations and some specific industry sectors would be scoring in the next quadrant, “planned and incremental.” We have included the survey

Our findings suggest that Saskatchewan organizations fall into the quadrant of incremental and random innovation meaning that when innovation does occur, it is usually on a smaller scale or incremental. Ideally, organizations should be in the planned and incremental quadrant. This scale of innovation often leads to transient advantages in the marketplace.

results of the US Fortune 1000 and the aggregate of Canadian organizations we have surveyed for comparison purposes. Also, it should be noted that organizations that score below 60%, still fall in this category, but realistically the odds of innovation occurring in these organizations becomes more remote as the score decreases. An example of this is a country such as Greece. Although different measurement tools were used to measure the innovation state of Greece, the low score would suggest that innovation is unlikely to occur in Greece organizations.

Planned and Incremental

The second quadrant is the “planned and incremental” quadrant, for organizations that score between 70%-79%. In this quadrant, organizations have sufficient maturity in the innovation drivers within their organization to achieve planned innovation. The drivers result in a systematic approach to innovation and as such, the probability of innovation increases. Typically in this state, the innovation is still oriented towards incremental improvements versus large scale radical innovation. We have included country comparisons in this quadrant for reference. The countries of Germany, Finland, Sweden and Switzerland continually score higher in innovation scores than Canada and the United States. Although these scores came from alternative measurement methodologies, the scores suggest that a higher proportion of organizations in these countries have innovation maturity to indicate a systematic approach to innovation.

Planned and Radical

The third quadrant is the “planned and radical” quadrant for organizations that score between 80%-90%. Not only is the maturity of the innovation drivers sufficient to result in systematic approach to innovation, but the culture of innovation is sufficiently robust to produced radical innovation. We have included the examples of organizations such as Apple and Dyson who have consistently shown the ability to introduce large scale innovation on a consistent basis. As overall scores of a jurisdiction increase, the higher the probability that miscellaneous organizations will reach the “planned and radical” quadrant.

Radical and Random

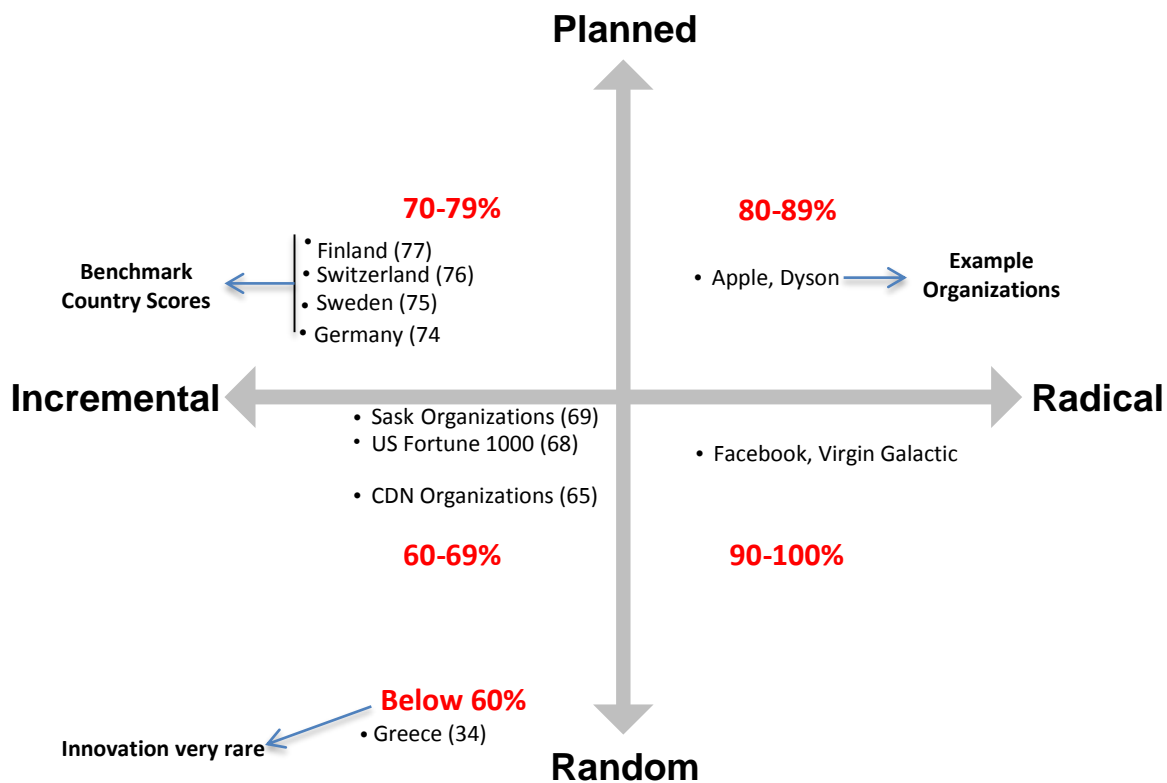
The final quadrant is the “radical and random” quadrant for organizations that score greater than 90%. These are innovations that occur randomly and are so radical that entire new industries are created. Examples of organizations that have achieved this quadrant are Facebook and Virgin Galactic. These innovations are rare and occur very infrequently.

For many organizations and we would argue for many economies, including Saskatchewan, the critical advancement is to move firmly into the “planned and incremental” quadrant. This

For many organizations and we would argue for many economies, including Saskatchewan, the critical advancement is to move firmly into the “planned and incremental” quadrant. This quadrant allows for innovation to be systematically managed and as such innovation results will occur.

quadrant allows for innovation to be systematically managed and as such innovation results will occur. Collectively if the majority of organizations score in the 70% - 79%, than performance outcomes will improve through innovation. As well if the average of all organizations becomes firmly entrenched in the “planned and incremental” quadrant, a higher probability will be achieved of having miscellaneous organizations achieve “planned and radical” results.

Figure 4.4: The Four Quadrants of Innovation



4.4 Results by Industry Sector

Innovation Saskatchewan is mandated with providing recommendations and advice to the Saskatchewan Government regarding innovation activities, and further coordination of the Province’s innovation activities. In efforts to develop a framework for planning, IS has identified 9 sectors – both primary sectors as well as value chain and enabling sectors. The idea is that innovation efforts should be directly focused on Saskatchewan’s jurisdictional advantages, or that build on or are connected to areas where Saskatchewan has jurisdictional advantage. Specifically, initiatives not connected to the Province’s advantages are more likely to fail or move to a jurisdiction where they are better aligned to that jurisdiction’s advantages.

To align the results of the Province’s innovation health with sectors, and to ascertain if there were any differences by industry a sector analysis was performed. Innovation varied by industry sector similar to other studies we have performed. Generally speaking, industries such as technology are “tooled” to be more innovative, whereas traditional industries such as mining and utilities lag on innovation scores. However, higher scoring industries face competitors with similar scores. Transient and sustainable competitive advantage is only achieved when an organization outperforms the industry average in innovation. As can be seen by Figure 4.5, health and life sciences and IT scored the highest, whereas utilities and transportation scored the lowest. Mining, oil and gas, construction, manufacturing and agriculture were close to the

average. The general conclusion is that targeted improvements can be made across all industry sectors. Our analysis also includes an *InnovationOne* model for each industry sector (Figures 4.6 to 4.14). As a cautionary note, the statistical validity of the model decreases when interpreting the individual driver score at the sector level as the sample size decreases.

Figure 4.5: Innovation Health Index Score by Industry Sector

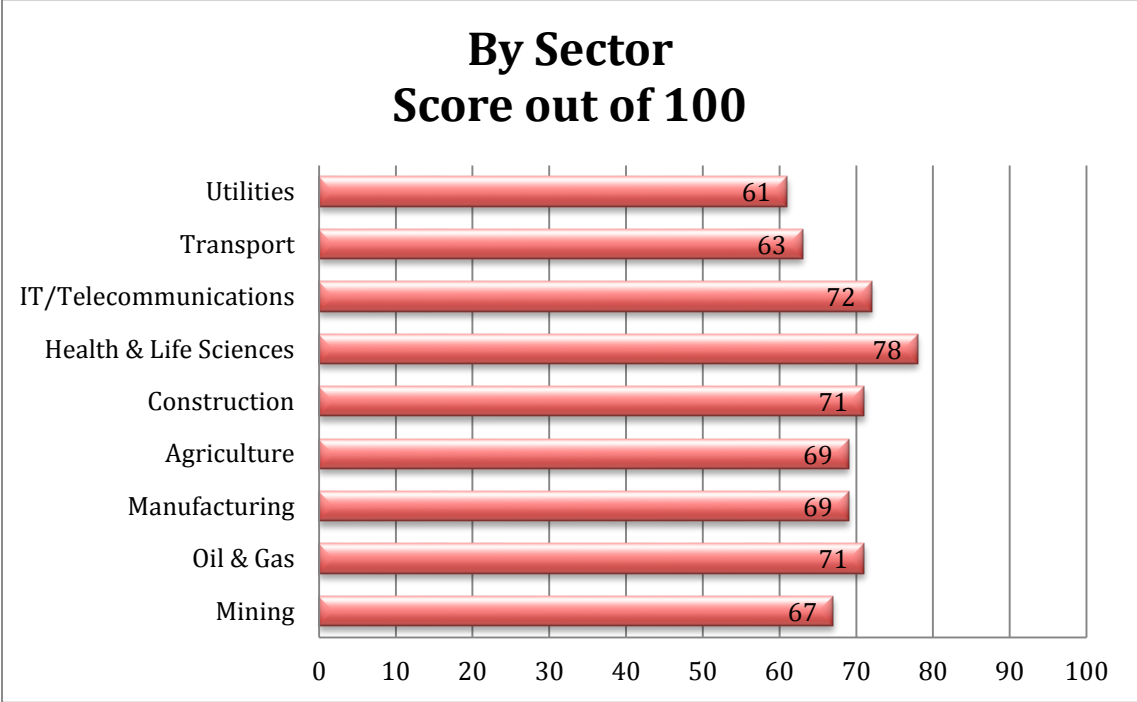


Figure 4.6: Innovation Health Index Score: Utilities

Saskatchewan - Utilities Sector Innovation Profile Score - 61%

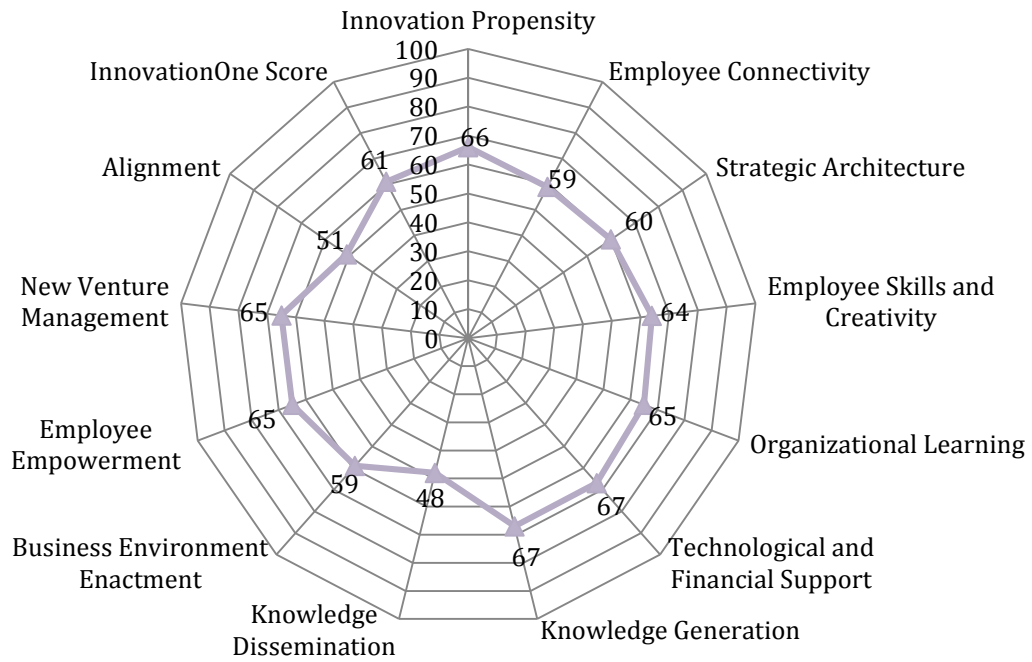


Figure 4.7: Innovation Health Index Score: Transportation

Saskatchewan - Transportation Sector Innovation Profile Score - 63%

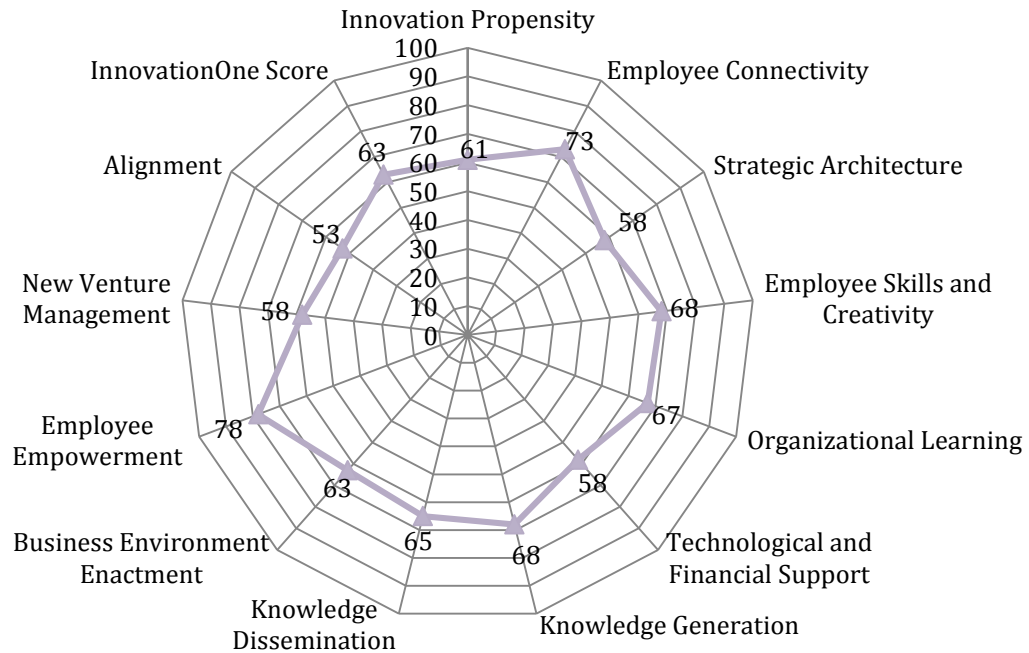


Figure 4.8: Innovation Health Index Score: Information Technology/Telecommunications

Saskatchewan - IT/Telecommunications Sector Innovation Profile Score - 72%

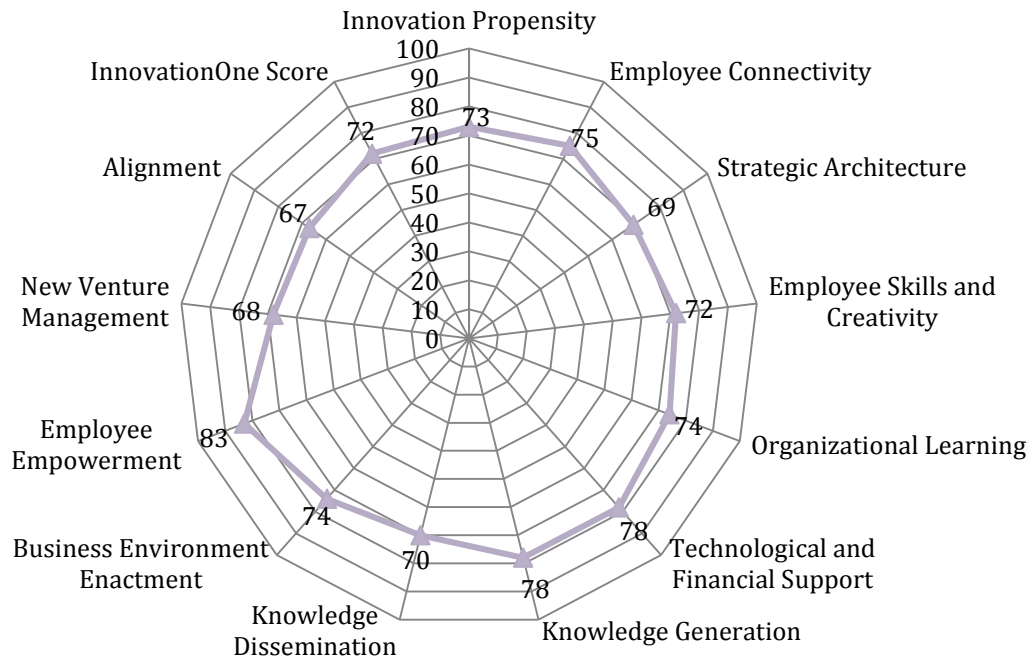


Figure 4.9: Innovation Health Index Score: Health/Life Sciences

Saskatchewan - Health/Life Sciences Sector Innovation Profile Score - 78%

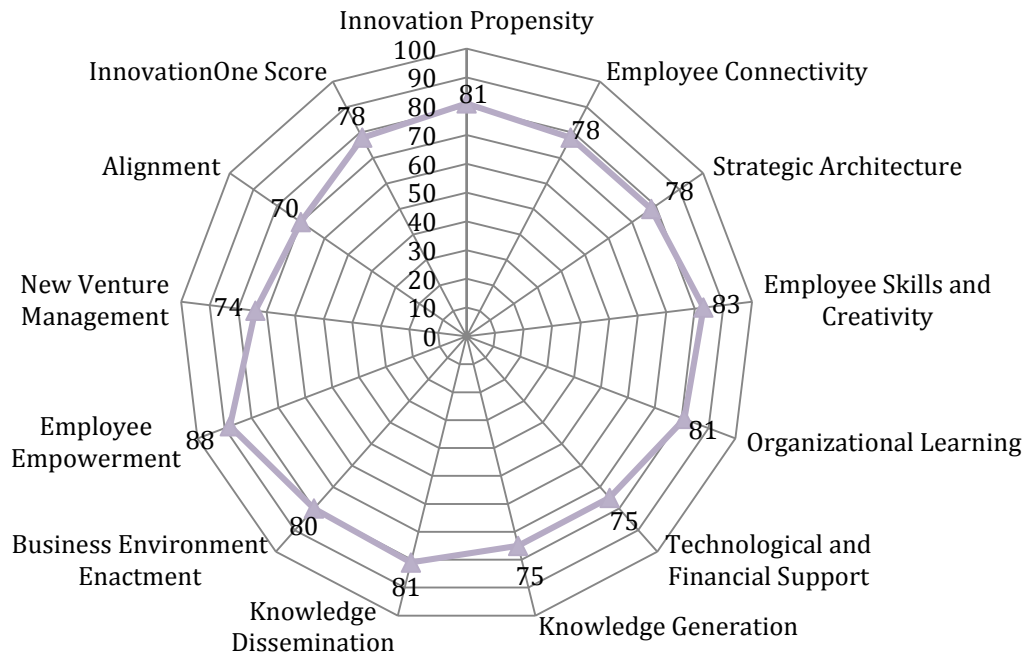


Figure 4.10: Innovation Health Index Score: Construction

Saskatchewan - Construction Sector Innovation Profile Score - 71%

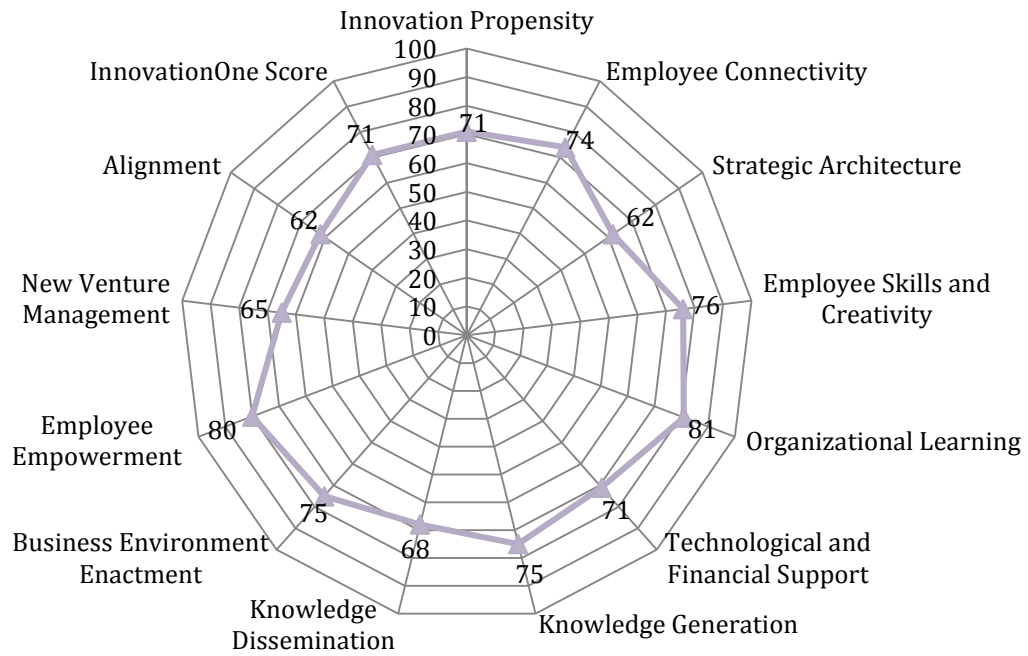


Figure 4.11: Innovation Health Index Score: Agriculture

Saskatchewan - Agriculture Sector Innovation Profile Score - 69%

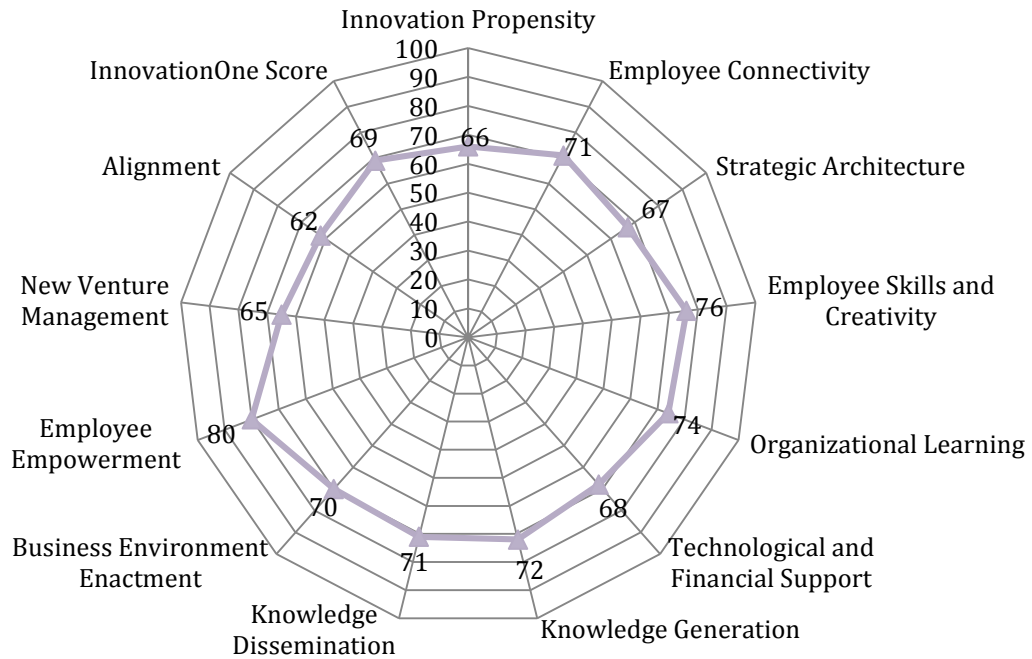


Figure 4.12: Innovation Health Index Score: Manufacturing

Saskatchewan - Manufacturing Sector Innovation Profile Score - 69%

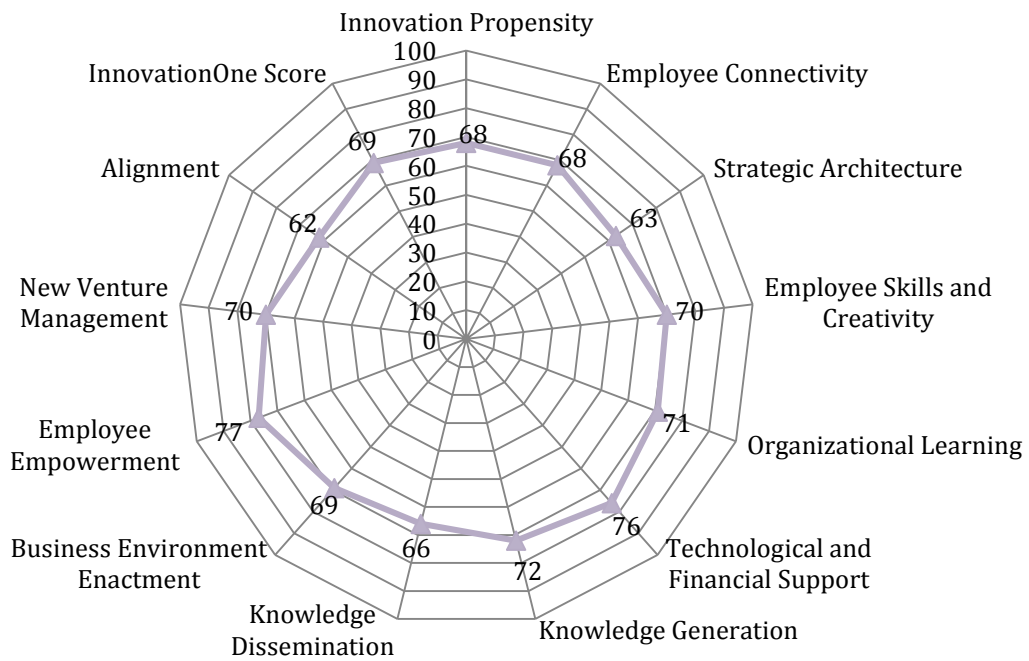


Figure 4.13: Innovation Health Index Score: Oil and Gas

Saskatchewan - Oil and Gas Sector Innovation Profile Score - 71%

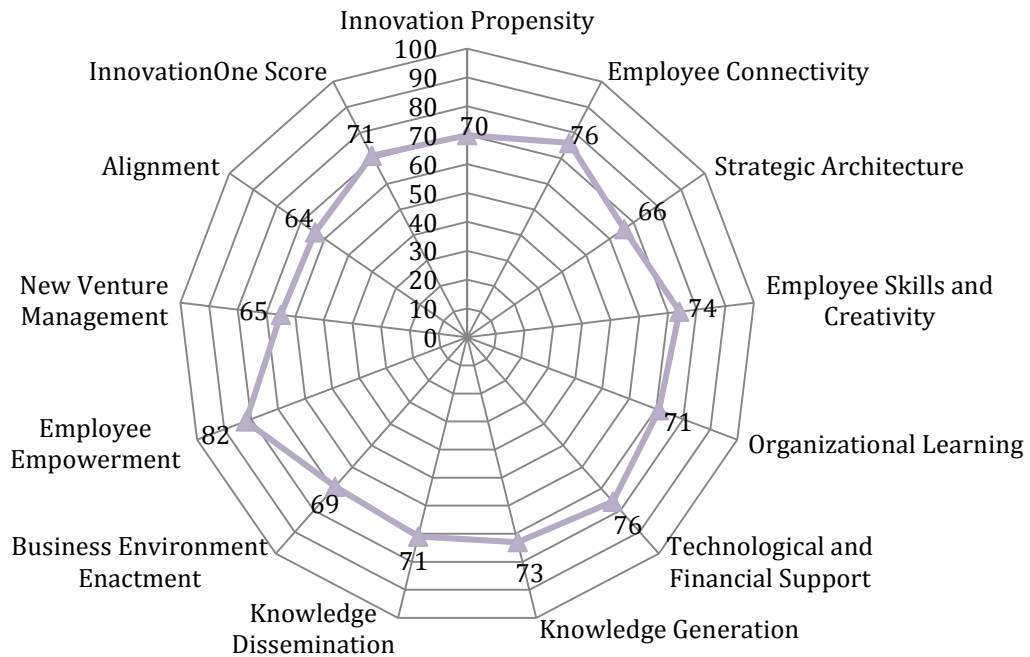
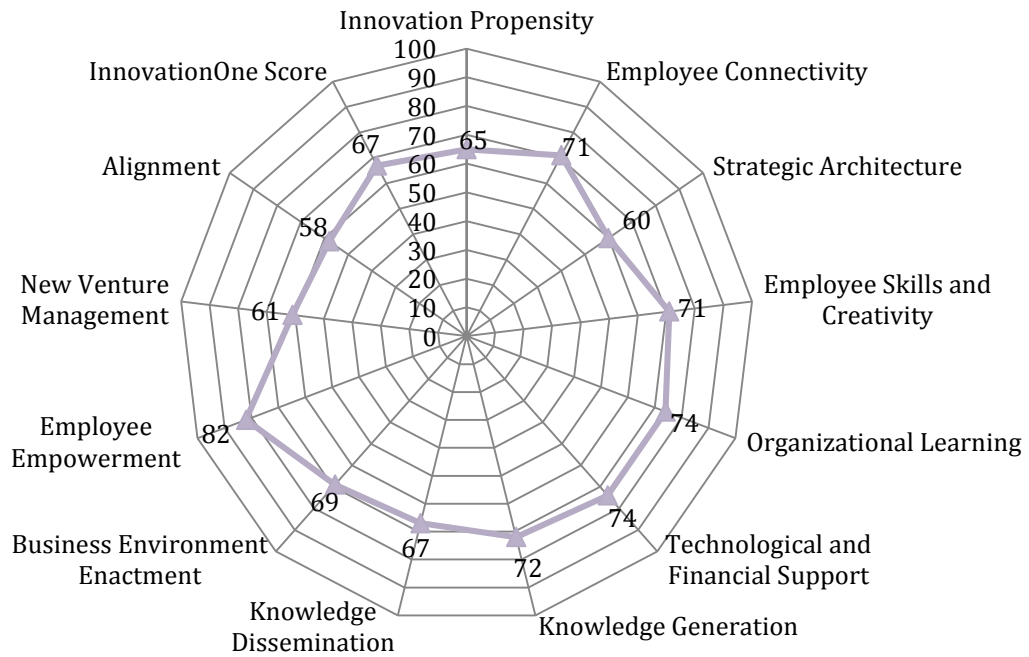


Figure 4.14: Innovation Health Index Score: Mining

Saskatchewan - Mining Sector Innovation Profile Score - 67%



4.5 Results by Level of Optimism

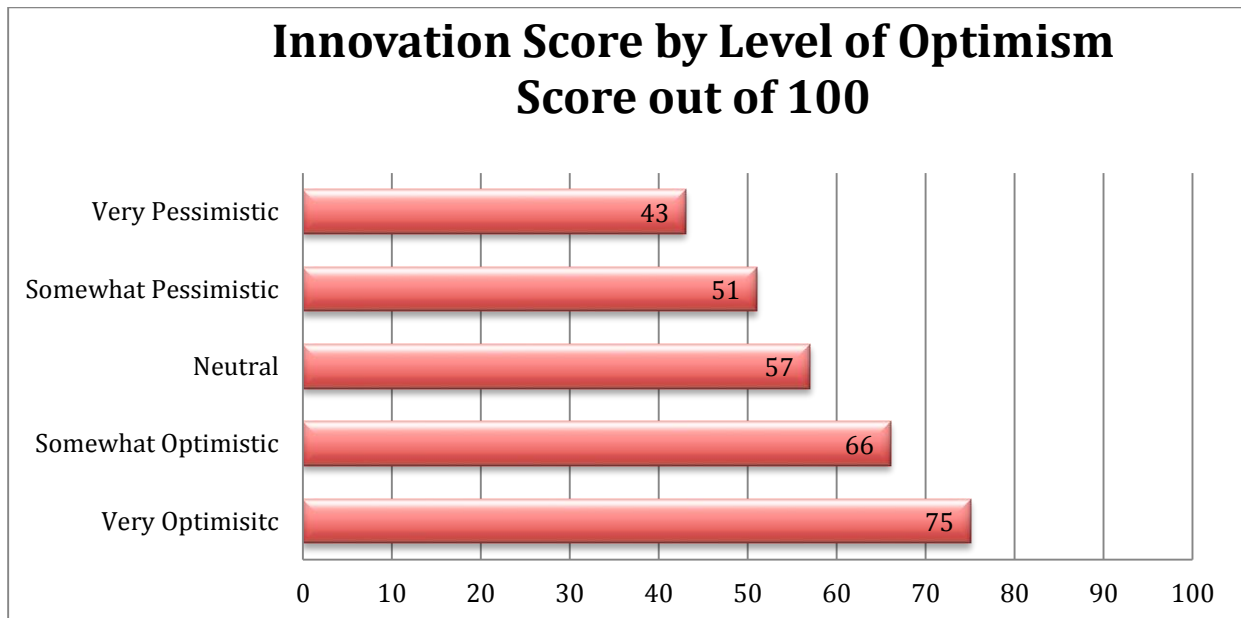
Survey respondents were asked what their level of optimism was for the future (very optimistic, somewhat optimistic, neutral, somewhat pessimistic and very pessimistic). Eighty-four percent of respondents indicated they were either very optimistic or somewhat optimistic for the future. The high percentage clearly indicates a level of optimism for the future and bids well for the confidence of Saskatchewan's future.

Eighty-four percent of respondents indicated they were either very optimistic or somewhat optimistic for the future. The high percentage clearly indicates a level of optimism for the future and bids well for the confidence of Saskatchewan's future.

Interesting there is a notable correlation between the level of optimism and the innovation score. Figure 4.15 reports that respondents who were more optimistic had higher innovation scores. Respondents who rated the future as either very optimistic or somewhat optimistic had aggregate innovation scores of 75 and 66 respectively. Respondents who rated the future as neutral, somewhat pessimistic or very

pessimistic had innovation scores of 57, 51 and 43 respectively. Clearly for the group that was not optimistic, the low scores indicate that very little innovation is taking place in these organizations.

Figure 4.15: Innovation Health Index Score by Level of Optimism



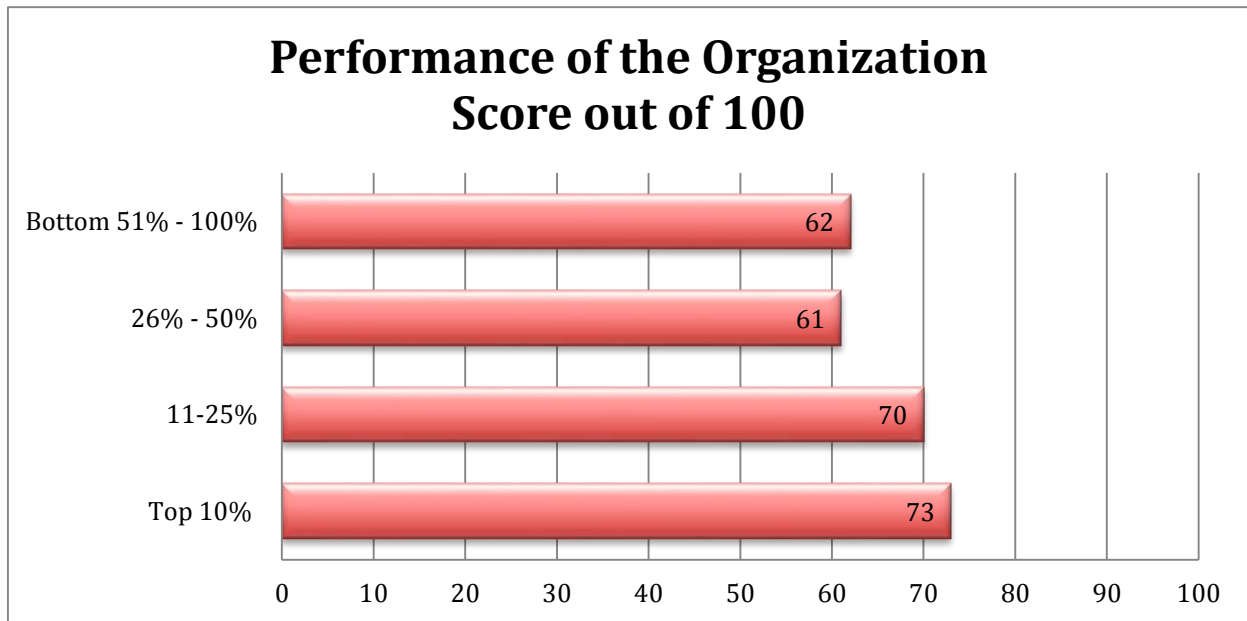
4.6 Results by Level of Performance

In section 3.2, 'Why is Innovation Important' the report presented research that supported the notion that the level of innovation of an organization is linked to superior performance. Our analysis determined a similar finding in the survey respondents. This finding is consistent with established research and highlights

the importance of innovation as a key tenant to performance. Figure 4.16 illustrates that the top performing organizations had higher IHI scores than the bottom performing organizations. Performance was assessed by asking the respondents how their organization compared to competitors. This approach is often used as a proxy of performance if actual performance of the respondent's organization cannot be measured.

Top performing organizations had higher innovation scores than the bottom performing organizations. The differences were as much as 12%.

Figure 4.16: Innovation Health Index Score by Level of Organizational Performance



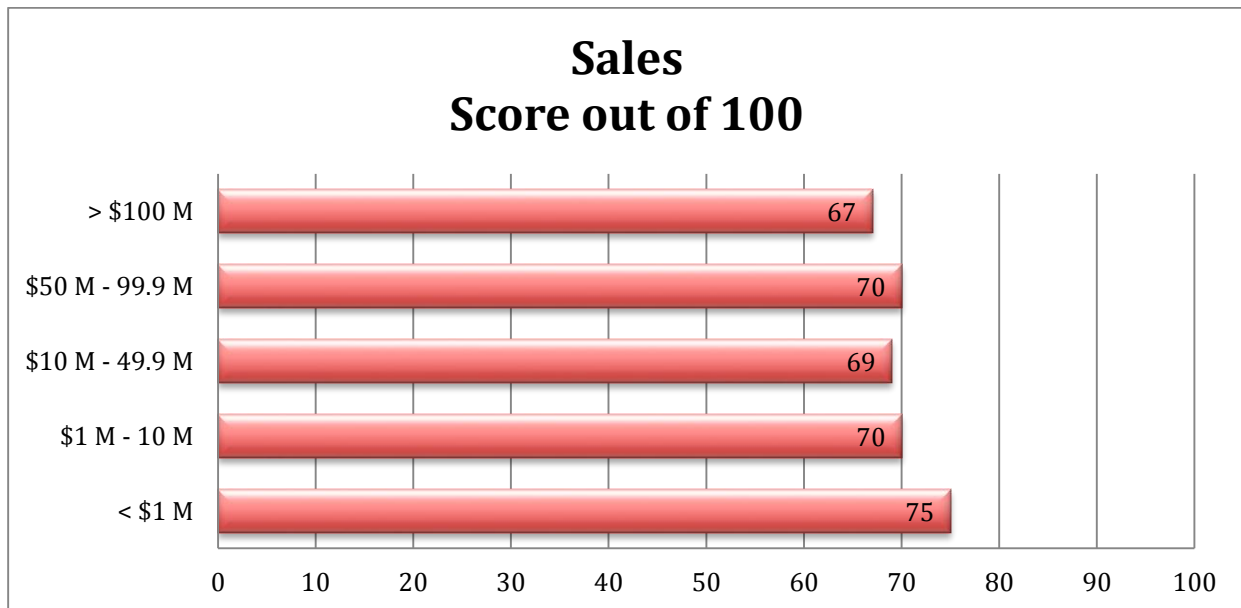
4.7 Results by Organization Size

Smaller organizations have an advantage to be more innovative because they have fewer barriers within the organization. As organizations become larger bureaucracies can often develop that inhibit innovation.

Are larger organizations less innovative? The answer is no, although smaller organizations have an advantage to be more innovative because they have less barriers within the organization. As organizations become larger bureaucracies can often develop that inhibit innovation. For example communicating the importance of innovation in a large organization often

involves larger scale and more formalized communication processes. In smaller organizations, communication can be accomplished more easily on a personal level. Not surprisingly, as Figure 4.17 shows, smaller organizations scored higher on the innovation compared to larger organizations. However, the range was relatively consistent for organizations with a size between \$1 Million and \$99.9 Million in sales. Polarization was observed at the extreme end of the continuum with organizations greater than \$100 Million in sales scoring 67 and organizations with less than \$1 Million in sales scoring 75.

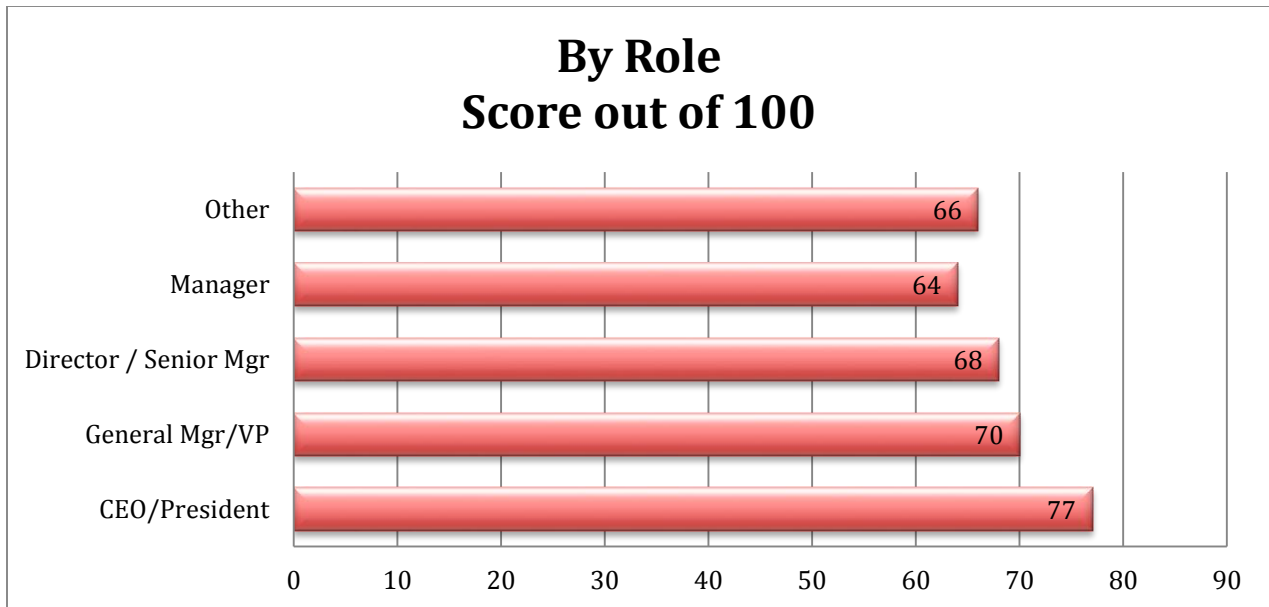
Figure 4.17: Innovation Health Index Score by Organization Size



4.8 Results by Role

The survey identified the respondent's role within the organization. The following figure illustrates that the more senior the role in the organization, the more innovative the respondent felt their organization was. This is an interesting finding and consistent with many organizations we have analyzed. What this means is that organizational leaders may be attempting to be innovative through their organizational activities. However, their innovation efforts are not resonating with their employees to the extent that senior leadership has intended.

Figure 4.18: Innovation Health Index Score by Respondent Role



5

Qualitative Responses

The survey included open-ended questions related to two important topics: innovation challenges and thoughts on improving innovation in the Province of Saskatchewan. Responses were captured and coded into themes. The following section provides an overview of the themes.

5.1 Respondents' Perspective on the Greatest Innovation Challenge

At the end of the survey, participants were asked for a personal perspective on what the greatest challenges were in their particular organizations relative to advancing the innovation agenda. There were a total of 185 written responses. Many of these responses identified multiple issues, for a total of 224 issue-related comments. The comments identify 9 different themes related to the

Participants were asked for a personal perspective on what the greatest challenges were in their particular organizations relative to advancing the innovation agenda. The comments identify 9 different themes related to the challenges of innovation.

challenges of innovation. The parenthesis captures the number of responses and percentage total of responses related to the theme. They are listed as follows:

Theme 1: Organizational Malaise - This includes structural issues, orientation, mindset, resistance to change, inertia, status quo, risk aversion. (45; 20%)

“While there are people and pockets within the organization that are willing to change, largely the culture is one of change resistance and inertia. There exists a bias for the status quo, and unwillingness for individuals to take risks.”

Theme 2: Inadequate Tools and Processes. This includes tools, processes and training. It also encompasses the concept that processes do not permit timely arrival of innovations to market. This includes organizational processes that are over-bureaucratized. (36; 16%)

“Too little time is spent on planning and evaluating change and innovation in our organization. The current workload is high and there is a need to find a way or process to do this more effectively”

Theme 3: Human Resources. This involves having access to the necessary personnel to innovate. (35; 16%)

“There is a lack of high quality people and skilled labour.”

Theme 4: Lack of Financial Resources. This includes funding and resources for investments in innovation. It refers to financial support both from private and public sources. (30; 13%)

“In Saskatchewan the biggest problem is always finding capital for investment.”

Theme 5: Insufficient Understanding & Commitment. This includes senior management’s understanding of innovation and its support for and commitment to it. (23; 10%)

“Our company leadership needs to seek, develop and lead initiatives that respond to new opportunities.”

Theme 6: Regulatory Challenges. This involves compliance, regulatory and legal issues. (18; 8%)

“Excessive regulatory requirements and oversight is a luxury and a hindrance to the development of innovative 'out-of-the-box' opportunities.”

Theme 7: Business Case. This involves building the business case for innovation and getting beyond the restrictions of the economic cycle and short-sighted cost analyses that favour the status quo or reactionary responses to business problems. (18; 8%)

“Innovation is sometimes overlooked to meet/maintain budget requirements.”

Theme 8: External Support. This involves gaining customer and other stakeholder input to drive innovation, and their acceptance of innovation outputs. (10; 4%)

“The difficulty is gaining the support of stakeholders within our governance process to see the value of innovation”

Theme 9: Non-execution. This includes seeing innovation initiatives through and “staying the course.” (9; 4%)

“Our biggest challenge is getting started. We have communicated, put resources in place, had events, created opportunities for all employees to participate by providing ideas, training, or event participation. Yet we haven't gone to the next step where staff believes in the process and it is still thought of as the flavor of the day.”

Summary Comment

In aggregate the themes represent the opinions of the respondents and in many ways echo some of the survey findings. The top two themes (organizational malaise and inadequate tools and processes) are consistent with the scoring in the survey. The lowest scoring dimension with innovation was the “Execution” dimension, which suggested that organizations do not have sufficient processes and governance to move ideas forward. Further, leadership has not adequately developed an innovation strategy that is communicated culturally and formally through its performance management systems to break the organization malaise.

5.2 Respondents' Perspective on how the Saskatchewan Government Might Act to Improve Innovation in the Province

Participants were also asked for a personal perspective on what the Saskatchewan government might do to improve innovation amongst Saskatchewan companies. There were a total of 81

Participants were asked for a personal perspective on what the Saskatchewan government might do to improve innovation amongst Saskatchewan companies. The comments identify 7 general things that the government might do to improve innovation.

written responses. Many of these responses identified several possible courses of action, for a total of 111 issue-related comments. The comments identify essentially 7 general things that the government might do to improve innovation. They are listed as follows with the relative percentage of the total:

Theme 1: Organization & Facilitation - Intervene to facilitate communication and cooperative environment; including, market support services, encouraging third-party advocacy organizations, management education and assisting in the formation of innovation clusters that include business, financial and research institutions. (35; 32%)

“The Province should step up support for organizations that can enhance and assist private and not-for-profit sector innovation; it should build awareness of those supports.”

Theme 2: Financial Assistance - Help innovators access capital; provide more government incentives for innovation and Venture Capital. This includes lobbying on the part of the provincial government to help innovators more easily access federal funds. (28; 25%)

“There could be more tax incentives for Saskatchewan companies to encourage innovation.”

Theme 3: Less Government - Reduce government regulation and measures that penalize the private sector relative to the public. (14; 12%)

“The government should let the private sector compete on a fair and level playing field and reduce government red tape, regulation and control.”

Theme 4: Change Internal Vision - Encourage innovation within government systems and public institutions; change business-related focus of government and seek to encourage innovative practice and respect for such practice. (12; 10%)

“Saskatchewan needs to look at its future and decide where it wants to position the Province. i.e. we have the population of a small city yet the capability to do more in the field of innovation than most countries, but it will require vision and focus.”

Theme 5: Increase Competitiveness - Do more to increase the competitiveness of Saskatchewan as an ideal business environment relative to other jurisdictions. Additionally, explore other innovative industries that the Province might host. (10; 9%)

“Start promoting innovation activities that are outside of the resource sector (i.e. agriculture, oil, & mining). Strive for economic diversification by promoting innovation in areas that are not currently strengths.”

Theme 6: Education - Improve education: both at the secondary and post-secondary levels. (6; 5%)

“Start getting the concept of innovation embedded in the DNA of the population by adding it into the primary and secondary education systems.”

Theme 7: Favour Saskatchewan Firms and Institutions - Favour Saskatchewan firms in policy-making and in granting contracts. Saskatchewan should also build using public companies and institutions. (6; 5%)

“The government could help to train and retain Saskatchewan people to grow with Saskatchewan companies”

Summary Comments

As jurisdictions look to improve their competitiveness through innovation a number of “drivers” have been identified. A driver is defined as a condition or environmental factor that helps improve the innovation culture. For example, well educated population will generally lead to a more innovative culture than a less educated population. Government policy to promote and entrench the drivers of innovation is important in fostering an innovation culture. The following identifies some of the noted drivers of innovation to a jurisdiction.

At a macro level there are various drivers that are recognized to be effective in increasing innovative activity. They are listed here along with policy initiative undertaken by governments of resource-based economies that are considered particularly active on the innovation front.

- **Governance and Strategic Planning** – Specific ministries and agencies are designated to create innovation policy and the associated strategies for its implementation. This is designed to increase program efficacy and communicate its importance to the community.
- **Research and Development** – Governments participate by directly financing research through private or government agencies and/or through post-secondary educational institutions. Tax credits are a tool to encourage research by firms and individuals.
- **Patenting** – Governments work to facilitate the granting of patents and their protection.

- **Commercialization & Clustering** – Governments assist both financially and non-financially in bringing new products to market and setting up industry/research/financing clusters
- **Gaining Access to Capital** – Governments offer direct financial assistance or offer tax incentives to encourage Venture Capital availability
- **Education** – Governments prioritize education at various levels as a means to drive innovation.

ⁱ *Global Innovation Excellence Study 2005*; Arthur D Little in collaboration with VNONCW (for the Netherlands). This involved a study of 842 companies from 5 regions around the world including the U.S. The U.S. score on innovation from this study was 70%. Post 2004 scores of the U.S. have not been provided due to a lack of data on many of the indicators used in the European Innovation Scoreboard (EIS) methodology.

ⁱⁱ *Innovation Union Scoreboard 2011* (Research and Innovation Union Scoreboard - Pro Inno Europe Inno Metrics). This provides measures of innovation for member countries using the European Innovation Scoreboard (EIS) methodology. The most recent EIS ranks the U.S. 4th.

The Economist's *Global Innovation Index* is an annual ranking of 141 economies that measures elements of a national economy that enable innovation activities. The elements include inputs such as institutions, human capital and research, infrastructure, market sophistication, business sophistication, and outputs including knowledge and technology outputs, and creative outputs. As an example, the Economist ranks the U.S. 10th overall (and virtually tied for 4th with Sweden and Germany in terms of patent outputs over a rolling 4 year period). Overall, Switzerland, Sweden, Singapore, and Finland occupy the top 4 spots.

ⁱⁱⁱ Boston Consulting Group Most Innovative Companies 2012.