A Comprehensive Innovation Structure for Alberta SMEs

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SMEs play a critical role in both economic development and as innovators, as they make up about 90% of all firms worldwide (OECD, 3). Perhaps most importantly, SMEs have some significant advantages over large firms due to their size[1]. They have strong relationships with both customers and suppliers that can enable them to act more quickly to changing business environments and market needs. They have shorter lines of internal communication, and many have a strong entrepreneurial management style. Studies have shown that technical capabilities of employees in SMEs are in many cases higher than those in large companies, allowing for faster and less expensive innovation. However there are studies that show that only a small number of SMEs use these size advantages for innovation, growth and increased competitiveness. There has been little attention placed in the recent past on how to manage and support the innovation process in SMEs, indeed most case studies and articles focus on large successful innovators, e.g., Proctor and Gamble, 3M, Apple, etc. However, the dynamics, structures and resources in those types of companies do not match up well with the majority of SMEs (Scozzi, Garavelli and Crowston, 121,124-126).

In Canada (Industry Canada 1: 8, 6), small and medium sized businesses (SMEs) account for 90% of all jobs across the country and 92% in the province of Alberta. For Alberta, fully 99.8% of all businesses are SMEs, and in aggregate they contribute 27% of the total GDP of the province (Industry Canada 2: 22). Adding to the importance of SMEs, they act as centers for innovation and social integration (OECD, 3), two areas of critical importance for Alberta.

Between 2009 and 2011, only 37% of Alberta SMEs conducted at least one innovation project (the Canadian average is 38%). Innovation projects included innovations in products/services, processes, organizational design and marketing innovations. These innovations resulted in increases in sales, reduction in costs, and increases in existing market share. Only 11% of the projects initiated showed no result (Industry Canada 1: 14-17).

For the 63% that did not conduct an innovation project, three primary reasons were given: 1) Innovation is not part of our business plan, 2) Business (in general) does not need to innovate, and 3) The market does not need new products or processes. At the same time, reasons for external obstacles to growth included "unstable demand for products and services" and "increased competition". Internal obstacles included "insufficient knowledge of competitors or market trends" and "too much time spent on current operations" (Industry Canada 1: 13, 18). These obstacles also stand directly in the way of decisions supporting innovation projects.

Given the importance of SME to Alberta's regional and global competitiveness and economic and social well-being, there is increasing concern over the question of: *Why do so many SMEs in Alberta have trouble establishing and sustaining innovation programs?*

GO Productivity[2] has heard over and over while conducting surveys after client engagements and workshops throughout the province about problems facing SMEs and innovation, including:

[1] Industry Canada classifies SMEs as: Small = 1 - 99 paid employees, and Medium = 100 - 499 paid employees.
[2] GO Productivity began life as Productivity Alberta, before expanding its services countrywide. Founded in 2008 as a service of the Government of Alberta to help the province's construction and manufacturing sectors be more productive, more competitive and more profitable, Productivity Alberta transitioned into a private, not-for-profit corporation in October 2011 and, in November of 2014, grew into a nationwide company called GO Productivity. These changes have allowed the company to refocus its efforts and enhance its services.

- Our employees don't care/aren't engaged enough to give ideas
- As a management team, we don't have enough time to deal with all of the ideas coming to us
- Innovation is in the core values of our company, but we have not explained what innovation means to our employees, or how they influence innovation
- We gave time for people to innovate, they didn't use it – How do we get them to engage?
- We ask for ideas about anything and everything – we have no focus
- We tried to start an innovation program/initiative, but we could not sustain it
- We had an innovation initiative, but it was not successful

Herman and Williams (4-5) identified five challenges for Canada's SME sector that directly undermine SMEs abilities and desires to pursue growth, and hence innovation:

1. Lack of incentives to pursue growth and expansion beyond the province and internationally
2. Shortage of management skills required to achieve high growth
3. Under-investment in technology to enhance productivity and growth
4. A lack of investment in R&D to drive innovation
5. Insufficient access to capital to finance growth

The problems and challenges noted above that SMEs face in innovation are not specific to Canada or Alberta, and are common among SMEs worldwide.

Today's business environment is both complex and changing faster than ever before. Even industries such as mining and energy utilities, considered slow moving just a decade ago, are now facing new and unexpected challenges they are ill-equipped to deal with. This is especially true for SMEs. Innovation, as a dynamic process for generating both new business models and new products and services is even more essential in this new business world.

Establishing and sustaining innovation in the face of the challenges noted above, coupled with a complex and fast changing business environment, require a set of basic building blocks in any innovation process (McGrath) that in most SMEs are not in place.

For those SMEs that try and establish an innovation program without the learnings from other's mistakes – and there is a wealth of knowledge to draw from – many SMEs and large companies make the same mistakes when they try and jump start innovation (Patnaik):

- Over reliance on pilot initiatives –looking at a single near term opportunity
- Unhealthily fascination with charismatic examples – "Let's be more like (insert iconic person/company name here) they're really innovative"!
- Misapplication of other companies approaches – innovation programs work because they are tailored to the conditions of each company
- Descent into a cycle of recrimination – "Our people just won't contribute new ideas"
- Resignation to simple ideas, "…just change the paint on the walls like Google"

McGrath identified six key warning signs that an innovation program is broken or in trouble:

- Innovation is episodic – it's on again/off again, more a matter of senior management whims than a part of the day to day business processes, resulting in dispirited and jaded employees
- The innovation program was created by scratch, without guidance from knowledgeable sources of best and proven practices, with poorly designed and/or missing pieces
- Existing products and services hold resource priority – both for people and funding
- No home or champion for ideas and innovation development – they "fall through the cracks"
- Using the same criteria to evaluate an innovation and investment in core products/services, even though innovations are inherently new and uncertain and not predictable
- Insisting on sticking with the "plan" – rarely if ever do innovations turn out as originally planned

GO Productivity has heard and seen these mistakes and warning signs in discussions with SMEs across Alberta, and taken together they point to a general lack of understanding amongst SMEs (and even large

companies) about what innovation is, why it is critical for growth and value creation, what the key components of a successful innovation program are, and how innovation is supported and sustained over time. The good news for SMEs is that establishing and sustaining an innovation program need not be a mystery, but it does take intentionality and commitment to do it.

GO Productivity's knowledge of SMEs across Alberta in a number of different industry sectors provided a unique opportunity to develop a program that provides the basic building blocks for a successful and sustainable innovation program for its clients. Additionally, while the program was developed with the needs of Alberta SMEs in mind, the program was intentionally designed to apply to SMEs across Canada and act as a model for SMEs regardless of region or country.

Considering the issues and challenges discussed above, the program is based on an innovation program that is built around six basic building blocks of: 1 Innovation focus, 2) Innovation strategy, 3) Idea generation and flow, 4) Innovation climate, 5) Management actions, and 6) Human resource and social practices. The components are supported with an understanding of a working definition of innovation and 7 distinct types of innovation.

As currently instituted and in Beta testing, the program consists of a *workshop* that uses applied learning and action planning to understand innovation and the basic components of a successful innovation program, and an *innovation assessment tool*, developed from the program components listed above, that provides a clear picture of just where an organization stands vis a vis innovation, both at the organizational and individual levels. The assessment tool has the added benefit of allowing the workshop to be custom configured for a client or group of workshop attendees depending on assessment results.

The program can be thought of as a "roadmap" for SMEs for establishing and sustaining an innovation program:

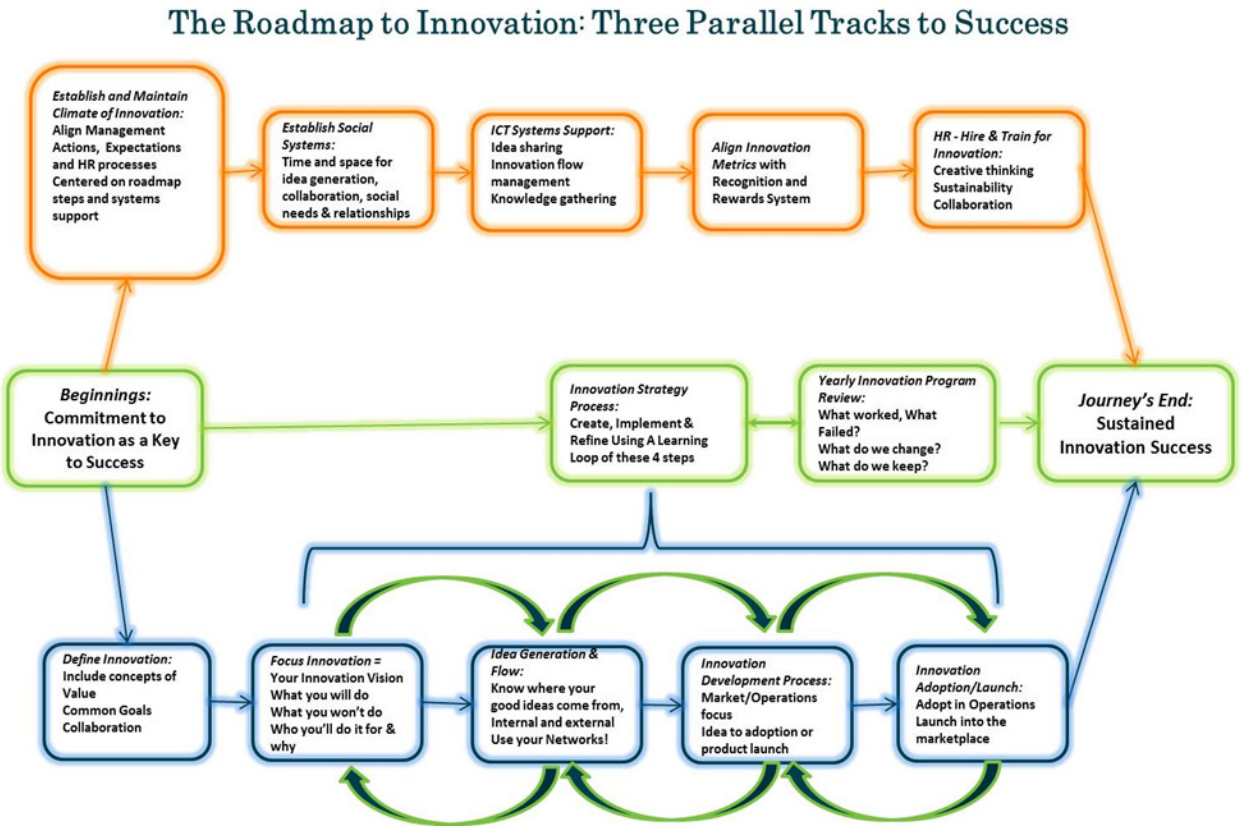

Figure 1: The Roadmap to Innovation

Considering the program within in the context of the workshop illustrates how the components build on each other into a well-designed SME innovation program model. The assessment tool will be discussed afterwards.

Defining Innovation

All too often innovation programs get stuck or never leave the starting blocks simply because there is no working definition of innovation in place that is understood and shared by both management and the workforce. GO Productivity found that such an innovation definition must include the concepts of commercial success, value creation and collaboration for it to act as a foundation of any innovation program:

> *"Innovation is two or more people or organizations working towards a common goal of the commercially successful exploitation of new technologies, ideas, or methods through the introduction of new products or processes, or through the improvement of existing ones, adding new sources of growth".*

Dialogue with participants during and after workshops have validated this definition as easily understood and yet comprehensive enough to guide an innovation program.

7 Types of Innovation

Most SMEs, as well as most people, will use invention and innovation interchangeably – yet this is a very limiting way of thinking about innovation. We have seen that those Alberta SMEs that have conducted innovation projects know that innovation can be focused internally on new and improved business models, processes, etc., and externally by creating new or improved products and services. Innovation can be used to improve productivity, reduce costs, and expand or create new markets.

GO Productivity suggests 7 types of innovation that can be considered and acted on singularly or in any combination by SMEs, and is considered by clients as one of the most compelling concepts in GO Productivity programs:

- *Social Systems* - new ideas - products, services and models - that simultaneously meet internal and business environment social needs and create new social relationships or collaborations. They are innovations that are not only good for the organization but also enhance the organization's capacity to act in the marketplace, with partners, etc.
- *Market Extension* - Meeting a need in the marketplace where no solutions exist or adapting a product for use in a new market
- *Business Models* - Reconfiguring the nature of the business to make it easier to do business, create more integrated products and services, devise better ways to be profitable, or use resources in a new way
- *Process Improvement* - Making processes simpler, faster, more accurate, more reliable, less expensive, or more integrated
- *Systems Solutions* - Rethinking & integrating existing systems or generating new systems to solve existing problems
- *Product Improvement/Integration* - Improving products in ways that allow companies to be more competitive, to create new value to the customer or to increase productivity
- *Technology Invention* - Product creation/development with a new core technology or with breakthrough technology

The innovation types are best presented as an "innovation engine" or "innovation wheel".

In speaking to the concept of 7 types of Innovation, Management Actions and Processes are said to act as the "rim" that holds the innovation program together, with Social Systems acting as the "axle" or "hub" of the wheel.

Noting that 80% of innovation does not have to be or is not "technical", and that at least 99% of innovation is not invention drives home the point that anyone in the organization can be engaged in and contribute to the innovation effort.

Most successful SMEs actively engage in multiple types of innovation within their programs and initiatives.

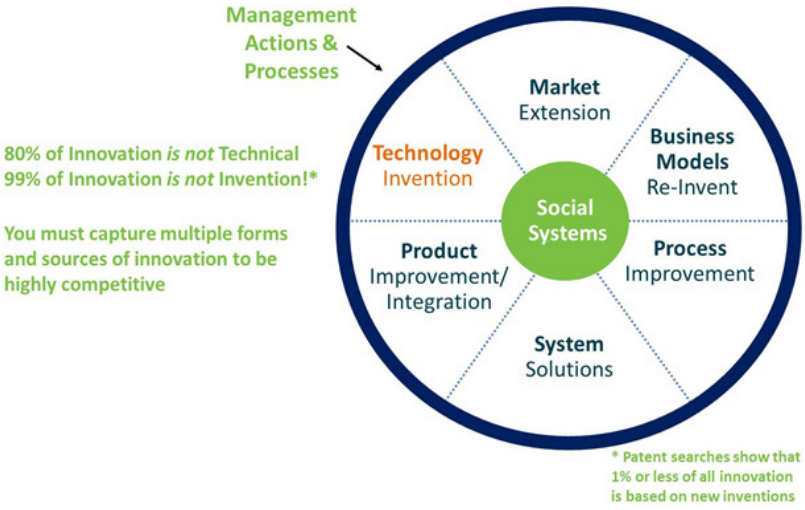

Figure 2: The 7 Types of Innovation

Applied learning – In the workshop, participants are provided a designed worksheet and asked to check off those innovation type(s) that would address or create operations/productivity improvements, which type(s) might/would address/create opportunities for new products/product improvements, which type(s) would create market opportunities in existing markets or customers and/or open new markets or customers, which type(s) would create new joint opportunities, or those that would add value to existing opportunities with customers and/or suppliers and/or with competitors. We then ask them to circle those types checked they are not doing, and then note which type they should be doing. Note the participants are beginning to build up the foundation for their innovation program.

Innovation Focus

A company cannot be all things to all customers, yet as described above, Alberta SMEs receive ideas from the workforce "…about anything and everything". This happens all too frequently when SMEs attempt innovation projects and initiatives without thinking through just where they need innovation and what for.

For a workforce to be actively and effectively engaged in an innovation program, it must know where the company needs to go, what is driving it from the business environment, what it will do and what it won't do, and what is desirable. This sets boundaries for thinking, creativity, and innovation – both of which are enhanced when working within boundaries – in effect, you bring outside the box thinking into the box. This allows ideas and therefore innovation to be focused and targeted, regardless of whether internally or market facing, core improvement or expansion beyond the core products/services, establishing new and/or expanded markets, improving productivity, etc., within the creative boundaries.

Applied learning – Workshop participants are again asked to use a designed worksheet, in this exercise to describe what they WILL do, what they will NOT do, and what is desirable, e.g., improve operations, improve business processes, new and/or expanded products/services/ markets/customers/alliance opportunities. They are asked to be very specific in describing each area. This exercise continues to build up the decisions that will drive the innovation program, and serves as a starting point for an innovation strategy.

Idea Generation and Flow

Now that an outline of the types of innovation the company needs to pursue and where innovation should be focused is in place, consideration turns to understanding and developing the source of innovation. *Ideas* are the top of innovation tier – the primary source of innovation whether aimed at process improvements or the marketplace. Research tells us that "Eureka!" moments actually happen when a

number of seemingly unrelated ideas, from many different sources suddenly coalesce in a group or in an individual's mind (Johnson, 59-61, 87-91). Innovation does not come out of nowhere – it is the act of combining and recombining, compounding, transposing, augmenting/diminishing ideas into a concept that can be refined, adopted and used (Wired, 121-124).

The successful innovating SME will identify idea generation sources, and manage idea flows in the company through a designed development process. Sources of new ideas for an SME are either internal, through individuals and teams in the workforce, or external; suppliers, customers, university or research institutions, "open" sources, government departments and agencies, and many others. The innovation focused SME will use all of the idea sources that match up with its innovation focus it can comfortably manage. For most SMEs, the company workforce should be its single best source of ideas as they know the company, what its innovation focus is, and have contact and knowledge connections outside the company (suppliers and customers, alliance partners, etc.).

Also considered are different ways external sources can be engaged, e.g., through collaborative innovation/knowledge networks and partnerships and alliances – for all of the identified external sources of information.

Applied learning – Using designed worksheets with the innovation wheel as a central point, participants are asked to consider each innovation type, and then list innovation sources for each, first for internal sources, and then on a second worksheet for external sources. At this point, as preparation for the next program component, participants are asked to consider and list the existing and potential barriers to innovation for their company.

Innovation Program Basics

The goal of a successful innovation program is to be embedded in the operations and processes of the company, as simply a part of the job, as "something we do here". There are however a number of barriers to innovation that can easily block the creation of an innovation program, or cause an established program to fail. These barriers include management actions not aligned with expectations, too "loose" a definition of innovation, uncertainty of innovation focus, social systems not supportive of innovation, innovation ideas not willing to be heard, no real way to move ideas from concept to product/adoption, and trust missing in the organization. It should come as no surprise, since innovation is dependent on the people within the company that most barriers to innovation are also barriers to a healthy organization, growth, employee retention/job satisfaction, hiring/training, and more.

An innovation program that is enabled by aligned management actions, and is centered on innovation supporting processes and systems can avoid these barriers. For the SME, an innovation program should be simple, using the four key components of innovation focus, idea generation and flow, management actions and human resources and social practices.

Note that the concept of an "innovation culture" is not included in the innovation program basics, yet many SMEs and large companies think they must have a culture of innovation. And many companies go through long and arduous cultural transformation and change processes to try and have one. Transformation and change programs are hard to do, and studies continually show a very high failure rate (Hamel and Zanini, 1-2). For SMEs (and even for large companies) GO Productivity considers the concept of a *climate of innovation* as a better model, as the culture within an organization flows from and is sustained by aligned management actions and expectations, perspectives and strategy, processes, rewards systems and hiring practices – the climate of the organization. A strong case can be made then that culture is a lagging indicator of the climate of the organization, and establishing a climate is relatively easier, faster, and well within the management skills of SMEs. Simply put, *establish a climate of innovation and a culture of innovation will follow.*

The GO Productivity workshop focuses on 5 main actions critical to creating a climate of innovation: 1. Define innovation focus and foster idea flows, 2. Manage idea flows – set a simple and visible process to

push them through generation, nurturing, development, testing, adopting or dropping, 3. Add the support system(s) e.g., knowledge sharing intranet sites, wikis, networked file storage, library, paper files, meeting and thinking spaces, even idea management software, 4. Establish a set of management and human resource practices that support innovation, and 5. Reinforce trust within the organization.

Management actions and human resource practices are of particular importance, as they speak directly to the workforce of commitment and intent in establishing innovation within the company. The workshop suggests SMEs hire and train for creativity and innovation, include an innovation component in quarterly and yearly reviews, align reward systems to support innovation matched to innovation metrics, create and facilitate social opportunities for idea sharing & transfer and focused idea generation, and perhaps most importantly, set and state clear expectations for good ideas and innovation.

Applied learning: Action Planning - At this point in the workshop the participants have a working definition of innovation, understand 7 types of innovation and which ones are important to them and their customers and market place, know where they should focus innovation efforts, have mapped sources of ideas and structures for generating and developing idea flows, and know the basic components of an innovation program. However, the half-life of learning in workshops is very short once a participant returns to the workplace, and an additional step is added to the workshop to make the learning *actionable*.

The key outcome for the participants of the workshop is to apply the concepts, techniques and learnings to a *90 day action plan*, using designed worksheets. Firstly they are asked to consider and answer: Where would you like to/must be in 90 days re: 1. Innovation focus, 2. Idea flow, 3. Management actions, and 4. Human resources/social processes? And then, to note 3-5 actions for each area that could be taken to rejuvenate or establish a climate of innovation and kick start idea flows.

Secondly, the participants are asked to write a statement for each area as a 90 day end point, and then describe by back casting: "What had to have happened in the 30 days prior, the 60 days prior and 90 days prior for each key area (1, 2, 3 and 4), for us to be here in the 90th day". Note for each item WHAT we will do, identify WHO will be responsible for it, and WHEN it will be completed.

Unlike other workshops, GO Productivity follows up with the participant groups 30, 60 and 90 days after the workshop to check on progress, provide additional coaching and other assistance. Coupled with knowledge from the assessment tool survey (see below), which all participants take prior to the workshop, GO Productivity is uniquely placed to provide this assistance long term, further ensuring a successful and enduring innovation program for the SME.

Innovation Assessment Tool

GO Productivity's Innovation Assessment Tool is designed to do two basic things: 1. Provide a valid assessment of an organization's Innovation Capacity and Vitality, and 2. Provide a basis for specific recommendations for action to the organization for establishing or improving an innovation program.

The primary foundation of the tool is a 110 statement Assessment Questionnaire focused on five "Innovation Domains" of: 1) Innovation Focus, 2) Innovation Sources, 3) Innovation Climate, 4) Innovation Leadership and 5) Individual Innovation Qualities. Each Domain has a number of subcategory areas of innovation understanding and processes that can be easily scored to provide an "Innovation Capacity Grade". The questionnaire is applied to a sample of personnel within an organization allowing for both breadth and depth of understanding and cross-checking.

While the Assessment Questionnaire can be used as a "self-assessment", it is only a preliminary evaluation tool, and is not used as the only evaluation of an organization's Innovation Capacity. Additionally, and perhaps more importantly, the questionnaire includes suggested "open ended" follow-up interview questions based on the organization's overall Innovation Capacity Score. The questions can be used to elicit anecdotes, stories and/or examples from across a broad spectrum of the client's staff and workforce. This allows a more nuanced and deeper understanding of the organization's culture, climate and management actions vis a vis innovation.

Therefore, a complete organization Innovation Assessment as conducted by GO Productivity for its clients - that both the client and GO Productivity can rely on for analysis and recommendations - would include both the Assessment Questionnaire and the Interviews, followed by an Innovation Assessment Report and a PowerPoint presentation based on the report.

The results of the Assessment Questionnaire has the added benefit that it can be used to specifically configure the follow on workshop described above for individual GO Productivity clients' needs

The last piece of the total program is an Innovation Assessment Guide that provides GO Productivity assessment staff and client managers the background of the workshop and survey design, how they are used together, how to interpret results of the client assessment, a report and presentation template and how to craft conclusions and recommendations for further coaching, assistance and more in-depth engagements with the client.

This combination of unique approach, assessment tool, workshop components, delivery and continued engagement gives GO Productivity's clients their single best opportunity to establish and sustain an effective and dynamic innovation program.

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