Proposing a Risk Management Framework for Value Chain Initiatives

Martin Gooch, Director, Value Chain Management Centre
Abdel Felfel, Research Assistant, Value Chain Management Centre
Dan LaPlain, Research Associate, Value Chain Management Centre

December 2009

Funding for this project was provided in part by Agriculture and Agri-Food Canada through the Agricultural Adaptation Council.

Table of Contents

1. Introduction

Consciously managing a business as part of a closely-aligned value chain in order to achieve sustainable competitive advantage is a practice still in its infancy in the agriculture and agri-food sector. The same holds true for industry's acknowledgement that businesses operating in a closely-aligned chain can markedly reduce their exposure to risk. This is a significant contrast to other industries such as technology and automotive, where well-established and highly effective value chains are recognized as imperative to success. For instance, Toyota's ability to weather the current financial crisis, compared to General Motors and Chrysler, is predominantly due to the way they interact with the value chains to which they belong.

There are two commonly cited reasons for the slow development of value chain initiatives in the agriculture and agri-food sector. First, participants operate in an environment where policies and structures result in a continuation of the adversarial relationships and attitudes that have historically characterized the industry. Second, there is a lack of understanding regarding how to successfully manage risks associated with forming and managing value chains. This commonly results in Canada's agriculture and agri-food industry having little connectivity with the end market. As well, businesses continue to manage risks in a manner increasingly outdated and, therefore, unsuited to a rapidly changing business environment.

1.1 Chance vs. Choice

The ability to proactively manage risk is often a case of chance vs. choice. In the belief that trading continues to be the correct approach to take in what is often still regarded as a commodity industry, many enterprises unconsciously take a "chance approach" to managing risks. As a result, efforts are invested in continually fighting fires, rather than developing longer term strategies that could lessen risks and/or their severity.

Increasingly, well-run enterprises are acknowledging that operating as part of a closely-aligned value chain can limit their exposure to risks that result from retaining a trading mindset, yet limit their ability to adapt and prosper in a rapidly changing industry.

Value chain management remains a relatively new approach for the agri-food industry. Therefore, businesses need to identify potential risks of embarking on a value chain initiative before moving down a road that may be very different from their previous operating style. They must then rate the challenges according to potential impact and probability of occurrence, and decide how to manage identified risks, should they occur. The result of this exercise is a greater ability to focus on growth, rather than investing resources in solving problems that need not have occurred.

1.2 Terms

Risk is the chance of something occurring that will have a negative impact on the performance of an agri-food value chain. The severity of any risk, and the need for a business to prepare for its possible occurrence, will depend on the probability of occurrence and the magnitude of impact. While risks can bring about both negative and positive impacts, management typically focuses on reducing or managing negative risk. A business that manages risk better than competitors can respond more positively to a situation, should it occur.

Therefore: Likelihood x Impact = Severity of the Risk

If both likelihood and impact are given a score, the resulting sum provides businesses with an opportunity to prioritize risks that pose the greatest challenges, thereby identifying risks are important to address ahead of their possible occurrence.

2. Purpose and Objectives

The purpose of this paper is to provide a guide for reducing the risks faced by businesses interested in undertaking a value chain initiative. It can be used to direct improvements within an existing chain, or to assist an unproven group in strengthening its chance of long-term success by more effectively managing potential risks.

Given the dynamic nature of the agriculture and agri-food industry, this paper has been intentionally positioned as a strategic document. Developed through the experiences of the authors, and based on research of a wide array of both successful and unsuccessful value chain initiatives, it is intended as a resource that companies and individuals can use to guide their thoughts, discussions, and decision-making processes. Ultimately, the purpose is to increase opportunities to benefit from participating in a successful and sustainable value chain initiative by providing the following:

1. A high level description of the factors that enable businesses who operate as a closely-aligned value chain to attain considerably more competitive advantage than businesses that continue to act independently.
2. A framework that reflects the lifecycle of a value chain initiative. It also provides a method for businesses to prioritize which of the many potential risks much be addressed at each step of the journey toward establishing themselves as a successful value chain initiative.

3. Enabling a Value Chain to Achieve a Competitive Advantage

Unless a value chain can successfully manage risk, it will never achieve a sustainable competitive advantage over its competitors. The ability to manage risk comes from a sound footing, which increases the likelihood that the chain can develop the capabilities necessary to achieve its strategic objectives. It also provides a base from which it can develop a sustainable competitive advantage through adapting to a changing business environment in conjunction with its chain partners. This is extremely difficult for competitors to copy and can, therefore, provide the chain with sustainable competitive advantage.

For clarification, we have separated the issues that value chain participants must avoid during the three key stages of a value chain's lifecycle. Left unaddressed, these issues will almost undoubtedly increase the severity of risks faced by a value chain. Figure 1 categorizes the three stages of a value chain's lifecycle and the issues that it must consider during each stage of the cycle are as follows:

Figure 1: Stages of a Value Chain's Lifecycle

- Formation – *establishing a base from which to achieve the chosen strategy*
- Management – *ensuring operations enable the chain to achieve its strategic intent*
- Maturation – *acquiring the ability to continually innovate and adapt to changing circumstances as a unified partnership*

Formation

Issues to avoid in forming a value chain

- *Chain partners do not share a clear vision and strategy.*
- *The chain's strategic objectives are not shared.*
- *Senior managers are not committed to participating in the value chain*

Management

Issues to avoid when managing a value chain

- *Chain does not have a strong governance system.*
- *Chain does not have a clear structure and leadership.*
- *Chain does not possess a susitable communication strategy or system.*
- *Partners do not share a high level of trust & commitment.*
- *Chain does not possess a suitable incentive system.*
- *Partners do not feel they mutually benefit from belonging to the chain.*

Maturation

Issues that would undermine the value chain's ability to innovate and adapt

- *Chain is unable to measure performance against tagets.*
- *Chain does not have innovative leadership.*
- *Chain is not motivated to createe consumer-recogonized value.*
- *Chain does not possess a system for proactively resolving conflicts.*
- *Managers seek to improve their own or their businesses' capabilities ahead of the overall chain.*
- *The suitability of the chain's structure and processes are not contually monitored.*

Alternatively, the factors that enable value chain initiatives to succeed by lessening the severity of risks faced are as follows:

- Culture-related issues
  - Recognition of who the leaders in each organization and the chain overall are
  - Informed challenges to current assumptions are welcomed and rewarded
  - Focus passionately on producing customer and consumer-recognized value
  - Proactive and inclusive management style
  - View customers and consumers loyalty as having to be earned
  - Foster a learning environment within and between partner organizations
- Strategic factors
  - Focus on achieving consumer-recognized value
  - Each partner contributes value by enabling the chain to achieve its objectives
  - All the partners are committed to an agreed strategy and know their roles
  - Individual strategies complement the chain's strategies
  - Strategic performance can be monitored and measured
  - Incentive systems motivate workers to support chain objectives and strategies
- Chain structure
  - Match the chain's strategic and operational objectives
  - Suited to delivering required quality to target market(s) efficiently and effectively

- Reflect the needs of the chain, not the consensus of the industry
  - Correctly balance need for rigidity with ability to adapt to market opportunities
  - Do not create needless bottlenecks in information, product or financial flows
  - Do not expose chain to unnecessary challenges or risks
- Correct processes
  - Processes are identified and streamlined
  - Processes are designed to deliver the right product to the right consumer
  - Relationship of inputs to outputs is understood and managed in unison by chain
- Performance measures and feedback
  - Key performance indicators (KPIs) are agreed to and shared
  - Participants receive a regular report on the chain KPIs
  - There is a culture of problem solving and continuous improvement
  - Each participating business is accountable for its contribution to the chain's performance
- Information system
  - Produce reports that can be acted upon effectively and efficiently
  - Produce timely, accurate, relevant and verifiable information
  - Effective and efficient system, not burdensome or outdated
- Technology
  - Suit the chain's strategic and operational objectives
  - Provide operational and strategic benefits
  - Match the partners' capabilities
  - Effective and efficient technology, not burdensome or outdated
- Relationships
  - Each element of the chain acknowledges itself as both a customer and a supplier
  - Partners' attitudes reflect a culture of solving problems, not assigning blame
  - Constructive relationships exist at multiple levels between the partners
  - Business relationships incorporate elements of commercial and social interaction
  - Trust is viewed as an outcome of the behaviours of organizations and individuals

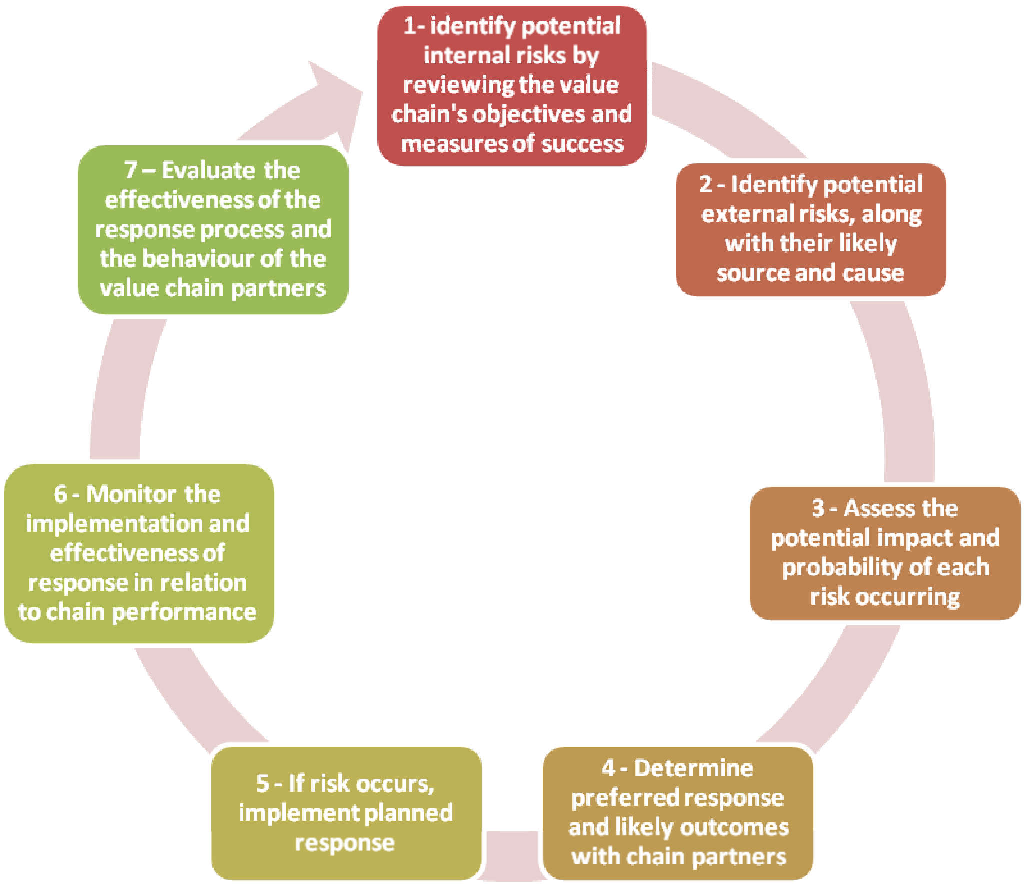
The risk to a value chain is that, unless these factors are understood and reflected in its behaviour, the chain will not function in an effective manner – which creates additional risks.

4. Proactively Managing Risk

4.1 Proposing a Framework for Managing Risk

Figure 2 proposes a framework that value chains can use to identify potential risks and assess their likely severity, then develop a process for mitigating their impact on the chain's performance, and evaluate the effectiveness of the response processes if any of the identified risks occur. Each time a risk occurs and the chain responds, or a chain reviews its strategies or contingency plans, a review should be conducted of the effectiveness of the risk management approach. This way, risk management becomes a reiterative process and an important aspect of the chain's continual improvement program. We then discuss how the framework could be applied in practice and continually improved.

Figure 2: Risk Management Framework



Section 4.2 outlines each of the steps contained in the Risk Management Framework. As internal factors have the most impact on the success of a value chain, they are given the most attention. Risks that could impact a specific chain will differ by the complexity of the situation and the product being produced, so the factors presented below should be considered a guide and are not exhaustive.

4.2 Applying the Risk Management Framework

Step 1- Identify Internal Risks By Reviewing the Value Chain's Objectives and Measures of Success

Reviewing the value chain's objectives and its performance will assist in ensuring that the chain is on the correct track and not exposing itself to unnecessary risks that relate to its internal operation. For instance:

- Is the partners' potential commitment to the initiative at risk through the value chain seeking to meet unrealistic expectations?
- Is the partners' potential commitment at risk through allowing less capable or determined partners to hold the chain back from achieving what it otherwise could?
- Do all the chain partners believe that the alliance is providing them with additional competitive advantage and the opportunity to reduce risks compared to if operating as an individual business?

- Do the current performance measures identify each partners' contribution to the overall chains' performance, thereby forming the basis of an effective accountability and governance structure?

Research conducted by the Kent Business School identified seven categories of risk related to the internal operation of a value chain. Any of these seven categories of risk can cause a chain to either fail completely, or prevent it from reach its full potential.

1. The organizations possess a culture which is unsuited to participating in a value chain initiative, or do not complement each other. This may be due to:
   - Misaligned managerial styles
   - Incentive systems which contradict the value chain philosophy
2. The organizations are following impractical or non-aligned strategies, perhaps due to:
   - Disagreement about the ultimate vision for why the chain was established
   - Lack of dependable information and knowledge about the end target market
   - Insufficient consideration paid to legal, policy or political issues that may negatively impact the performance of one level of the chain in relation to another
3. A physical mismatch exists between the chain's structure and what it is seeking to achieve. This may be due to:
   - One level of the chain experiencing financial losses due to practices occurring at another level of the chain
   - Too many participants, each with multiple agendas and therefore an inability to innovate effectively in relation to market demands
4. The value chain's operations do not suit customer requirements, perhaps because:
   - It is failing to correctly manage the determinants of quality and value
   - It lacks a strong governance system (*and therefore fails to adequately connect peoples' actions with the consequences of those actions)*
5. Lack of information flow along critical sections of the value chain, perhaps due to:
   - Information is not shared in a format that is understood by the entire chain
   - Rather than identify what information really matters, the chain partners share all and therefore too much information
6. The chain utilizes the incorrect technology, perhaps because:
   - The technology is too complex for the chain's requirements
   - Employees are insufficiently trained in how to use the technology
   - The information and communication technology that exists along the value chain is unable to correctly interact and therefore connect the chain and the end market
7. The chain does not adequately consider the human side of its operations. This may be due to the chain failing to provide employees with:
   - Adequate (or the correct) training for operating in a closely-aligned value chain
   - Leadership required for them to develop the correct attitudes and behaviour

At some point due to environmental conditions or the increasing capabilities of the partnership, it is likely that the value chain's objectives, or the manner in which its performance is measured, will need to be revised.

<u>Step 2 - Identify Potential External Risks and Their Source/Cause</u>

After reviewing the value chain objectives and measures of success, the alliance needs to begin positioning itself as institutionally prepared to deal with the risks that might arise and significantly impact their performance. A good place to start is by the alliance answering the following questions:

- What are the external risks?
- Why, where and when might they occur?
- What could be the short and long-term implementations to the chain if the risk occurs?
- If this occurrence has happened before, what was the outcome?

In terms of the business environment, external risks that could impact the chain include:

- Introduction of new legislation, or a revised interpretation of current legislation
- Introduction of new regulations, or a revised interpretation of current regulation
- Government policy that is incongruent to value chain formation and/or management
- Government imposed legislation that is incongruent to value chain formation and/or management
- Unions and other factors that can impact employee /corporate relations
- Environmental factors that shorten supply, impact quality, or influence price
- Changes in consumer behaviour or attitudes

Step 3 – Assess the Impact and Probability of Risks

Businesses do not have the resources to plan for or manage every risk all of the time. Therefore they must be able identify which of the risks they must acknowledge in their planning process and which risks can be managed without prior planning if they occur. Shown below, Figure 3 suggests a method that managers can use to rank the relative severity of risks that could impact their value chain. In enabling the severity and probability of internal and external risks to be ranked simultaneously, it lessens the likelihood that managers will ignore potentially catastrophic risks, regardless of where the chain lies in the lifecycle described earlier. The likelihood that potentially severe risks will be ignored is also lessened through the use of both numerical and visual "traffic light" indicators,

The criteria for determining where in the 3x3 matrix each risk should be placed comes from allotting a score (ranging from 1 to 10) according to each risk's likely occurrence and its likely severity. The sum of the scores (ranging from 1 – 100) will determine the colour code used to notify the potential impact of the risk on the chain's operation. Where it is placed in the matrix will depend on the risk's likelihood of occurrence versus its severity if it occurs.

The process of evaluating the importance that managers should accord to any risk begins by the businesses that together form the value chain scoring each identified risk according to its likelihood of occurrence. Suggested scores are shown below:

- High (score of 8-10) = it will definitely occur;
- Medium (score of 5-7) = will likely occur; or
- Low (score of 1-4) = may occur.

Next, the businesses that together form the value chain will need to score each identified risk according to the impact it will have on the chain's operations, and whether a risk is likely to affect individual or multiple levels of the chain.

- High impact (score of 8-10) = will definitely stop or seriously compromise the chain's endeavours, and will severely impact multiple levels of the value chain.
- Medium impact (score of 5-7) = could stop or significantly compromise the chain's term long term endeavours, and/or is likely to impact multiple levels of the value chain.

- Low impact (score of 1-4) = unlikely to stop the chain's endeavours, though likely to compromise its performance in the short to medium term and/or may impact more than one level of the value chain.

Figure 3: Likelihood and Impact Matrix

IMPACT			
High 8-10	Yellow 16-40	Red 40-70	Red 64-100
Medium 5-7	Green 10-28	Yellow 25-49	Red 40-70
Low 1-4	Green 1-16	Green 10-28	Yellow 16-40
	Low 1-4	Medium 5-7	High 8-10

LIKELIHOOD

The combination of risk score and placing in the matrix denotes the priority which the value chain partners should give to deciding how to manage risk or develop workaround plans. Plans to manage high priority risks should be reviewed on a regular basis. And, particularly in the early stages of a value chain's lifecycle, managers should establish rules such as "There can be no 'red' risks for which management plans are not in place by a certain project milestone".

Step 4 – Determine the Correct Response

Once each identified risk has been categorized according its likelihood to occur and potential impact, methods can be developed to reduce both the likelihood and impact of a risk. It should also be determined which of the chain partners is responsible for monitoring the occurrence of a risk, and lead the response process if the risk occurs. In some cases a risk could be so serious that there is no other option but to terminate the activity that is generating the risk. *In such cases a conflict resolution agreement should be developed for amicably discontinuing the chain if 'x' risk occurs.* Whatever the scenario, plans must be put in place to reduce their likelihood and impact on the chain's performance. In some cases low and medium risks can be mitigated through the implementation of suitable contracts or insurance policies.

The ability to successfully manage risks will be enhanced when the chain identifies people responsible for heading the response process, and ways they must interact with colleagues from along the value chain. A good model that a number of organizations use with great success is known as RACI:

- Identify who is **responsible** for developing the risk management plan (RMP) for each identified risk and implementing the RMP should the risk eventuate
- Identify who is **accountable** for implementing and managing the RMP if the risk occurs
    - As well, know who will assume responsibility for coordinating the usual day-to-day tasks of those involved in implementing the RMP should it be required
- Identify who needs to be **consulted** during the process of developing a risk management plan, or responding to a risk, due to their position in the overall chain's operation and management
- Be **informed** about decisions relating to developing managing risks and progress in managing a risk if it occurs

Step 5 – Implement planned response

If the risk occurs, those who are responsible for implementing the risk management plan and accountable for its successful management must adhere to the RACI model. This is particularly true for value chains. It is the interpersonal relationships that hold a value chain together. Failing to consult those who manage or are intimately involved with operations impacted by the risk or the RMP creates a level of dissention that could tear the chain apart.

Therefore, the person(s) **Responsible** and **Accountable** for the RMPs successfully implementation must regularly

- **Consult** those who are responsible for managing operations that have been impacted by the risks that have arisen and/or whose operations will be impacted by the risk management plan
- **Inform** those who do not manage operations, though may be directly impacted or communicate with people that may be impacted by the risk that has arisen or the risk management plan

Step 6 - Monitor the Implementation

As no plan will perform exactly as planned when implemented, it is critical that the value chain closely monitor how effectively its risk management plan is working, and make changes as required. Failure to do so could lead to what initially may have been a fairly insignificant risk morphing into a catastrophic situation, particularly if the event occurs early in the value chain's lifecycle, when the partners have limited experience of handling issues from a chain perspective.

Effective ways to ensure risk management plans are performing as required in relation to the chain's internal situation and the surrounding environment:

- Set review dates to ensure workaround plans are succeeding for each of the risks, and in accordance with their descending order of priority
- Test workaround plans in a specific situation before implementing them across entire segments of the value chain
- Ensure success by making decisions relating to the risk management program and implemented changes according to the **RACI** model, described above.

Step 7 – Evaluate the Response by the Chain Partners

Once a risk situation is deemed to have ended, or reached a stage at which managers can detach themselves from the immediacy of the situation, it is important that the value chain partners evaluate their response at the earliest opportunity. This practice is designed to increase the effectiveness of the risk management plan in the event of the risk arising again. It is also designed to strengthen the partnership by encouraging greater buy-in from partners. This occurs by showing how working together enabled them to better manage this past risk than if they'd attempted to 'go it alone'.

An effective method for evaluating responses and identifying necessary changes is required in the risk management plan or its implementation:

- Set timelines for reviewing the effectiveness of management compared to stated targets
- Review metrics that were measured, and whether they were the correct metrics, given the value chain's current (perhaps revised) strategy, structure, or operations

- Monitor whether the correct people were communicated with in the correct way, and whether communication might be improved should a similar situation arise in the future
- Establish timelines for completing the review and reporting findings to both senior managers and across the organizations as required
- Implement accordingly

5. Conclusion

Risks are always perceived as negative. However, a negative can be turned into a positive for those who are prepared. By providing businesses with an array of complementary resources and greater access to information, closely-aligned value chains have a distinct competitive advantage in times of upheaval. This enables participants to identify risks sooner than competitors who are not strategically aligned with suppliers and customers. It also allows them to better manage risks that arise.

However, managing a value chain is different from managing an individual organization, and the creation and management of formal value chain initiatives is a relatively new development in the agriculture and agri-food industry. This paper was designed to help businesses identify potential risks associated with forming and managing a value chain; assess the impact that a specific risk could have on a value chain initiative; and mitigate the risks faced by executing contingency plans with precision, by motivating individuals to monitor and manage risks to the best of their ability.

References

Cardiff University. (2009). Project Management Framework. Cardiff, UK.

Cohen, W. M., and Levinthal, D. A. (1990), Absorptive Capacity: A New Perspective on Learning and Innovation, Administrative Science Quarterly, Vol. 35, No. 1, pp. 128-152.

Fearne, A., (2008). Seven Common Reasons for the Failure of Value Chain Alliances; Value Chain Management (DVD); George Morris Centre; www.vcmtools.ca

Snoek, G. (2007). Examining Publicly-Funded Value Chain Projects: Five Cases Involving the Ontario Agrifood Industry. M.Sc. thesis. The Department of Food, Agricultural and Resource Economics, the University of Guelph, Guelph, Ontario, Canada.

Solihull Metropolitan Borough Council. (2004). Risk Management Strategy.Solihull, Birmingham, UK.