

THE ROLE OF SOCIAL COHESION  
IN THE ADOPTION OF INNOVATION  
AND SELECTION OF ORGANIZATIONAL FORM

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AN EXAMINATION OF SASKATCHEWAN'S  
VALUE-ADDED AGRICULTURAL SECTOR

Report Prepared for  
The Co-operatives Secretariat  
Agriculture and Agri-Food Canada  
by

Roger Herman

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Centre for the Study of Co-operatives  
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## EXECUTIVE SUMMARY

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**A**GRICULTURAL PRODUCERS NEED TO MAKE CHANGES to their role in the agri-food chain. This change is necessary because the agricultural sector is evolving into what has been labelled “industrialized agriculture,” which is characterized by a transition towards the following elements:

- a) manufacturing processes;
- b) a systems approach to production and distribution;
- c) separation and realignment of the stages in the food chain;
- d) negotiated co-ordination among these stages;
- e) concerns about system power and control;
- f) new kinds of risk, and;
- g) a more important role for information (Boehlje 1996, 30).

Responding to the changes in agriculture requires communities of producers to pursue innovative activities that engage them in or respond to the factors listed above. Not all producers acknowledge this need and not all communities of producers possess the variety of characteristics and resources that will allow such change. This report explains a number of the factors that determine if a community of producers will engage in some value-added activity, and what organizational form they are likely to select in its pursuit.

Three case studies provide data for this examination: producer-owned inland terminals, community-based hog barns, and New Generation Co-operatives (NGCs). Each case examines an innovative organizational form applied in Saskatchewan agriculture. Producer-owned terminals are structured as corporations. The producer-investors provide significant capital, and in most cases they establish a partnership with an existing grain handler. Community-based hog

barns draw on investment from local producers and also nonproducers. These organizations are initially structured as limited partnerships, but are later converted into corporations. New Generation Co-operatives require significant producer investment as well, and employ delivery contracts for the given commodity. The NGC model is different from the previous two in that control of the organization is based on one member, one vote, rather than on the level of investment. While the producer-owned terminal and community-based hog barn models have been replicated many times in Saskatchewan, only a couple of NGCs have formed to date.

Three principal factors were considered when analyzing the case studies: social cohesion, economies of scale, and path dependence. Social cohesion is a process that is not only closely related to but also produces social capital. In simple terms, social cohesion is about shared values, challenges, and opportunity. It incorporates factors such as trust, hope, communication, and leadership. Economies of scale consider whether the more often some activity is performed, the more economical it becomes to do so. Finally, path dependence is the term used to describe a scenario in which a particular activity or product is selected because of some initial advantage, which leads to the choice being replicated because of its familiarity rather than its efficiency. The more often the activity is replicated, the more likely it is to be used again in the future because replication generates benefits. These three factors influence individually, as well as combining to influence collectively, whether a community of producers will pursue some new activity; they also have some bearing on the organizational form selected to pursue that activity.

This research reveals that while each of the organizational models developed in communities seemingly rich in social cohesion, the groups involved ultimately chose different organizational forms. It appears that the community opting for the NGC model possessed the greatest abundance of social cohesion and that this, in turn, influenced the final choice. It is clear that regardless of the model applied, communities require trust, leadership, and effective communication networks in order to pursue any such venture. The importance of relationships and relationship building was consistently cited as a critical factor leading to successful agricultural value-added ventures involving community or sectoral groups. These are strong indicators of social cohesion and all are likely prerequisite characteristics for forays into the new agriculture.

Given that social cohesion is not the sole explanation behind the choice of organizational form, it is useful to examine other contributing factors such as economies of scale and path dependence. How these components combine to influence producer decisions is not always predictable. For example, a strong commitment to community, arguably identified as a high level of social cohesion, was responsible for jolting the NGC group out of a “locked-in” state that otherwise would have seen a more conventional organizational form employed. Even though the use of an alternative model might have been more efficient initially, this group valued the benefits accruing to the community through the use of an NGC more highly than any efficiencies that might have been realized by replicating a different model.

In order for producers to have real options to choose organizational models on the basis of how they best fit their overall goals and values, the adoption of innovative models such as New Generation Co-operatives requires effort from and support by a variety of agencies. Such effort can take the shape of NGC development officers, enhanced NGC business development funds, increased producer awareness programs, and continued NGC research. These elements must come together in a co-ordinated effort involving producer groups, established co-operatives, government agencies, universities, and the professional infrastructure made up of lawyers, accountants, engineers, business consultants, and financiers. With such a network of agencies and resources in place, producers interested in using the model can make decisions on the basis of merit and on each model’s ability to achieve the group’s goals and align with the values of group members. Until such support and infrastructure are in place, New Generation Co-operatives, or any other innovative organizational models, are unlikely to be widely used.



## INTRODUCTION AND BACKGROUND

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CANADIAN AGRICULTURAL PRODUCERS MUST MAKE CHANGES in order to survive in a rapidly evolving agricultural sector. One of the most significant changes is the role they play in the chain of agri-food activity. Many producers have recognized the need to become more involved in the value-added downstream handling, processing, and marketing of their commodities. While there are many ways to achieve this, one of the first choices producers face is that of the organizational form they will use to co-ordinate their efforts and to bring together various resources.

The presence or absence of social cohesion in a given community or population of producers can influence the likelihood that producers will undertake some innovative value-added activity, as well as their choice of the organizational form selected to pursue that activity. Social cohesion is not the only influencing factor, but rather one of many related elements including: associated risk; cost versus benefit; previous experience with an innovative venture and particular organizational form; observation of what has worked or not worked for other similar groups; and the general climate surrounding, or level of support for, ventures and the use of particular organizational forms.

This report examines the extent to which social cohesion is a contributing factor to the willingness to innovate and the subsequent choice of organizational form for that innovation. Employing the lens of social cohesion provides a fuller understanding of rural and agricultural development based on a model of the diffusion and adoption of innovation.

The report begins with a review of the concept of social cohesion. Given the many varying interpretations of this concept, this report utilizes the signs or symptoms of social cohesion that are consistently included in reviews of this phenomena rather than attempting to de-

velop a conclusive definition. In order to put this examination into context, the report also reviews the changes occurring in agriculture, and proposes a model of adoption and diffusion.

This report includes case studies of three models of organizational form being used to adapt to changes occurring in agriculture. These include the producer-owned inland grain terminals, community-based hog initiatives, and New Generation Co-operatives. In each of the first two models, the form has been adopted and repeatedly used by Saskatchewan communities and producers. In the case of New Generation Co-operatives, there has been a hesitation to use the model. The research highlights the ways in which factors including communication, social capital, and social cohesion have contributed to the adoption or nonadoption, as well as how the organizational development to date has, in turn, affected such factors as social cohesion or economies of scale.

## SOCIAL COHESION

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A QUICK REVIEW OF THE LITERATURE reveals a considerable range of ideas regarding what social cohesion is, how it is measured, how it relates to other topics such as social capital or human capital, and finally, what effects the presence or absence of social capital might have on a given community (see, for example, examinations by the Canadian Research Policy Network and *Isuma: The Canadian Journal of Policy Research*). Rather than reviewing all the literature (which has been done elsewhere), this report will work from within a framework based on a few such reviews, and instead of attempting to develop a conclusive definition, will consider a variety of indicators or dimensions of social cohesion. These dimensions, and related concepts such as social capital, offer evidence of the presence or absence of social cohesion. The framework is based primarily on the work of Jensen and a later extension of that work by Bernard. Where it is relevant, the ideas or opinions of other social cohesion scholars is added to the mix.

It is probably still useful to consider a couple of attempts to encapsulate the notion of social cohesion. In a lecture at the University of Alberta in 1996, Judith Maxwell offered this definition:

Social cohesion involves building shared values and communities of interpretation, reducing disparities in wealth and income, and generally enabling people to have a sense that they are engaged in a common enterprise, facing shared challenges, and that they are members of the same community (Jenson 1998, 3).

The Government of Canada's Social Cohesion Network, Policy Research Initiative provides the following working definition for consideration in policy development:

Social cohesion is the ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity among all Canadians (found on the Policy Research Initiative web site at [http://policyresearch.gc.ca/docs/hp-ph\\_sc-cs\\_sc-cs\\_e.htm](http://policyresearch.gc.ca/docs/hp-ph_sc-cs_sc-cs_e.htm) on 19 February 2002).

What emerges from these definitions is some level of agreement that social cohesion is a process, that it involves communities of people with shared values and challenges, and that the process somehow attempts to reduce economic disparity. In her seminal work on this topic, Jane Jenson worked with these common threads as well as with ideas drawn from other groups around the world, attempting to capture the notion of social cohesion. In that review she developed five dimensions that might be used to map this abstract concept. A few years later, Paul Bernard added a sixth to the list. It is these dimensions, developed and defined by Jenson and Bernard, that are used to examine the influence of social cohesion on the choice of organizational form in Saskatchewan's "new" agriculture. It is useful, therefore, to consider these six aspects and review what each attempts to identify.

Each is presented as somewhat of a continuum. In some instances, it is helpful to consider what a threat to social cohesion might involve. This review also identifies Bernard's classifications of these dimensions, as belonging to the economic, political, or sociocultural sphere of activity.

#### BELONGING . . . . . ISOLATION

This dimension fits best within the sociocultural sphere and embodies values and collective identities. Isolation from the community is a clear threat to social cohesion.

#### INCLUSION . . . . . EXCLUSION

This economic dimension relates directly to involvement in the market-place, examining whether individuals are meaningfully engaged in the workings of the market to which they are inevitably subjected. Practices or mechanisms that exclude or deter inclusion in market activity are a threat to social cohesion.

PARTICIPATION . . . . . NONINVOLVEMENT

This dimension falls within the political sphere and examines participation in governance, particularly at the local level. Barriers to involvement, apathy, or noninvolvement can threaten social cohesion. Political disenchantment and the resulting backlash are likely indications of a lack of social cohesion.

RECOGNITION . . . . . REJECTION

This dimension examines the extent of recognition and tolerance for pluralistic value systems. The existence and promotion of institutions or groups that recognize and celebrate diversity serve to mediate differences over power, resources, and values. The presence of institutions or groups that undermine the recognition of pluralism hint at a lack of social cohesion. This dimension fits most closely within a sociocultural sphere, but could arguably be placed in either the political or economic spheres quite readily.

LEGITIMACY . . . . . ILLEGITIMACY

This dimension, from the political sphere, is closely related to the last. In this case it is legitimizing the public and private institutions that provide the mediation role, described above, that is important. Expressions of cynicism, doubt, and negativity regarding these institutions put social cohesion in jeopardy.

EQUALITY . . . . . INEQUALITY

The sixth and final dimension, added to the mix by Paul Bernard, falls within the economic sphere. Closely related to inclusion/exclusion from the market-place, it makes the subtle yet important distinction between equality of opportunities and equality of conditions. It considers whether citizens, in reality, can access opportunities to become engaged in the market-place, or if they are hindered from doing so because of the conditions in which they exist.

As mentioned earlier, it is helpful to understand the interrelated concept of social capital. Once again a considerable body of literature exists and includes a fairly wide range of interpretations. Schuller summarizes social capital as follows:

...it is defined in terms of networks, norms and trust, and the way these allow agents and institutions to be more effective in achieving common objectives. The most common measures of social capital look at participation in various forms of civic engagement, such as membership of voluntary associations, churches or political parties, or at levels of expressed trust in other people. More economic interpretations give greater emphasis to the institutions and rules governing economic transactions at both micro and macro levels (Schuller 2001, 19).

Social capital, because of its focus on relationships, is integral to an understanding of social cohesion. It is, in fact, viewed as both a product of and generator of social cohesion. The reviews of the case studies later in this report identify both social capital as defined above and the dimensions of social cohesion as outlined earlier. It is important to note that each of the authors referenced in this section make clear statements that social cohesion is not necessarily a universal good. Under certain circumstances, networks, if too closely knit and homogeneous, can actually result in a failure to share information and innovation. Once some presence of social cohesion is identified, therefore, it is important to further consider whether it is functional.

To provide some context for this examination, it is useful to look at the changes that are occurring in the agricultural industry in Saskatchewan.

## SASKATCHEWAN'S "NEW" AGRICULTURE

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**A**GRICULTURE IN THIS PROVINCE, as in other regions of agricultural production, is undergoing significant change. Producers are faced with changes to production techniques and practices, changes in markets, changes regarding agriculture's perceived importance in public policy, changes in related sectors, and all of this within a world coming to grips with the realities of globalization. No longer are production decisions based only on what experience has proven to make most sense and which will yield the best returns. Producers now must make decisions in light of, among other things, constantly changing information regarding customer preferences, the agricultural policy of foreign nations, the latest advances in production technology, or on the basis of regimented production arrangements with some agri-food giant.

This "new" agriculture is the product of what has become known as the "industrialization of agriculture" (Boehlje 1996; Drabenstott 1994; Fulton 1995; Royer and Rogers 1998). Boehlje describes this phenomena as "the application of modern industrial manufacturing, production, procurement, distribution, and coordination concepts to the food and industrial product chain" (30). He goes on to contrast the traditional agricultural system with the new by suggesting that:

the new industrialized agriculture moves towards *(a)* manufacturing processes, *(b)* a systems approach to production and distribution, *(c)* separation and realignment of the stages in the food chain, *(d)* negotiated coordination among those stages, *(e)* new kinds of risk, *(f)* concerns about system power and control, and *(g)* a more important role for information (30).

It is helpful to more carefully consider Boehlje's explanation of these characteristics.

### MANUFACTURING PROCESSES

Agriculture is being transformed from a world of producing commodities to one of manufacturing food products, which are increasingly being tailored to suit consumer specifications. Much of the unpredictability that has always characterized agriculture is being replaced with systemization and routinization, allowing not only more predictability, but also more efficient use of the capacity of facilities when combined with task specialization and scheduling. As Boehlje suggests, “agricultural production is becoming more of a science and less of an art” (30).

### A SYSTEMS APPROACH

Whereas the trip from the farm gate to the dinner table used to consist of several independent steps or stages, there is a growing emphasis on the notion of food chains or systems. Such a system represents a flow beginning even before the farmer, with the producer of agricultural inputs such as genetic stock or herbicides, and continues through co-ordinated and linked stages of production before arriving at the consumer. A systems approach allows efficient supply and control of quantity, quality, and characteristics between these integrated steps.

### SEPARATION AND REALIGNMENT

While separation might seem contradictory to a systems approach, it allows specialization and control, through partnering or alliances, without necessitating ownership of the full chain of production. Specialization allows a producer to focus on a segment of the production chain that best utilizes available resources. It also eliminates the need to capitalize a broad range of fixed assets, thus rendering the producer better able to respond to market changes.

### NEGOTIATED CO-ORDINATION

While spot markets worked well enough for the movement of commodities, new food products with detailed and quickly changing attributes require a more co-ordinated information flow.

Producers at all points in the food chain need to have readily available the specifics of the downstream demand and of the upstream supply or availability of particular products. Such information is vital to timely decision making, and therefore survival, in a fast-paced market.

### RISK

Contractual agreements and co-ordination help to reduce risk in areas such as quality or input and sales prices, and help ensure that plants are operated at an efficient capacity. Industrialized agriculture faces new kinds of risk, however, and in some cases, increased risk. Because food production is now an integrated chain of activities, it is easier to trace back the source of a product or activity, thus exposing producers to liabilities associated with food safety or environmental impact. This era is also characterized by niche markets, which can change, or disappear completely, leaving a producer stranded at short notice. Likewise, establishing a contractual relationship exposes the producer to relationship risk, which ties the well being of the processor directly to that of the producer.

### POWER AND CONTROL

Given that consumers now have greater choice in the products they can buy, and that this choice translates directly into power, understanding consumer preferences and being able to align with these preferences also becomes a source of power. The firm closest to the consumer, usually the retailer, therefore, has a newly discovered advantage in the food chain. At the opposite end of the chain rests the other principal power, or control centre. The group holding the genetic stock is equally well positioned to exercise both power and control in the food chain. In traditional agriculture, producers found themselves stuck between these two power centres and subject to their domination. In the industrialized agriculture, the producer is more likely to have integrated forward and/or backward and seized some of this control. It is holding specific knowledge that offers power.

### THE ROLE OF INFORMATION

As suggested above, power and information are clearly connected. This means not only the access to information, but also the ability to fully utilize it. With an increased emphasis on

private versus public research, new information is naturally more proprietary. As Boehlje suggests,

[t]he expanded capacity of integrated systems to generate proprietary knowledge and technology and adopt it rapidly enables participants in that system to more regularly capture and create innovator's profits while simultaneously increasing control and reducing risk. This provides a formidable advantage to the ownership/contract co-ordinated production system" (33).

A quick scan of Saskatchewan's agri-business industry today confirms Boehlje's observations. The changes he outlines are most visible to those individuals closest to and most affected by them—the primary producers. The next section presents a theoretical model for how producers might become more involved in the new agriculture and how such involvement is manifested.

# A MODEL FOR THE ADOPTION AND DIFFUSION OF INNOVATION

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**T**HE ECONOMY AND THE AGRICULTURAL SECTOR are arguably “complex systems.” It is helpful to consider them as complex in order to understand why certain directions have been pursued and to fully understand their origins. Whitesides and Ismagilov (1999) define a complex system as “one whose evolution is very sensitive to initial conditions or to small perturbations, one in which the number of independent interacting components is large, or in which there are multiple pathways by which the system can evolve” (89). These systems are self-organizing—responding to innovations as they emerge from below. The systems change unpredictably, but according to how the innovations and their environment interact and reproduce (Jacobs 2000). While the definition of complex systems was developed for a discourse on chemistry, it offers a useful way to conceptualize an industrialized agricultural sector.

The purpose of this section is to examine what happens in the process of the diffusion of innovation in the agricultural sector—in this case, organizational models used to engage in the new agriculture. As noted earlier, the reality for agricultural producers has changed. It is a time of instability or disequilibrium. Most farmers used to focus primarily on the production of commodities such as grains, oilseeds, cattle, or hogs. They grew or raised their commodity, and any further transformation or processing was undertaken by some other party. The struggles of traditional producers to maintain viable operations today may be evidence that times have changed and that new approaches need to be explored.

Of specific interest in this research is the process or activity that leads to producers becoming involved in new areas of activity. Much has been written on the concept of the diffusion of innovation. This type of research typically involves studying how an idea or new

technology spreads within a given group. Classic studies of the use of hybrid corn varieties, family planning practices, and the use of new antibiotics dominate the literature. The area of inquiry has grown to include a variety of other disciplinary fields as well. Typical diffusion studies yield information on the rate at which an innovation spreads, who adopts it, and at what point in the process of diffusion particular individuals adopt the innovation. Such considerations provide researchers with data that is often presented in the form of S-shaped curves reflecting what portion of a given population has adopted an innovation in relation to time. These curves are based on the assumption that the first adopters, called “innovators,” adopt the innovation at time zero. They are followed by “early adopters,” the “early majority,” “late majority,” and finally, the “laggards” (Rogers 1995).

As Rogers has shown, diffusion of innovation research has been useful on a variety of fronts. First, as indicated above, while its use has spread to a variety of disciplines, it also provides a common conceptual paradigm that assists/allows true interdisciplinary investigation. Too often, research that ought to have been interdisciplinary culminates in a more multidisciplinary result. By surrounding the research problem with the diffusion of innovation conceptual paradigm, researchers can use this common lens to construct, exhibit, and understand various disciplinary perspectives. In addition, diffusion research is often credited with getting research-based innovations utilized in a practical fashion. This can be as straightforward as market research assisting in the release of a new product line, or less visible as in the case of developing policy to stimulate economic growth. Rogers has also been careful to recognize that this field of research is not without its shortcomings.

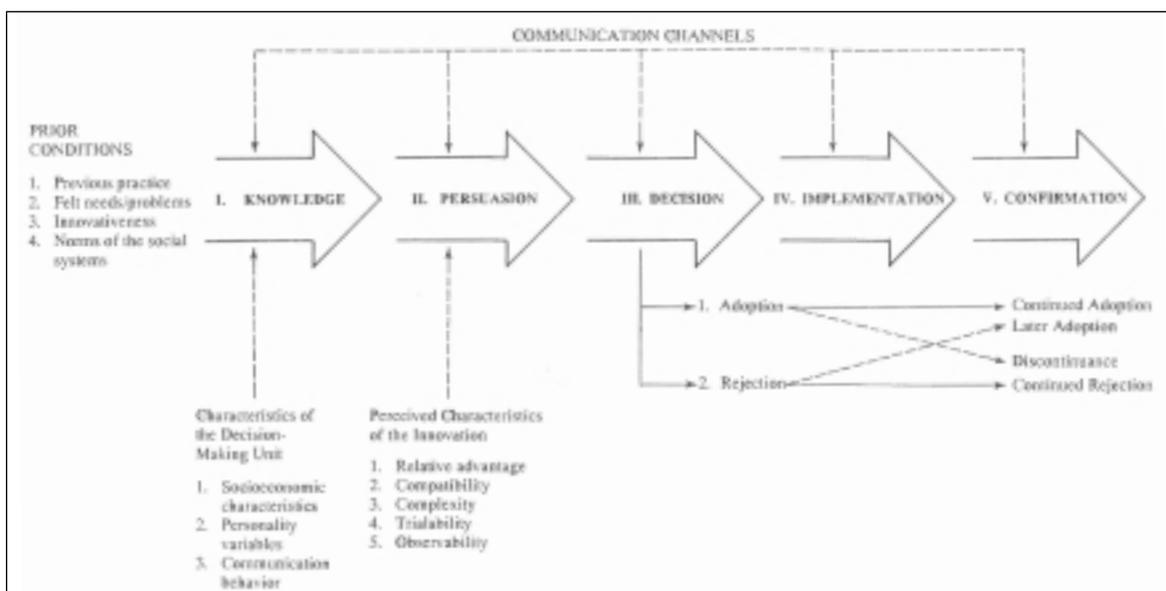
The failings of traditional diffusion of innovation research include a lack of attention to the following: occurrences before the innovators first adopt a new technology; changes occurring to the innovation during the diffusion period being considered; and the consequences of the innovation, or that period of time following the diffusion process (Rogers 1995). While focussing primarily on the period immediately preceding the introduction of an innovation and its first adoption, this report also considers the ongoing influences on adoption decisions and their ultimate consequences. In addition, the report explores a parallel phenomenon that sees certain innovations selected and replicated in favour of alternative options with similar objectives. Understanding how these types of decisions are taken contributes to a fuller understand-

ing of agricultural and rural development. It is important to begin by considering where and when change is likely to occur.

### BIFURCATION POINTS

Choices to adjust current practices or undertake new types of activity often come at so-called “bifurcation points,” or forks in the evolution of some activity. As Capra (1996) describes it, a bifurcation point, “is a point of instability at which new forms of order may emerge spontaneously, resulting in development and evolution” (171). Capra also explains that at such points of instability, relatively small or seemingly insignificant events can have large and significant outcomes. At these points, something or someone—in this case the producer—makes a decision about how to proceed. In some cases it is merely a matter of choosing to maintain the status quo versus undertaking a particular new activity. In other instances it becomes a matter of choosing from a variety of related options. Most often, successful bifurcations begin slowly and develop as they are tested (Jacobs 2000). So, why are certain choices made, and what influences or affects those choices from within the range of options? What were the factors that pointed Saskatchewan producers down their chosen paths? Because decisions to adopt innovations unfold, are frequently reviewed and revisited, and sometimes abandoned, we must also consider choices by later adopters and subsequent changes in direction by all players. As mentioned, innovation decisions are not one-time, single-event actions, but rather, a process (Rogers 1995), illustrated by Rogers’s model in Figure 1. Features of this model are incorporated into the analysis section of this report.

Certainly not all Saskatchewan farmers have abandoned the status quo. A considerable number, determined to maintain a traditional role in agricultural production, will ultimately discover if this was indeed the wisest choice. Of those who have opted for change, a variety of choices has been available to them. What is it that differentiates the innovators from those who maintain the status quo? Some authors have suggested that some perturbation, or “noise,” at a bifurcation point is what nudges these individuals to select a given path (Capra 1996; Whitesides and Ismagilov 1999). The following section will explore some factors that may influence the decisions producers make.

**Figure 1: Stages of the Innovation Decision Process**

Adapted from Rogers (1995, 163).

## ECONOMIES OF SCALE

As more and more adoption decisions are made, it becomes increasingly likely that choices will reflect previous decisions made by earlier adopters. This often relates to factors such as familiarity, risk reduction, and cost reduction, all of which tend to influence the cost-benefit equation and therefore the innovation decision. Because producers will have seen neighbours and/or acquaintances selecting and using a given innovation—in this case a particular organizational model—they will be more familiar with it and therefore more comfortable with their own adoption decision. Likewise, if others are already using the given innovation, it is more likely that the information coming from leaders and experts will have been influenced by its presence and will further favour that particular choice. Risk is often related to unfamiliarity and uncertainty. As more producers adopt an innovation, the uncertainty, and therefore the risk, declines. With increased adoptions, many of the bugs get worked out, infrastructure to support a particular innovation is developed, and therefore the cost of adoption decreases for subsequent users. This is perhaps most evident in the costs associated with development agents. Many of the organizational models employed in value-added processing, for example, are simply “cookie-cutter” replications of earlier versions of similar projects. The business devel-

opers and professionals working with groups of producers are able to replicate a business strategy, including organizational form, much more quickly and efficiently if they simply need to do again what they have already tried. Put simply, economies of scale develop as the model is repeatedly used.

### PATH DEPENDENCY

Just because a preferential choice emerges, there is no guarantee that the most efficient economic outcome will result. In fact, because particular outcomes are so strongly affected by small initial advantages, once a preference is selected it is likely to influence future choices and thus dominate the market. The most common market-place example of such an occurrence is the dominance of VHS video format over the arguably superior Beta format (Arthur 1994). In that case, some early advantage for VHS made it increasingly favourable for consumers to choose that format over other options. Arthur refers to this scenario as path dependence. This concept is particularly helpful in understanding the selection of organizational model used to engage in the new agriculture. Path dependence results in a related concept known as “lock-in,” which is examined more closely later in this report.

### NETWORK THEORY

The study of diffusion of innovation is essentially the study of how information spreads throughout a given group. This group or community can be thought of as a network, and it is therefore important to consider how such a network functions. Network theory posits that by interacting with a particular node of a given network, the initiator of the communication is exposed to a broader group of contacts (Holmlund and Fulton 1999). This access to more contacts enables or results in the accumulation of additional information and presumably an enhanced ability to make innovation decisions. Network analysis offers insight on how, when, and with whom interpersonal communication occurs within a given social system. Valente (1994) provides threshold and critical mass models to identify the “tipping points” at which individuals and social systems, respectively, choose to adopt innovations.

The history or research on the diffusion of innovation has been a gradual recognition of the role of personal networks in influencing adoption behavior. Threshold models posit that

individuals have thresholds of adoption at which interpersonal influence is effective at persuading them to adopt. Critical mass models posit that social systems have a critical point of adoption at which the system is self-sustaining (134).

When we conceive these tipping points as that initial advantage giving rise to path dependency, a model emerges that explains why particular innovation choices are replicated, as well as what factors led to the selection of that choice over others in the first place. The next section of this discussion looks more closely at the product of path dependence—“lock in”—and considers whether there is a way of breaking free from such a fated outcome.

### LOCK-IN

The advantages or benefits that result from a path-dependency scenario make any chance of exiting from the given path increasingly difficult. A positive feedback loop develops that feeds on the advantages and produces further advantages. As noted earlier, however, these advantages do not assure that these choices are necessarily the most efficient approach. Pursuing such a direction results in a state that Arthur (1994) describes as lock-in. A decision to pursue a different path requires exit from lock-in and is wrought with many disincentives for change. To help illustrate why exit is so difficult and to contextualize the concepts of economies of scale, path dependence, positive feedback, and bifurcation points, it is helpful to present a simple metaphor.

A group of winter travellers is walking in deep snow on a pointed ridge of land in the mountains. There is an advantage to following the route taken most often by those ahead because the snow is more packed, presents less resistance to travel, and furthermore, is well known, safe, and tested (*economies of scale*). As the group proceeds, it encounters some obstacle that makes continuing on the peak difficult and that encourages or requires a departure from the top of the ridge (*bifurcation point*). The leader is faced with a choice to veer to the right or the left (*innovation choice*), walking forward and downward on a given slope. Each subsequent traveller must then make the choice of following the leader or of breaking new trail down the other slope. Because it is easier to follow the leader (*economies of scale*), most later-comers will do so, thus making it progressively easier for those yet to come (*positive feedback*). Just because this path was taken by the leader, however, is no guarantee that it represents the best route, yet

it continues to be followed (*path dependence*). It is difficult, if not impossible, for one of the group to opt for the other side of the ridge after having made the initial decision to follow the leader (*lock-in*). Not only would that individual have to contend with being the first to break a new trail in the snow, but he or she would also need to regain the ground that was lost by having followed the leader down the initial path. In other words, s/he must first climb up to the top before being able to select an alternative route on the other side of the ridge.

Loosely fashioned after Arthur's (1994) notion of "a random walk on a convex surface," the metaphor illustrates the concepts discussed earlier in this section. Arthur further considers whether it is possible to "break free" from lock-in, borrowing from the world of chemistry the concept of "annealing" to label these efforts. Arthur argues that "there is rarely in economics any mechanism corresponding to 'annealing' (injections of outside energy that 'shake' the system into new configurations so that it finds its way randomly into a lower cost one)" (1988, 16). If we revisit the walk-in-the-snow analogy, the question becomes whether there is some reason, means, and motivation to scramble back to the top of the ridge and proceed down the other slope. One can imagine that encountering a cliff or an avalanche would satisfy those criteria. Arthur (1988) contends that exit from such an inferior position will depend on the nature of the self-reinforcing mechanisms and whether or not the advantages characteristic of the original choice can somehow be replicated or transferred to the alternative option. In the case of Saskatchewan's new agriculture, it is necessary to look at some of the factors that might have influenced the original decisions, and consider whether a change in those conditions, if beneficial, is even possible.

Complexity theory suggests that during periods of instability, new developments emerge resulting from some "nudge" in a particular direction. Saskatchewan agriculture is experiencing such turbulent conditions, and various innovations, in various organizational forms, have emerged to address the change. This section of this report provides a theoretical model for how producers, faced with making changes, decide to proceed, and further, how they select the particular approach used. Consideration was also given to how certain innovations, once adopted, tend to be replicated or "blueprinted" in favour of other ideas, not always on the basis of merit, but simply because the original approach had already been used somewhat successfully. It is on the basis of this model, in conjunction with a consideration of social cohesion, that the following case studies are later analysed.

## CASES STUDIES

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THE INFORMATION CONTAINED IN THE FOLLOWING CASE STUDIES was collected from the publicly available sources identified within each case. The analysis of the case studies and the interpretation of the experiences with the respective models in the next section are based on a series of interviews with individuals involved in the chosen sectors. Those individuals have an intimate understanding of how the models developed and were used, due largely to their involvement in various capacities with their respective enterprises. Because the interviews were conducted on the condition of maintaining the anonymity of the participants, those individuals are not identified.

### PRODUCER-OWNED INLAND GRAIN TERMINALS

There are currently eleven producer-owned inland terminals in Saskatchewan. These ventures use local producer investment to finance the construction and operation of large grain-handling and storage facilities. These facilities are similar to those being built by the major grain-handling companies in their efforts to consolidate their systems, and have typically developed in reaction to producer dissatisfaction with the existing grain-handling companies and a perceived need for more competition. Proponents of these enterprises claim to have more choices in how they market their grain and greater control over their role in the industry.

Producer-owned inland terminals are a mechanism for producers to become more directly involved in the handling and marketing of the grain they grow. The terminals are typically high-throughput, state-of-the-art facilities, capturing the benefits of cleaning, drying, and grading grain to export standards at the point of origin. They often have large on-site storage

capacity and the ability to accommodate large train units, thereby realizing the benefits of transportation incentives. These ventures are multimillion-dollar businesses that are owned, at least in part, by producers in the near vicinity of the terminal. Each of the Saskatchewan examples is structured as a corporation, with the level of control held by any individual directly related to his or her level of investment. The organizations are governed by boards of directors representing the parties with vested stakes in the enterprises. Producers are not obligated to haul their grain to the terminal, but are motivated to do so, in order to see the business in which they have invested succeed, thus providing a return on their personal investment. Non-producer investment in the terminals is allowed and is often promoted as a means to invest in the future prosperity of the host community. Given the high capacity/ volume of these facilities, it is necessary to attract business from a large collection area typically exceeding traditional community boundaries, which requires investors/producers to think in terms of regional economic prosperity rather than in more conventional ways related to the economic success of a given town. Grain hauling incentives are frequently provided to producers from farther afield to attract their business.

The producer-owned inland terminals in Saskatchewan are outlined in Table 1 (ITAC 2002). They were created to compete with the existing grain-handling companies, and in some cases to provide grain producers particular services that were otherwise unavailable in the communities where they lived. Most often, producers felt that the profits derived from the handling of grain were being realized by someone other than the producers themselves. The terminals are viewed as a mechanism to recapture some of those profits, and in doing so, to help assure the viability of grain production in their area. At the time that the idea for the first inland terminal in Saskatchewan was being discussed, there were already hundreds of successful terminals operating in the United States (Driver 2001). The rationale for establishing the first producer-owned Saskatchewan terminal, Weyburn Inland Terminal (WIT), is summarized as follows: “Farmers had been talking about finding a way in which they could have more control over their own product, more independence as farmers and a better, different way of handling grain on the Prairies” (Driver 2001, 3).

That the second terminal was not established until sixteen years later suggests that other groups of producers were looking for an established record of success before following suit. It is

also not surprising that subsequent producer groups have typically looked to WIT as the model to follow when designing their own terminals. It is interesting to note, however, that each subsequent venture has opted to establish some sort of ownership relationship with an established grain handler.

**Table 1: Producer-Owned Inland Terminals in Saskatchewan**

<b>Terminal</b>	<b>Location</b>	<b>Opening Date</b>	<b>Industry Partner at Start</b>
Weyburn Inland Terminal	Weyburn	1976	None
North East Terminal	Wadena	1992	Cargill Ltd.
North West Terminal	Unity	1996	Pioneer Grain
Mainline Terminal Ltd.	Moosomin	1996	Cargill Ltd.
South West Terminal	Gull Lake	1997	Cargill Ltd.
Mid-Sask Terminal Ltd.	Watrous	1997	Pioneer Grain
Prairie West Terminal	Plenty	1998	Alberta Wheat Pool
Terminal 22 Inc.	Balcares	1998	Cargill Ltd.
Great Sandhills Marketing Centre	Leader	1999	Sask. Wheat Pool
CMI Terminal J.V.	Naicam	2000	Agricore
Gardner Dam Terminal	Strongfield	2001	Agricore

Information in this table is summarized from that provided by the Inland Terminal Association of Canada (ITAC)

Even though the most recent additions to the list of producer-owned terminals have come in rapid succession, it is doubtful that replication of this model will continue at the same rate. The current consolidation of the grain-handling industry and the move by all major industry players to develop networks of large inland terminals raises questions regarding overcapacity on the Canadian Prairies (McKinnon 2002).

## COMMUNITY-BASED HOG INITIATIVES

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A new type of hog enterprise in Saskatchewan known as a “community-based hog operation” is beginning to appear. These operations have adopted a very interactive business strategy that integrates the local community and surrounding area into most aspects of the operation. They directly generate employment while also offering the local community the opportunity to invest in, not only the success of the project for each individual’s financial motivations, but also the success of their own community and surrounding area in terms of stability and development (Storey et al. 1996, 70).

Community-based hog initiatives are a mechanism for farmers, particularly grain producers, to become involved in the hog industry without needing to physically handle or raise hogs. The model outlined here is based on that developed by the Quadra Group from Outlook, Saskatchewan. Some discussion of similar attempts by Heartland Pork Management Services, a wholly owned subsidiary of Saskatchewan Wheat Pool, is also included.

Saskatchewan is ideally poised for an expansion of its hog industry, with a growing world demand for pork and a chronically low-priced and abundant supply of feed grain (Whittington et al. 1996). At the same time, the nature of the industry is evolving into one with fewer, but larger, production operations, which are typically aligned with processors (Storey et al. 1996). Given these conditions and trends, it would seem logical for Saskatchewan grain producers and the communities of which they are part to become more involved in the hog industry. The community-based hog initiative model offers the mechanism to do so in a relatively easy fashion.

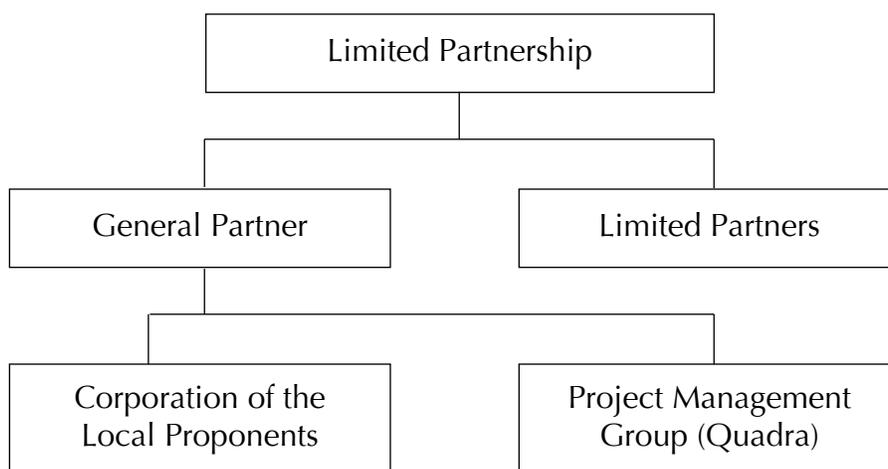
This model, first introduced in 1995, is best illustrated by the development efforts of the Quadra Group. Quadra’s network of community-based barns has grown to include sixteen operations, including three in Manitoba (see Table 2), and has morphed into Community Pork Ventures Inc., a corporation benefiting from economies of scale and industry alignment (Community Pork Ventures 2001).

The basic Quadra model for a community-based hog initiative involves a local proponent group, Quadra Management Services, and an investor group (see Figure 2).

**Table 2: Community Pork Pig Production Corporations**

<b>Name</b>	<b>Location</b>	<b>Size of Operation</b>
Beechy Stock Farms (1996) Ltd.	Beechy, SK	600 sows
Eagle Creek Pork Producers Ltd.	Plenty, SK	1,200 sows
Sask Valley Pork Producers Ltd.	Rosthern, SK	1,200 sows
St. Denis Stock Farm (1995) Ltd.	St. Denis, SK	600 sows
River Lake Stock Farm (1995) Ltd.	Central Butte, SK	600 sows
Great West Stock Farm (1996) Ltd.	Broderick, SK	1,200 sows
Norfolk Stock Producers (1996) Ltd.	Treherne, MB	600 sows
Hi-Point Stock Farm (1997) Ltd.	Cando, SK	600 sows
Sask West Pork Producers (1997) Ltd.	Unity, SK	600 sows
Kelsey Stock Farm (1997) Ltd.	Star City, SK	600 sows
Last Mountain Stock Farm (1997) Ltd.	Strasbourg, SK	600 sows
Pasquia Pork Producers (1997) Ltd.	Arborfield, SK	600 sows
Southwest Stock Farm (1997) Ltd.	Melita, MB	600 sows
Whitewater Swine (1997) Ltd.	Boissevain, MB	600 sows

Adapted from Community Pork Ventures 2001 *Annual Report*

**Figure 2: Ownership Structure of Community-Based Operations** (adapted from Storey et al. 1996, 94)

In the model's typical form, the local proponent group, usually a small collection of producers and leaders looking to develop a local market for feed grain and to generate economic activity in their community, approaches Quadra with an interest in exploring the development of a hog venture. Quadra provides a business model and technical expertise, while the local group serves as a source of investment equity, but also as a conduit to additional investment from the community. The local group incorporates and enters a general partnership agreement with Quadra. This entity then enters a limited partnership arrangement with other community investors solicited by the proponent group. Remaining capital requirements are met through the usual debt-financing means. This elaborate structure is designed to convert into a corporation a few years later, once the venture is fully operational and generating profit. The logic for this type of evolving structure is to flow financial losses accrued during the development stage of the project back to the limited partners, thus allowing these investors to realize personal tax advantages on their investments. Once the venture is operational and profitable, it becomes advantageous to be taxed at a corporate rate instead (Storey et al. 1996).

Each of the parties involved stands to benefit in a variety of ways by using this model. For local grain producers, the arrangement allows them to diversify their operations without having to actually become hog producers. They also have an opportunity, although no obligation or right, to sell feed grain locally, thereby reducing transportation costs. Producers in close proximity to the barns who have effluent from the operation injected into their fields also gain from reduced fertilizer input costs.

The established industry player (Quadra) benefits by accessing local capital and grain. It is also typically faced with less opposition to the barn than might be the case with other developers. This is because the community approached the developer to discuss the project in the first place, and also because community members have a vested interest in the venture. Raising local capital also becomes easier, since it is the members of the local proponent group who act as agents for the general partnership and seek investment in the limited partnership from others in the community.

As mentioned earlier, the local investors who participate in this venture through the limited partnership benefit not only through returns on their investment, but also from being

able to apply losses accrued early in the project directly against their personal income, thus reducing their personal income tax.

The communities in which these barns are located also gain collective benefits. In general, the project drives further economic activity. Some of this results from the several well-paying jobs typically created, while some is a product of the spin-offs that the project creates and the additional income generated for those who invested in the venture. This new economic activity is precisely what many communities need to remain viable and what allows them to continue providing the types of services their residents desire.

This model is a well-balanced blend in which benefits are shared because the various parties involved each make important contributions. Partnering with an established industry player is vital because of the technical expertise they bring, the markets they can access, the credibility they lend in the eyes of financiers, and the tried-and-tested business plan they apply. The particular model developed by Quadra was a one-site, farrow-to-finish, six-hundred-sow operation, which involved all phases of hog production, including the milling of feed. While the scale of most recent examples of this model has doubled to twelve hundred sows, its one-site nature remains unchanged.

At about the same time that Quadra was gaining momentum, Saskatchewan Wheat Pool (SWP) unveiled an ambitious quarter-billion-dollar hog initiative (Ewins 1996). While the production model differed from Quadra's, the motivation to become involved in the industry, the opportunities for producers and local communities to invest in the enterprises, the limited-partnership structure, and the expected benefits to the parties involved were all similar to those of the Quadra model. The intention was to have twenty-five large multisite operations in Saskatchewan producing about two million hogs per year (SWP 1997). The plan was for community members, particularly grain producers, to invest approximately 25 percent of the capital required, which would be matched by SWP, with the remainder financed through debt. A lower-than-expected level of community interest in the ventures has resulted in only four truly community-based operations, which form part of a much smaller overall initiative consisting of seven hog production facilities (SWP 2001).

## NEW GENERATION CO-OPERATIVES

New Generation Co-operative (NGC) is the name given to an emerging business form used primarily to involve agricultural producers in the value-added processing of the commodities they produce. These enterprises borrow many of the fundamental features of traditional co-operatives, but also have some important distinguishing differences, including closed membership, large equity investment by members, and delivery contracts. While this model has been successfully and repeatedly used in the United States, it has been slow to catch on in Canada.

New Generation Co-operatives are an organizational form developed in the United States over the last couple of decades. While the model has migrated north to Canada, it has been slow to develop and few solid examples exist in this country. This is true even in Saskatchewan, where most of the Canadian research and development work for this model has occurred. To date, only five NGCs have been registered in Saskatchewan, and of these, only a couple are, or soon will be, operational. This case study will review the basic NGC organizational structure and the development experience in the United States and Canada.

NGCs are a mechanism for farmers to respond to many of the realities of industrialized agriculture. This is an organizational form that brings producers together to collectively achieve some end that they could not reach individually. In this way they are similar to traditional co-operatives, but they also have some important differences. NGCs are designed specifically to integrate farmers into the value-added processing of the commodities they produce. Typical US examples include durum growers getting involved in the production of pasta, and corn growers in the manufacture of ethanol. In each case, the product is somehow transformed so that it becomes more valuable than the bulk commodity itself.

The classic conflict between producers and processors, which sees one of the parties gain at the expense of the other, disappears when the NGC model is applied. This is because the producer becomes the processor, thus removing the motivation to benefit at the expense of the other party. In the basic model, a small group of producers with a value-added processing idea

band together and form a business entity in which membership is sold to a broader group of farmers who are able to produce the given commodity. Membership shares have voting privileges and are the basis upon which a board of directors is elected and the organization controlled. As with traditional co-operatives, the one-member, one-vote principal applies. The funds generated from the membership drive are used to fully develop a business case, hire a project manager, and to conduct organizational development. The group develops a complete plan for the construction of the facility that will process their commodity. Decisions regarding location, capacity, and other details result from analysis of the business case. Once the facilities are designed and a full prospectus prepared, equity shares, which are tied directly to the delivery of the commodity being processed, are sold to producer members. The number of shares sold reflects the volume of the commodity required for the optimum efficiency of the processing facilities. When the predetermined volume has been achieved, therefore, the sale of shares stops.

NGCs are thus closed co-operatives, which is the first major distinction from traditional co-operatives. The price at which equity shares are sold is set such that the funds generated by the sale of the predetermined number represents a significant portion of the capital cost of the project—usually 35–50 percent—and further represents a significant capital contribution by each member. This, again, is a departure from traditional co-operatives. Having such significant member equity makes accessing debt financing for the remaining capital requirements relatively easy, and ensures that profits realized from operations can be quickly returned to the members rather than being used to service high debt. An important feature of the delivery shares is that they represent a contractual agreement between the members and the co-operative to both provide and purchase the commodity in question. Detailed specifications regarding the quality of the commodity, the timing of its delivery, and the price paid for it, are all clearly outlined as part of the delivery contract. The price paid for the commodity is usually set at close to market value. A third type of preferred share is sometimes made available to outside investors. These shares usually receive a fixed rate of return and carry limited voting privileges as established in the articles and by-laws of the NGC.

Producer/members stand to benefit in a variety of ways from this model. First, if the processing facilities are located in relatively close proximity to the producers, then reduced

shipping costs may be realized. In addition, producers are guaranteed a market for their commodity, at least to the extent of their delivery rights. Assuming profitable operations, equity shareholders reap dividends corresponding to the extent of their investment. Finally, equity shares are tradable and therefore have value. Given board approval, producers no longer wanting to or able to produce the commodity can sell their shares to other producers. An important distinction in an NGC is that producers are the members, the users, and the controllers of the organization, which ensures that the interests of producers are at the forefront of the decision-making process. This is inherently different from the investor-owned firm that caters to investor interests and in which control is exercised in relation to level of investment.

NGC development in the United States is impressive, with more than two hundred examples of such organizations found primarily in the Upper Midwest. The decision to become involved in value-added processing is a response to the changes occurring in agriculture, but the decision to choose the NGC organizational form is largely the product of determined development efforts and support. Development support is well documented and has taken a variety of forms. Stefanson (1999) has illustrated how a network of development assistance and support, including financing, co-operative development education, and business development, have all contributed to this success. Support for this approach has come from the existing co-operative sector, financial institutions, universities, and government, particularly the United States Department of Agriculture (USDA). Stefanson et al. (1995) offer a model (see Figure 3) for successful NGC development that is conspicuously similar to models for community economic development (CED). Herman and Fulton (2001) have examined this similarity and conclude that while NGC development and CED are not the same thing, they are closely related and share similar processes, and that an overall CED approach needs to be in place in order for NGC development efforts to be successful.

As mentioned earlier, NGC development efforts in Canada have been less successful. While most provinces now have enabling legislation, few of these organizations have developed. In Saskatchewan, through the former Department of Economic and Co-operative Development and the Department of Agriculture, some development effort has occurred and minimal financial assistance has been available. The established co-operative sector has been supportive in principle, but has not conducted any concerted development effort or offered any

financial support. The Centre for the Study of Co-operatives at the University of Saskatchewan has actively researched the NGC development model and is primarily responsible for its introduction to Canada in the mid-1990s. A recent NGC development pilot project, conducted by the Centre for the Study of Co-operatives and funded by the Government of Canada, revealed not only a shortage of development support, but also a need for better co-ordination of existing resources and more of a network model of development similar to that found in the US. The report from that project also concluded that adequate professional infrastructure, (lawyers, accountants, and business consultants willing and able to work with the NGC model) was also lacking (Centre for the Study of Co-operatives 2001).

**Figure 3: Critical Elements in the Growth of New Generation Co-operatives** (Stefanson et al. 1995)



The NGC model offers direct benefits to the producers who own these ventures. Because NGC development is similar to community economic development, however, many benefits also accrue to the community in which the venture is located and to the various rural communities from which the members come. These benefits include enhanced local decision-

making capacity, a renewed self-help attitude, and various economic multiplier effects such as an increased tax base, new business development, and increased retail sales (USDA 2000).

It is important to note that the NGC model outlined here is slowly evolving. Even the examples from the US that closely followed this model are adopting new features. Prominent in this evolution is the need for more alliances or partnerships with established industry partners, whether they be other co-operatives or not. In doing so, producers can bring production knowledge and experience to a venture, while partners can add other expertise such as processing, marketing, or research and development. In many cases, aligning with an established industry player is critical to accessing the market at all.

## ANALYSIS AND OBSERVATIONS

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AS MENTIONED EARLIER, the following analysis and observations are based on findings from interviews conducted with key players involved in examples of each of the types of organizations profiled above. In each case, the individuals participated in the interviews with the understanding that they would remain anonymous. One exception to the interviews is the use of a secondary resource by Driver (2001), which carefully details the development of Weyburn Inland Terminal, the first producer-owned inland terminal in Saskatchewan.

The analysis will use theory outlined earlier in this report as the basis for identifying factors influencing the adoption of particular organizational models for use in the new agriculture. Special attention is given to the role that social cohesion played in influencing decisions regarding the choices of these models. The analysis is organized around collections of evidence supporting three main themes—social cohesion, economies of scale, and path dependence. Each of the three case studies is reviewed under these themes. Where it is appropriate, attention is given to related themes such as social capital and network theory.

### SOCIAL COHESION

As discussed earlier, social cohesion is a somewhat abstract concept. In order to identify it and to comment on its effect on outcomes requires that we look for the indicators or dimensions of social cohesion outlined earlier. Since not all of these dimensions are observable in each case, comments are provided only on those that were visible.

With the producer-owned inland terminals, there was a clear relationship between an individual's ability to provide significant capital and the role that person played in the project. In other words, the producers most involved in organizing and running the terminals were also

those making the largest financial commitment. These people formed the boards of directors and also played a role in soliciting investment from other producers. While these individuals were viewed as leaders in their communities, their approach appears to reflect a greater interest in personal gain than in some broader community good. These individuals were often dissatisfied with the status quo, and in particular with some of the agencies such as the Canadian Wheat Board, which claimed to act on behalf of producers. Many of these organizers maintained a strong opposition to the Saskatchewan Wheat Pool, and more generally to co-operatively structured organizations.

Interestingly, many of the reasons cited for developing the producer-owned terminals were similar to those that instigated the formation of agricultural co-operatives on the Canadian Prairies, including the need for greater competition, along with enhanced producer influence in the grain-handling industry. In essence, producer-owned terminals were seen as a mechanism to correct a perceived market failure. Community-based organizations such as co-operatives are typically viewed as generators of social cohesion, yet proponents of the producer-owned inland terminals viewed them as deterrents to full inclusion in and control of the market. Many of the proponents of the Weyburn Inland Terminal were also members of the Palliser Wheat Growers Association, which later became the Western Canadian Wheat Growers Association. Membership in such an organization reflects producers' shared values and collective identities. Many of the individuals who organized the producer-owned inland terminals were also involved in a variety of political or pseudo-political forays. The reasons behind such efforts might be interpreted as political disenchantment or backlash. In other words, because they did not like the way things were, they tried to position themselves to affect some change.

These business ventures seemed to attract a fairly broad ethnic diversity of investors. Their political philosophy and values related to personal versus collective gain, however, hints at a rather homogeneous group, at least among the most active of the individuals and therefore the largest investors. While virtually any producer in the vicinity of a proposed terminal had the opportunity to invest in the venture, the reality was that it was those with the larger and more profitable farming operations who became most involved, aptly illustrating Bernard's (1999) distinction between equality of opportunity and equality of conditions.

Overall, social cohesion seems to be present, if somewhat constrained, in the case of

producer-owned inland terminals. These ventures have certainly benefited from existing networks of like-minded individuals such as those belonging to the Palliser Wheat Growers Association. Development of these ventures has also resulted in the accumulation of social capital in the regions surrounding the terminals, and new relationships have been forged through such organizations as the Inland Terminal Association of Canada. While one producer clearly identified a heightened trust in fellow investors and board members as a direct outcome of his involvement in the development process, it is unlikely that these ventures would ever have materialized unless significant trust existed in the first place.

In the case of community-based hog barns, social cohesion was definitely a contributing factor in their development in some communities. Development occurred only in those communities seeking a project, and it is therefore arguable that a certain level of leadership, initiative, and trust existed before the projects ever began. Once again, a local proponent group, which usually represented the biggest investors and the most active leaders, solicited further local investment. This group epitomized notions of leadership and trust, not only acting as the voice for the project but also serving to detect any opposition. By doing so, they were able to address unfounded criticism, thus expediting project development. The communities that came forward with development interest were clearly looking for more than just an investment opportunity; they wanted a sound investment that would also benefit the larger community. A distinction was identified between the notion of “business building” and that of “wealth creation,” which was viewed as more indicative of community development. Investment opportunities were varied in nature to suit different levels of involvement and comfort with risk, suggesting a reasonable level of equality of opportunity and condition. The design of these initiatives placed a significant degree of control in the hands of local producers. Unfortunately, this control diminished as the limited partnerships rolled into corporations, and even more so as the larger network of ventures evolved under the Community Pork Inc. banner. Shareholders in this new entity have a less clear line of sight between their investment and the control of the organization that happens to be located in their community.

In the case of Heartland Pork Management, initial interest in the venture leads to an assumption of trust and perhaps common values at the community level. The reality that insufficient local investment arose in most of the cases, however, challenges that assumption. Given

that many individuals from these same communities were investing in other ventures, not always in their home community, suggests that the lack of interest in the hog barns may reflect a lack of trust in the organization driving the development, or a lack of trust in a model that, because of its large scale, may have scared off many investors. It also seems that those communities in which the barns were seen as an investment in the community itself benefited from SWP's rush to begin the projects before local investment was secured. As one potential investor put it, "If Sask Pool is going to go ahead and build it anyway, why should I bother risking my investment? We still get the local jobs and other spin-off benefits."

The NGC model requires a sizeable investment on the part of the members, but the extent of any individual's control of that organization is equal to any other member's. This one-member, one-vote principle is fundamental to co-operatives. The message that clearly resonated from the NGC example was that community was at the heart of any and every consideration. The reason for pursuing the project was to sustain the community, and the reason the structure was selected was to allow broad-based participation by many producers and other community players. In one particular case, a local unskilled wage-earner invested in the enterprise even though he was a nonproducer and unable to utilize the delivery contract component.

This model required strong leadership and considerable trust in the individuals assuming the leadership positions. In most cases, the investors viewed the venture as a way to keep their community alive by circulating the associated income throughout the local area. A high level of trust was illustrated by the quick, full subscription of investment shares in the entity. In the example considered, additional trust was exhibited by the local credit union, which offered loans to individuals otherwise unable to raise sufficient capital to engage in the enterprise. These loans were secured by the shares in the NGC and therefore offered interested investors a "risk-free" opportunity to participate. Of the various models examined, this was the only instance where the equality of opportunity and equality of conditions appeared similar.

The place where this NGC developed has a strong sense of community, strong and active co-operative organizations, and a reputation for achieving what some might deem unattainable given local circumstances. As one member explained it, "We don't even think about how insurmountable the tasks we undertake might be. We just put our minds to it and do it as a community and for the community." This attitude towards and confidence in pro-

jects undertaken by the community creates a positive feedback loop, which has social capital resulting from successful initiatives, which in turn yields further social capital and social cohesion. This particular community is also religiously, socio-economically, and ethnically diverse, further supporting the social cohesion theory outlined earlier.

While each of the organizational models has developed in communities seemingly rich in social cohesion, local leaders for some reason have chosen different organizational forms. It might be argued that the community opting for the NGC model possessed the greatest abundance of social cohesion, and that this in turn influenced the final choice. One thing, however, seems clear. Regardless of the model ultimately applied, communities require trust, leadership, and effective communication networks in order to pursue any such venture. The importance of relationships and relationship building was consistently cited as a critical factor leading to successful agricultural value-added ventures involving community or sectoral groups. These are strong indicators of social cohesion and all are likely prerequisite characteristics for forays into the new agriculture.

Given that social cohesion might not be the sole explanation behind the choice of a particular organizational form, an examination of other contributing factors such as economies of scale and path dependence is useful. The following sections of this report examine the case studies from those perspectives.

### ECONOMIES OF SCALE

In simple terms, the concept of economies of scale suggests that the more often something is done, or the larger the scale on which it is done, the more economical the exercise becomes. For the sake of this examination, it is the former that is considered. In this case it is suggested that the more times a particular organizational form is used, the more economical that choice becomes. As discussed earlier, economies result from such factors as reduced risk associated with the application of a tested model, or the existence of infrastructure and tools to support the use of the given model.

The organizational form selected for the producer-owned inland terminal projects in Saskatchewan has been the traditional corporate model, in which investor control is in propor-

tion to the level of investment, and boards of directors are comprised of representatives from vested interest groups. Organizers from the Weyburn Inland Terminal (WIT), having no comparable Canadian example to study, toured several terminals in the United States to gather information on how best to design a terminal in Saskatchewan. While it might be argued that these visits and the corresponding lessons learned produced economies of scale related to the design of the facility, this is less clear with respect to organizational form. The feasibility study prepared for WIT recommended using a co-operative, rather than the corporate, model. A co-operatively structured enterprise was presented as being simpler for clearing securities review, therefore expediting the process of organization. A second advantage was that a co-operative ownership structure offered tax advantages over the corporate model. The interim board of directors, however, opted for the latter (Driver 2001). That decision reflected dissatisfaction with some existing co-operatives, particularly Saskatchewan Wheat Pool, and spoke to the underlying values and philosophy of that board.

Subsequent terminal projects consistently looked to the Weyburn experience when bringing together the pieces of their respective projects. As noted earlier, the fact that the second terminal was not in place until sixteen years after WIT suggests that producers and investors were waiting to see a proven success in Weyburn before proceeding with their own venture. Interestingly, while economies of scale might have been realized by replicating the WIT model, all of the subsequent ventures, contrary to the advice received from WIT representatives, opted to pursue a relationship of some form with an established grain-handling company. This might reflect a different kind of economy of scale—that realized through the collective experience of the established players. As one producer, discussing environmental health and safety issues, put it, “It was a huge, huge advantage to have a partner because they’ve done all the leg work and you know they’ve experienced a lot of this stuff.” This same individual also explained how much easier it became for subsequent projects to acquire capital from financial organizations. He described having to make countless presentations to bankers in an effort to drum up interest in his own group’s project, but that once this was achieved, subsequent groups “had the banks chasing them,” wanting to be their financial services provider. Further, it was suggested that many of the producers involved in organizing the terminal ventures ran large farming operations that were already, or were in the process of configuring as, corporations. That

experience likely produced a level of familiarity with, and therefore confidence in, the corporate model, in essence creating economies of scale.

In the case of community-based hog barns, there definitely have been economies of scale realized through the replication of the basic model developed by Quadra. While each subsequent project has required tailoring and attention to local circumstances, a process for the basic model, many of the various agreements used in the ventures, and a larger system plan have all been in place, thereby expediting the process each time the model has been applied. Further, it was stressed that while local tailoring has been required, most of the legal instruments used in the application have existed in the form of case law for many years. One person interviewed indicated that it was difficult to understand why anyone would want to try to develop new organizational models when all these types of tools already exist, can be easily adjusted to new circumstances, and are flexible enough for just about any imaginable configuration. That same individual stressed that it was not the agreements themselves, but getting the people involved to understand the agreements, that was the challenge in developing new ventures. That part of the relationship building took about as long on each project, regardless of how many had happened before. Finally, in terms of accessing debt financing, because a proven model was being reapplied, it became increasingly easy to find financial institutions willing to provide that service, and on increasingly attractive terms.

Saskatchewan Wheat Pool, through Heartland Pork Management, considered various forms when developing the organizational model for their hog initiative (SWP 1996). In the end, the Wheat Pool selected a model using a limited partnership that would quickly roll into a corporation. The limited partnership offered tax advantages during periods of early losses, while the corporation was a tested, familiar form that offered security to the parties developing the whole initiative. It was the consulting firm working with SWP to try and raise capital for these ventures that recommended the use of the corporate model. Interestingly, this was the same consulting firm that was working with many of the producer-owned inland terminal groups, which also chose the corporate model. Once again, the use of a familiar and tested organizational model, and even the use of the same firm in assisting with the development initiative, offered economies of scale.

There has been little opportunity for economies of scale to develop through the use of

New Generation Co-operatives in Saskatchewan. With only a couple of these organizations operational, each has essentially had to break new ground and absorb significant costs associated with being an innovator. Individuals involved with one of these NGCs indicated that the costs associated with lawyers and accountants were at least double what was expected, but that these costs would be considerably less for the next group using the same agents. They described the exercise as one in which they paid for the professionals to learn how to work with this new model. While some funding was available through Saskatchewan Agriculture and Food to help offset the costs of the business plan and organizational development, it fell far short of fully covering those expenses. Even though the costs were high, they were likely still less than they might have been had different professionals been retained to provide those services. The individuals were from firms that had been involved in developing the NGC legislation in the province, had assisted in various NGC resource development exercises, and as such were essentially the closest thing Saskatchewan had to experts on this topic. For different firms to have been involved would have required even greater development effort and associated costs. If economies were realized in this particular project, it was through the informal development of a loose network of agents involved in the project. The lawyers, the representatives from various government departments and agencies, the established industry player, the financiers, and some NGC development agents all came together in a loosely structured form, thus expediting the entire development process. This network resembled the elements required for NGC development identified by Stefanson et al. (1995) outlined earlier in this report. While unrelated to organizational form, it is worth noting that economies of scale were also realized in this particular project because the NGC partnered with an established industry player, thus accessing expertise and a market segment that might otherwise have been unavailable to it.

#### PATH DEPENDENCE

This section of the analysis looks for evidence of path dependence and the resulting lock-in. As explained earlier, path dependence is the inclination to make a particular choice, even if not the most efficient, simply because that has been a popular choice before, and one which becomes increasingly popular because of the benefits accrued through continued use. The result, or lock-in, is a state from which exit is difficult because doing so requires forgoing any advantages

already realized and essentially starting over. It is somewhat difficult to separate the economies of scale examined earlier from the constraints of path dependence and lock-in. Indeed, the economies of scale are often the very benefits accrued that make exit from lock-in so difficult.

As mentioned earlier, when Saskatchewan's first producer-owned inland terminal was being considered at Weyburn, a decision was made to use a corporate rather than a co-operative structure, even though the feasibility study recommended otherwise. Rather than being based on efficiency, this decision was a reaction against Saskatchewan Wheat Pool, seen to represent the status quo, with which that group was displeased. The producers involved cited a desire for greater control over the grain-handling industry as a primary motivation for becoming involved in the venture, yet they opted for an organizational structure that put control in the hands of the largest investors rather than on an equal basis for everyone involved. These apparent contradictions arose from certain values or experiences providing the initial nudge and resulting in the choice of an organizational form that would then be reused. The fact that every subsequent group looked to Weyburn Inland Terminal as the model for their own venture, and that many even used the same professional firms to further their development, indicates that path dependence was occurring, and that the economies of scale realized through this replication led to lock-in.

In an interview with one of the founders of the community-based hog barn model, it was clear that the individual had selected the particular model because of the ease of using the tools (case law, legal agreements, precedents) that existed, and because of the flexibility within those mechanisms to tailor to local circumstances. It was also clear that the limited-partnership model provided tax benefits and that many examples existed, and could be replicated, in which limited partnerships were rolled into corporations when it was most advantageous. To have attempted to create a different model using some form other than a corporation would have required the development and testing of a new way of making such a conversion. While path dependency may not have arisen in the course of the development of subsequent community-based hog initiatives, it is arguable that it already existed in the business development community and that these hog ventures were yet another manifestation of it.

With New Generation Co-operatives, there are obviously too few in Saskatchewan for path dependence or lock-in to have occurred. Looking at the NGCs that do exist and their ex-

perience in getting established, however, sheds light on what might need to happen to encourage producers to break free from the locked-in use of the corporate model. It is conceivable, in the example studied, that the corporate model would have been cheaper and easier to use than the NGC model. Further, as the proponents of the corporate model in the hog industry argue, corporations offer the flexibility to achieve anything and everything that an NGC can provide. So, how could the group of producers using the NGC model reconcile the additional cost and effort required, and thus exit from lock-in? When posed with that question, one producer, a strong proponent of the model, argued that using the NGC model was, in essence, community development. He insisted that the community as a whole would benefit from a greater number of producers investing in and having equal control over the enterprise. He also suggested that full equity subscription in a short timeframe was clear evidence that the community also saw things that way. In other words, the benefits of organizing in this fashion outweighed any additional costs incurred or efforts expended. He also suggested that he expected this was only the first of this type of venture for their community, and that producers and other community members would be “standing in line” to be involved in the next initiative. So perhaps it is a strong sense of and commitment to the community—maybe best described as a high degree of social cohesion—that can provide the requisite jolt to exit from lock-in. It is important to note that this particular community has a strong commitment to co-operatives, and as one member of the NGC explained, “When I look for a small town that’s a strong community-based town, there are three things—a Wheat Pool elevator, a credit union, and a co-op. If you have those three in a community, you can make things happen.” A local observer of the venture added, “The fact that ‘co-op’ is in the name goes a long way towards making this work.”

## CONCLUSION

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**P**RODUCERS' DECISIONS to engage in value-added agricultural ventures reflect a blend of influences. The decision to pursue some new activity is in itself an indication of existing leadership, trust, communication, and networking. These factors can all be loosely defined as elements of social capital and social cohesion. Social cohesion also helps to explain the organizational form that these groups select in their pursuit of new activities. While it is important, however, social cohesion does not provide a full explanation. Other influencing factors, including economies of scale and path dependence, must also be considered.

How these components influence or combine to influence producer decisions is not always predictable. Social cohesion, for example, usually considered a positive influence, can shape decisions such that the result is not most efficient. This was clearly illustrated in the example of the Weyburn Inland Terminal, in which social cohesion, as expressed through common membership in a different farm organization, contributed to a decision to use a corporate rather than co-operative form. This nudge helps to explain how path dependence was initiated and then played out in subsequent ventures. Conversely, in the New Generation Co-operative example, social cohesion, manifested in strong commitment to community and to local co-operatives, provided the jolt that was required to exit from lock-in. In that case, benefits realized from economies of scale that might have resulted from using a corporate model were outweighed by the advantages offered by a model that benefited the larger community.

The decision to take on a new role in agribusiness might be the result of a well-planned strategy, but too often it is a response to being in a crisis situation. As one producer put it, "Many farmers aren't interested in doing anything different until they have their backs up against the wall. Unfortunately, that's usually too late." If these are the circumstances under which decisions are being made, it is far more likely that factors such as economies of scale or

familiarity with tested models will influence producers in a given direction. It is important, therefore, that decisions to engage in the new agriculture be made, to the extent possible, as part of a thoughtful evolution or strategy rather than as a knee-jerk reaction to circumstances.

Producers need to clearly understand the changes that are occurring around them. They also need reliable access to trusted information on the options available to them as they try to manage that change. Having such information will allow producers to make the decisions that best reflect what they are trying to achieve. In some cases, this will mean replicating what has been done elsewhere. In other cases, however, it might mean trying something innovative and better suited to that group's goals.

Organizations and agencies involved in the agriculture sector can play an important role in facilitating the diffusion and adoption of innovative responses by producers to the changes occurring in agriculture. This role is related primarily to the creation and dissemination of information on the changes taking place, and the associated options in response to these changes. As indicated, awareness and understanding of the agricultural industry is necessary if producers are to strategically plan for a new role rather than simply react to circumstances. Further, the groups and agencies working with producers need to properly understand and be able to offer objective advice or information on the range of means for producers to engage in new value-added activities. These same agents need to come together in a network fashion, thereby making available the widest and deepest possible range of resources and information.

Certain organizational models tend to be used because they are familiar rather than because they are the best choice. The introduction of new models, such as the New Generation Co-operative, is difficult because it requires a departure from the security and accumulated advantages of the status quo. Government-funded programs such as those offered through Saskatchewan's Departments of Agriculture or Industry and Resources help to level the playing field, but are insufficient to jolt the system out of a locked-in preference for the familiar. Concerted efforts to make the NGC model a genuine option that can be considered on the basis of its ability to achieve producer groups' goals must be enhanced. Such effort can take the shape of NGC development officers, enhanced NGC business development funds, increased producer awareness programs, and continued NGC research. These elements must come together in a coordinated effort involving producer groups, established co-operatives, government agencies,

universities, and the professional infrastructure made up of lawyers, accountants, engineers, business consultants, and financiers. With such a network in place, producers can then look at the model and objectively determine if it best suits their needs. Without such efforts, it is likely that NGCs will remain on the fringe and be used only in those rare circumstances when the group insists on the use of that model and is able and willing to ignore the compelling advantages offered by such factors as economies of scale or path dependence.

This report has illustrated one case in which exit from lock-in was achieved and was rationalized on the basis of a greater collective good, namely, community development and survival. The fact that this was achievable hints at an abundance of social cohesion already in existence in that community. It appears that this valuable resource or process is at least in part a product of, or some parallel to, the rich support for co-operatives in that community. It is important to stress that the local co-operative played a vital role in that development process. The president of the local retail co-op and member of the NGC explained it this way: “About three or four years ago we had a number of meetings and the consensus was that we were going to be leaders in this community and we haven’t laid down.... I guess in small-town Saskatchewan you either sit down and go with the flow or you make the flow.... I guess we’re helping to create the flow and if there’s a positive flow—we’ve been fortunate that we had a lot of good minds behind what’s happening—the people accept it and they are excited. You go around and people are excited about things.” Clearly, there is a connection between the co-operative, the corresponding sense of community, and social cohesion. Further research is required to better understand these multiple relationships.

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