

Article

A Life Cycle Explanation of Cooperative Longevity

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Abstract: A micro analytical, interdisciplinary informed framework is presented to postulate why and how some cooperatives endure for long periods of time. This five-phase framework was developed through an extended research process employing inductive and deductive approaches. The paper concludes that cooperative longevity is associated with multiple factors, primarily among them, ability to adapt and ameliorate frictions and subgroup factions. This adaptability leads to multi “life cycles”. Cooperative multi life cycle regeneration is facilitated by a learned and embedded process called “cooperative genius”.

Keywords: cooperative framework; life cycle; property rights

1. Introduction

In this paper, we (I use the pronoun ‘we’ in this paper because the content is the collected result and accumulated wisdom of thousands of participants and presenters at customized workshops, courses in board rooms, personal interviews, and research surveys and outputs which involved many of our graduate students and visiting professors including Constantine Iliopoulos, Fabio Chaddad, Brad Plunkett, Elaine Krumpelman Farmer, Frayne Olson, Fred Parker, Ye Su, Jasper Grashuis, Susan Webb, Elizabeth Levogianni, Maryline Filippi, Elena Garnevska, Cynthia Giagnocavo, and Karin Hakelius. Credit must be shared with the Board of Trustees of the Graduate Institute of Cooperative Leadership and their insightful manager, Kristi Livingston and the exemplary research of Molly Chambers Burress. The Board is an innovative group of fifteen cooperative CEOs who are passionate about the importance of cooperative education in North America. They collaborate, support and govern the activities of the cooperative program at the University of Missouri. All should be considered co-authors.) develop a framework referred to as the “Life Cycle Framework (LCF)”, in order to guide us through the complex and costly challenge of initiating and maintaining patron controlled group action for relatively long periods of time. Our observations come from a combination of real world experiences, multiple research and teaching exercises, and academic outputs. By analyzing theoretical work, managerial and governance experiences, and leading and participating in an extensive number of training sessions with cooperative leaders, we hope to inform the objective of bridging the considerable gap between scholarly work and practitioner reality regarding the subject of cooperative longevity.

Our Institute (The Graduate Institute of Cooperative Leadership (GICL, Columbia, MO, USA) headquartered at the University of Missouri, founded in 1972. The Graduate Institute of Cooperative Leadership conducts 10–15 interactive sessions/workshops each year with the GICL Summer Institute incorporating the core formalized concepts in a one week session with 75 participants from 40 selected primarily North American cooperatives. Additional sessions/workshops are customized to meet specific cooperative needs throughout the world—primarily in countries with family farm structured production agriculture. Audiences and participants include agricultural governance and management leadership from food processing and marketing, input, retail, wholesale, and manufacturing cooperatives.) is approaching 50 years of creating and dispersing cooperative learnings.

Twenty-five years ago, during a period of intense mergers and acquisitions in the North American and European cooperative agribusiness sector, participants asked, “Why do some of our organizations live so long and some not?” Our team began to ponder this question and subsequent research resulted in the first outline of the framework included in this paper. During this time, we were fortunate that management and social scientists were advancing theories broadly described as new institutional economics and organizational economics that generated concepts allowing us to explore in greater detail the incentives and disincentives embedded in organizational forms. The LCF extracted from the combined knowledge and responses of cooperative practitioners (managers, members, and board members) as to how frictions of an increasing heterogeneous membership might be viewed as an opportunity and a constraint in governing a patron owned and controlled entity encouraged future dialogue and research. This learning process led to the emergence of new ideas, terms and concepts. In every session, the LCF concept was evaluated and modified with the insights and suggestions from more than 5000 participants. Concepts such as multiple life cycles, tinkering, member heterogeneity, subgroup frictions, simmering factions, cooperative genius, and specific solutions emerged from these interactive exchanges [1]. Over time, participants stressed the importance of having an outline or framework to guide the study of their own cooperative’s evolution and history of dealing with the complexity of investment and control constraints unique to the cooperative organizational form. The LCF emphasizes the identified phases of evolution of a single hypothetical cooperative, unique only to that cooperative, and designed to facilitate diagnosis by its informed members and cooperative leaders. The formal LCF emerged when cooperative participant input was combined with academically generated concepts and theories such as ownership costs, vaguely defined property rights, generic solutions, organizational design principles, monitoring, principal—agent concepts, market contracting costs, market failure, free riding, influence costs, collective decision-making and micro-analytical approaches.

Brief Introduction to the Cooperative Life Cycle

Reacting to an appeal proffered in Levay’s seminal review of cooperative theory [2], Cook proposed a five-phase cooperative life cycle framework [3]. The framework divides the evolution of a cooperative life cycle into five separate and sequenced phases. The first phase, economic justification, discusses reasoning behind the decision to enter into the costly process of determining whether collective action is justified. During the second phase, organizational design, producers determine the legal-business-organizational model that best fits their group’s need. They also decide the rules of the game, responsibilities, benefits, penalties, adjudication processes, and their performance measure(s).

Once the organizing phases are complete, the cooperative enters phase 3, which is designated the ‘growth, glory, and heterogeneity’ phase. This paper dedicates much of its space to this phase as the decision-makers now have to address the rate of growth or non-growth, the glory and success achieved, and disagreement generated by the heterogeneity of preferences emerging as time passes. Because of broad and diffuse objective functions of a patron (user) owned and controlled entity embedded in the performance metrics, potential disruptive frictions result and need to be ameliorated if the cooperative is going to continue meeting member needs. We have found that the surviving cooperatives (Among the participants we survey and interact with in North America, the cooperative’s average age is 75 to 90 years with the youngest being 30 and the oldest 120.) have developed a collective process we call “cooperative genius” associated with the longevity of agricultural cooperatives in North America. However, compromise isn’t always attainable and subgroup frictions turn into rudiments of factions. At this stage of phase 3, cooperative leaders decide what probabilities exist for cooperative survivability. To assist in making this decision, the cooperative engages in an introspective analytical process charged with determining what factors give rise to the collective decision-making cost frictions and sometimes resultant factions. During this phase 4 analysis period, root causes of these friction/fraction disturbances are identified, usually emanating from a set of unique cooperative structural characteristics embedded in capital constraints and control/governance

policies and practices. Generic solutions in the form of realigning user incentives, policies balancing supply and demand, member retention investments and transparency practices have the potential to regenerate the level of cooperative health are also evaluated [1].

Given the causes and potential solutions identified in phase 4, membership moves toward deciding the future of the cooperative in phase 5. The members have the following options: (a) exit through liquidation, merger, bankruptcy; (b) maintain the status quo with little or no change; (c) spawn and/or; (d) reinvention or significant overhaul. If the patrons reject the exit, status quo, or spawn options, reinvention or regeneration is chosen. Reinvention involves one or a combination of four major elements depending on the results of the analysis in phase 4. One or a combination of the following generic structural changes is deemed necessary to initiate a new life cycle: (a) modification to residual claim rights; (b) readjustment to control rights; (c) a significant change in the purpose of the cooperative or (d) a dramatic shift in cooperative culture and/or mindset.

What value might this framework provide and to whom? We envision the Life Cycle Framework has multiple value adding abilities:

1. As a diagnostic tool for cooperative leadership and consultants,
2. As a structural planning guide for cooperative leadership,
3. As a strategic planning resource for cooperative leadership,
4. As an education guide for new members, new board members and new employees,
5. As a primer for cooperative studies or for advanced courses at academic institutions,
6. As a case study outline for executive education trainers,
7. As a facilitation device for interactive seminars and workshops,
8. As a teaching manual for 'cooperative genius' candidates.

2. The Cooperative Life Cycle

2.1. Phase 1: Economic Justification

Phase 1 includes the activity involving the recognition, understanding and manifestation of patron-enjoined collaborative action needed to address the socio-economic consequences of working together. LeVay summarizes this phase in colorful language by quoting Smith [2,4]. "The early history of most societies (agricultural cooperatives) chronicles the difficulties encountered by groups of farmers in marketing their produce or in procuring farm inputs, often accompanied by a more or less well-grounded fear that they are being exploited by middlemen. A few individuals, inspired by the idea of cooperation, canvass extensively for neighborhood support, a meeting is called, officers elected and the business starts in a modest way. Officials give unstintingly of their time and labor often for no pecuniary reward at first" [2] (p. 28). LeVay adds to this "history matters" understanding of cooperative culture and exploration of longevity in stating "the student of agricultural cooperation fails to catch the spirit of the movement unless he delves into the records of societies. There, he will often encounter much in expertise, pomposity, and rhetorical confectionary, but he will also be impressed by the sheer delight experiences by the founder members in launching their business and watching them grow" [2] (p. 28). In this 25-year study, we captured some of these "delight experiences" by reading the original minutes, examining documents by studying the early histories of these cooperatives written for their 50th, 75th, and 100th anniversaries and by interviewing numerous founders or close relatives and friends of the founders.

Traditionally, agricultural cooperative emergence was seen as collaborative attempts by producers to improve their economic position in the absence of a competitive market. Sexton, Schrader, Miller, and Hansmann identify an array of market contracting costs from which collective action may emerge: simple market power, ex-post market power, asymmetric information, coordination inefficiencies, undue risk exposure, and alienation [5–8]. Our team was exposed to hundreds of examples and stories of each of these forms of market failures—many of them powerful with examples of considerable founder courage and sacrifice. In addition to reacting to the negative consequences of these market

failures, producers and states also institutionalized cooperatives as a means of achieving scale economies, thus overcoming some of the limitations created by the transaction costs economizing structure of the family farm found in market oriented agricultural countries [9].

Examination of the lives and activities of European cooperative pioneers such as Owens, Fourier, Raiffeisen, Schulze-Delitzsch, and the Rochdale Society document the importance of obvious and communicable 'economic justification' as fundamental to cooperative formation. Cooperative history is filled with case studies, descriptive surveys, legal documents, and theoretical explanations relating the origins of collaborative efforts inspired by the reaction of producers to the above-mentioned forms of market failure and market access creation.

A more recent detailed account of the zeal and member sacrifices is found in Ye Su and Cook where various types of market failure, market contracting costs, and market creation reasons are documented along with social and community objectives in the founding of CROPP Cooperative, a multiple commodity marketing pool, currently the largest organic cooperative in North America [10].

Before attending our workshops, focus groups, and institutes, we ask participants to seek out long time employees for their stories and examples and ask each participant to study the history of the cooperative they represent. Their reactions to these activities and the reading of original documents is summarized by several observations—(a) realization of the actual existence of market failure and its negative economic impacts on farm families; (b) expectations of joint market access and collaborative market creation activities; (c) zeal, enthusiasm, and collegiality needed to outweigh their differences in preferences; and (d) burden of organizational costs in the form of communication and transportation expenditures and participant opportunity costs.

2.2. Phase 2: Organizational Design

Once economic justification motivates collaboration, producers begin to design the rules of the game to build and sustain cooperation [11]. Assuming a cooperative organizational form is chosen, we observe most institutional environments permit the embedding of cooperative principles into their articles of incorporation, the statutory documents, or their bylaws and practices [12,13]. Cooperative principles impact the distribution of residual claimant and control rights through proportional patronage features, return on risk capital constraints, equity capital acquisition policies, monitoring mechanisms and representation rules. Constructing the cooperative constitution (bylaws) tests the scope and degree of member heterogeneity through formulation of policies and rules affecting principal-agent relationships, collective decision-making processes, and risk bearing responsibilities. In some instances, organizational design processes homogenize member preferences. In other cases, fundamental differences in economic justification, goals of cooperation, and member preferences identified lead to significant variance in organizational design among cooperatives, particularly in common law countries (In the US, cooperative organizational design is informed by three principles: user-ownership, user-control, user-benefit. However, many other countries are guided by the seven International Cooperative Alliance principles). While cooperatives developed in similar institutional environments often adhere to similar principles, not all cooperatives exhibit constitutional similitude (For example, cooperative scholars suggest appropriate organizational design choice is a function of economic justification [14]). A readable description and examples of the range of adapted models in cooperative organization design in the New Zealand cooperative sector is documented in Woodford [15]. Another very thorough guide to cooperative organizational design can be found in Iliopoulos [16]. In the US, the United States Department of Agriculture Rural Development Division publications section has excellent historical and current guides to cooperative organizational design.

Understanding cooperative design becomes important in analyzing the dynamics of developmental phases. The organization designed in phase 2 entails specific property rights arrangements and incentive structures that facilitate or constrain the group's ability to realize goals [17]. The implications and consequences of the emergent organizational architecture are informed by work from organization theory, property rights theory, population ecology, and mechanism design [18–27]. Achieving

constitutional adaptability and flexibility in voting mechanisms, representation districts, member qualifications, responsibilities and authority distribution, capital contribution, patronage obligations and surplus/earning distributions, requires considerable input from members. This process leads to identification of potential friction points and possible solution options as the cooperative matures.

According to practitioner input, the most challenging element of organizational design is agreeing on well-defined performance metric(s) and subsequently achieving member consensus. Our experience drawn from hundreds of workshops, directors' seminars, and institute debates and dialogues suggest that a significant variance in cooperative performance measurements exists based on demographic and transactional preferences of founding and expected future members. Multipurpose member-patron cooperatives many have a wide range of metrics because of their broad product mix: from services, terms of trade, cost per unit purchased, price per unit delivered, patron revolvment, distribution policies, and equity capital acquisition. The marketing cooperative's member-patrons use "relative return per unit delivered" as their primary performance measure. However, like the multipurpose cooperative members, the marketing cooperatives measure of performance can be much broader, such as stability of the organization, the strength of the balance sheet, reputation in the community, services facilitating transaction repeatability, and many more.

Traditionally, agricultural economists measured cooperative performance by analyzing the following dimensions: prices to farmers, efficiency, financial performance, growth, cooperative portfolio services, market shares, and on farm services [28,29]. For more recent updates including non-financial measures of the private/collective good portion of cooperative health (relative position in the industry, member satisfaction, vision attainment), see Burress et al. and Franken and Cook [30,31]. Because a cooperative is a member-patron controlled entity, performance objectives or cooperative health metric is broader and more diffuse than investor-owned firms. Thus, how is the cooperative health measured? For this paper, we introduce a performance measure called "cooperative health", which considers the combination of (a) private goods (prices received or paid, services, feeling of community, social capital, and contributed collective good) received by the member-patron and (b) the perceived probability of cooperative survivability (longevity—Will the cooperative be here for generations?). We introduce the concept of relative ownership costs (agency costs, collective decision-making costs, and risk bearing costs) as a proxy for this longevity goal. It is important to note that how cooperative health is defined or perceived by members is a negotiated metric during phase 2 that varies between and among most cooperatives. In Figure 1, cooperative health is designated as the y -axis and is a bundle or index of the above-mentioned variables, which we combine as member-patron private and collective goods, and relative ownership costs.

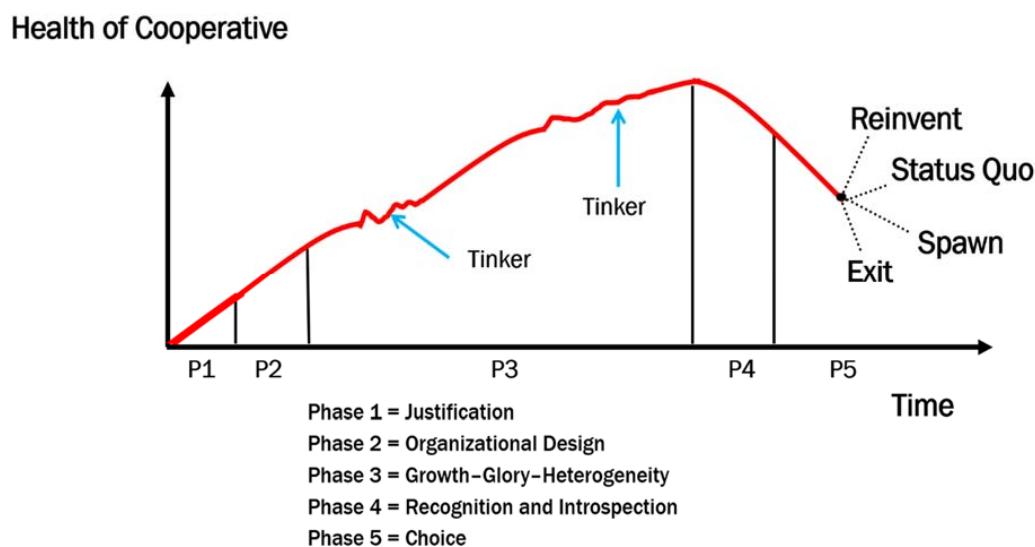


Figure 1. The cooperative life cycle.

Having been exposed to the range of preferences in the development of the organizational design, the original founders and organizers are now ready to enter phase 3. In Figure 1, the five phases stretch over the x -axis and the interrupt squiggles shown in phase 3 indicate frictions. Frictions are discussed in the next section.

2.3. Phase 3: Growth, Glory and Heterogeneity

Cooperatives entering phase 3 have established organizational structure and cooperative health metrics. If the founding group has reached this phase, we assume that organizational leadership was adequate to commence commercial activity. Cooperative health growth goals could be pursued and measured in multiple ways—by revenues, by net margins, by number of members, by amount, rate, and age of patronage refunds, physical assets, market share, and number of employees. Reaching a consensus on growth objectives and metrics becomes a potential friction point. These multiple growth metrics often become ambiguous, nontransparent and misunderstood or not communicated clearly. In some instances, a number of possible growth goals/measures conflict with others. Paradoxically, growth may introduce cooperative challenges. For example, growth in membership invites new ideas and objectives, which may increase divergence between the original founders/members and new member preferences. Another example, growth in financial resources, may reveal competing interests between user-member short term claimants or between members seeking long-term stability regarding distribution of surplus.

In the following section, we explore consequences of growth. In examining growth, glory and heterogeneity, we diagnose instances when these dynamics may lead to organizational frictions created by differences in judgmental, transactional, or personal preferences between cooperative stakeholders. Ideally, better diagnosis enables cooperative decision-makers to manage growth by identifying potential frictions *ex ante* and designing potential solutions to these frictions. We begin by discussing under what circumstances heterogeneity may impact cooperative health. Then, we analyze the interplay between growth and heterogeneity, considering whether heterogeneity increases over the lifespan of the cooperative. Finally, we suggest heterogeneity of member preferences, particularly as they concern cooperative capitalization and control right constraints, have the potential to curtail growth and/or cooperative health by increasing relative ownership costs. These consequences were highlighted by our participants in various oral and written forms, which we have combined and complemented with theoretical insights.

2.3.1. Heterogeneity in Preferences

Heterogeneity in preferences can have a positive effect, a neutral effect, or be modified through selective incentives. Research suggests inequality among certain member attributes including experience, information, wealth, and reputation may motivate collective action and improve team performance [32–34]. Member diversity can stimulate creative problem-solving and the development of unique proposals. Thus, organizations able to design collective choice arrangements that maximize positive externalities related to diversity and reduce relative ownership costs arising from heterogeneity may effectively manage heterogeneity [35].

However, member heterogeneity may undermine organizational processes by affecting investment behavior, collective decision-making costs, member commitment, and contribute to cooperative demise [8,36–43]. Unaligned preferences among members result in frictions that lead to fragmented membership, which may foster the development of distributional coalitions and institutional sclerosis [44,45]. One must not assume, however, a direct correlation between the existence of heterogeneity and organizational outcomes.

Understanding where member preferences diverge allows leaders to diagnose whether heterogeneity may manifest as increased ownership costs. (This will be discussed in phase 4.) Fonterra, a farmer-owned New Zealand dairy cooperative founded in 2001, listed units of its shares on the New Zealand and Australian Stock Exchanges in late 2013 as part of a capital restructure, which also

introduced share trading among farmers. Critics of the hybrid capital structure predicted a tug of war over earnings between external investors wanting a strong dividend and most farmers preferring the highest possible milk price. This tension continues. Fonterra's market share of supply, which held in the 93–96% range for its first 13 years, had dropped to 88% by the end of 2017.

2.3.2. Diachronic Increases in Heterogeneity

Historical analysis links increases in heterogeneity among members to factors such as divergence in farm size, distinct farm-level strategies, cooperative consolidation through merger and acquisition, and changing consumer demand [46–48]. However, internal organizational processes such as divergent proportions of allocated equity and emergent special interest groups seeking to pressure management are also recognized as sources of heterogeneity increasing over the cooperative lifespan [37,49,50]. To inform whether heterogeneity increases diachronically, we analyze the ramifications of equity allocation, patron drift, membership growth, substitution effects, and transactional impacts.

Patrons with homogeneous investment and risk preferences at founding may experience diachronic divergence of interests due to disproportionate equity allocations. Member-patrons with homogeneous investment preferences may begin patronizing the cooperative simultaneously, but their subsequent equity investments may differ substantially due to discrepancies in the growth rate of allocated equity due to proportionality rule mandated by cooperative principles [50]. Differences in the growth rate of equity allocations may be a result of farm-level strategy diversification, farm-level productivity, or the fraction of transactions the patron-member conducts with the cooperative. These variances may result in producers with somewhat similar preferences facing investment decisions differing by an order of magnitude with respect to the wealth effects borne by the individual. Thus, disagreements as to whether the cooperative should invest in a particular project may ensue. Individuals bear these wealth effects through slower revolvment periods or changing proportions of patronage allocations.

Founders may have possessed relatively homogeneous interests; however, a natural exodus of founding members occurs [46,51–53]. Replacement entrants may introduce heterogeneity in preferences. The cooperative is often ill-equipped to respond to an influx of members with distinct on-farm challenges. Indeed, cooperatives seeking additional members for reasons of productive efficiency and bargaining power volume may fail to recognize potential threats of incorporating new members. In the same vein, member-patron entrants may not be conscious of the economic justification for collective action developed in phase 1. For example, new patron-members may not suffer market contracting costs, which constituted an incentive for their predecessors' commitment during founding. Discussions of hypothetical market contracting costs may not have as significant an impact on the homogenization of preferences as personal experience with the consequences of market power or opportunism. If formation of the defensive cooperative organization was impacted by a particular market failure, the passage of time may have a negative effect on member-patron cohesion. The longer the time period since formation, the less likely new cooperative entrants are to have suffered consequences of a particular market failure. The importance of "history matters" and cooperative organizational and strategic education emerge as important components of member-patronage culture influenced practices.

Over time, cooperatives can expect increases in membership for the following reasons: (1) potential cooperators may adopt a wait and see strategy, joining the cooperative once it makes credible steps toward meeting objectives; (2) a cooperative may expand its territory or merge with additional cooperatives and (3) member-owners who have ceased transacting with the cooperative may retain allocated equity and voting rights [5,54]. Although membership growth increases efficiency in certain instances, growth in the number of member-owners may also increase the probability of divergent interests among patron-owners [8,46]. How size impacts collective action has proven a challenging question [55–57]. While we do not imply size necessarily has a direct effect on sustaining cooperation,

its endogenous relationship to several factors affecting cohesion necessitates its inclusion in life cycle discussion.

For agricultural cooperatives, current theory gives scholars several reasons to expect size to impact patron-owners' ability to act collectively. Economic justification and organizational design inform this discussion. Consider the notion of allocated equity. Whether a cooperative generates purely public goods, private goods or a mix thereof, the simple allocation of equity assigns the benefits of collective action as a private good, albeit artificially. Thus, on the condition of rivalry, prevailing organizational allocation mechanisms in agricultural cooperatives hint at a potential for latency.

Over time, a successful cooperative having achieved its initial economic purpose may erode its unique advantage in the marketplace. Depending upon the economic justification and cooperative health metric selected by the organization in phase 1 and phase 2 of the life cycle, patron-owners may be more susceptible to substituting goods and services produced by private rather than cooperative entities. LeVay recognizes this possibility with respect to cooperatives formed to fulfill a competitive yardstick role, noting the tendency to defect in the absence of external pressure to cooperate [2]. We suggest that a substitution effect may also develop in which private firms become substitutes for the cooperative. If market power can no longer be exercised as a result of successful cooperation, private service providers may offer competitive rates comparable to those provided by the cooperative.

Successful cooperatives may seek opportunities to expand or meet additional member needs. Over time, multiple expansion opportunities are likely to interest subsets of member-patrons. However, each opportunity for expansion potentially exacerbates heterogeneous investment preferences, polarizing the membership [58–60]. Divergent opinions in venture screening may stem from distinct farm-level strategy or dissimilar on-farm cost structures, but the underlying antecedent to heterogeneity in preferences might be due to new products or services impacting each individual member's profitability differently [8]. Helmberger stresses "[h]eterogeneity among the operations of members" as a root cause of difficulty in cooperative-level allocation decisions [61]. When cooperative decisions affect members differently, the cooperative risks factionalizing its membership each time a new line of products or services is introduced. Thus, the bundle of goods the cooperative provides may include certain "selective goods" that favor a portion of the membership while having a neutral or negative impact on farm-level performance of remaining member-patrons.

The tendency of investment preferences to be linked to farm-level operations in the patron-owned organization exacerbates potential development of distributional coalitions during successive evaluations of investment decisions. If patron-owner profitability were randomly affected by various investment projects, the cooperative would be less likely to experience the development of competing interest groups within the cooperative [62]. Nevertheless, it is often the case, in practice, that various investment opportunities produce similar profitability results for certain subsets of the membership. In a repeated investment setting with single capital and governance pools, this dynamic can have the effect, for example, of pitting crop farmers against animal agriculturalists and small farms against large farms [63]. As these frictions and negative impacts of heterogeneity surface, it becomes obvious that consensus or conflict amelioration expertise is warranted before frictions convert to subgroup factions. This expertise can be embedded in processes, culture, or personal skills. Modification to policies, practices, rate of redemptions, generational transfers, or transportation compromises are examples of improved coordination and intrafirm efficiencies. Generally, these actions move the organization toward reducing costly consequences of frictions. These solutions usually fit within one of four generic categories of solutions, (a) user alignment; (b) member retention; (c) supply/demand balancing; and (d) transparency solutions [1]. This modification and/or process is called "tinkering".

Tinkering modifies practices and adjusts member-patron accepted operational mechanisms in aligning preferences and incentives of the membership or a membership subset. The tinkering mechanism suggests no significant change in ownership rights. However, it often entails a change in bylaws, operating practices or policy that reduces immediate or localized but not necessarily holistic friction. Tinkering is a major component of the concept of "cooperative genius". Cooperative genius

is a process executed by employees and members who understand the value to the member and to the cooperative of minimizing collective decision-making costs. Participants in this process identify problems (frictions) or potential problems before they lead to costly disruptions in the coordination, transaction, and control functions of the cooperative. These participants not only identify these frictions or potential frictions, but also know how and who can solve these problems. This cooperative genius process may be formal or informal, but it is institutionalized. The key to this process is the knowledge—dynamic in nature—of the uniqueness of the cooperative form of business, patron owned and controlled. Sustainable cooperatives may engage in continual tinkering. However, when tinkering does not eliminate these frictions the costs of collective decision-making increase. When collective decision-making costs continue to rise, relative ownership costs increase. At this point, if agency, opportunism and risk bearing costs do not decrease, the stability of the cooperative becomes threatened and vulnerable. Usually, some crisis, perhaps even a small crisis, sparks the beginning of phase 4.

2.4. Phase 4: Recognition and Introspection

As the once healthy consequences of member diversity diminish and shift to instigating development of fragmented coalitions, the cooperative's purpose and direction become multifaceted and less well-defined, accelerating a degenerative spiral. In analyzing the merger of the two largest cooperatives and the New Zealand Export Board, Evans and Guthrie suggest an attempt to harmonize multiple objective functions may result in allocative, price, and technical inefficiencies [64]. Tensions between multipolar factions may mount. This could be due, for example, to one faction favoring adherence to established cooperative goals and another faction favoring cooperative conversion for a one-time quasi-rent extraction or a radical change in purpose or strategic direction.

The cooperative at this phase can be viewed from a systems perspective as an interrelated set of mechanisms organizing producer interactions. The system may exhibit hysteresis, making it difficult to predict system outcomes without analyzing prior system states. We characterize phase 4 as a period of introspection to signify an interval of analysis and reflection upon the system's path dependent growth. Recognition of path dependent distributional coalitions enters formal discussion slowly and reluctantly because of inherent conflicts and denial tendencies.

By the end of phase 3, cooperative leadership recognizes the debilitating impacts of growing and diverse degrees of member heterogeneity—but what to do? Usually, a committee or team is assembled (internal and often outsiders) with a stated objective: What are the cooperative's options? Generally, this analytical team concludes that the Band-Aid tinkering approach to fixing subgroup member preference caused inefficiencies will no longer suffice—at least as a sustainable option. Member apathy, slow or negative growth of current member transactions, patron drift, and the emergence of multiple subgroup cultures support changes in the original set of values, beliefs and purpose need to be addressed. The team now realizes the options that will emerge might be politically sensitive—the causes are more serious—perhaps even a result of the original organizational structure. Upon examining the limitations embedded in the statutory legislation and the judicially accepted policies and practices, the committee concludes that the basic issues to be addressed lie primarily in control and capitalization issues. When the original organizational design of the cooperative was developed, these same two potentially inefficiency causing issues surfaced. Recognizing the challenges of the dual patron-investor nature of cooperative organizational design, the founders, convinced the immediate benefits outweighed the costs, proceeded. Some of the founders realized control equilibrium and investment appropriation and distribution issues might surface in the future, but the majority of the original leadership determined that these hurdles could be overcome by tinkering, thus ameliorating some of the negative consequences of frictions arising from these embedded cooperative traits. However, when tinkering could not resolve the cooperative degeneration behavior of the current members, they placed their hopes in the outcome of phase 4.

The analytical team's examination of the cooperative's inherent cooperative organizational weakness and the frequency and tendencies of friction mending tinkering would lead to diagnosing

the recurrent emergence of frictions. Vaguely or ill-defined property rights (VDPRs) are viewed as root causes of cooperative inefficiencies leading toward symptoms identified as frictions. These VDPRs influenced behaviors are categorized as free rider, horizon, portfolio, influence costs, and control [61,65].

Free riding, horizon, and portfolio problems may result in collective decision-making costs, risk bearing costs, or underinvestment in cooperative assets. Free ridership occurs when a member does not bear the full wealth effects of his/her actions. Thus, fewer contributions to the cooperative are made than when incentives are perfectly defined and member-patrons are coerced to reveal and contribute according to their preferences. However, it may be difficult to prohibit non-members from accessing certain non-excludable cooperative benefits such as competitive yardstick gains. This dilemma is often referred to as the external free rider dilemma. Collective action may also be constrained by internal free riders: members whose individual benefit is not proportional to their resource contribution [65].

Horizon problems originate when a patron's residual claim on income generated by an asset is shorter than the asset's productive life. The horizon problem threatens to constrain collective action when a subset of contributors seek to access their claims by demanding return of their allocated patronage/retains or unallocated surplus. They may attempt to negotiate mechanisms to extend their residual claim. (For example, in certain share and delivery right cooperatives, share owners may seek to lease delivery rights. Leasing is one example of an effort to extend the claim horizon. This action, however, may not ameliorate the horizon problem at the cooperative level if lessees develop distinct investment preferences.) These demands may increase costs of capital to the organization if forced to negotiate risk capital from alternate sources. In addition, revivement demands may increase collective decision-making costs when distinct residual claim horizons lead to heterogeneous investment preferences among patrons.

Cooperative portfolio problems occur when a patron is unable to adjust the cooperative asset portfolio to match personal risk preferences or investment strategies. Patrons may be less willing to invest in cooperative projects unaligned with their farm-level business strategy or desired risk exposure. This problem may surface more in multiple commodity marketing cooperatives or in multipurpose cooperatives. As farm production portfolio or demographic heterogeneity increases, the proportional patronage benefit principle becomes more ambiguous and complex.

Influence and agency problems can be categorized as control problems. Control problems refer to the potential for organizational design to introduce inefficiencies as a result of collective decision-making processes and monitoring activities [8,66,67]. Influence problems occur when individuals attempt to influence the distribution of wealth or benefits in the pursuit of opportunistic interests [61].

The agency problem refers to the agent's incentive to maximize self-interest instead of pooling returns to patron-shareholders [68]. Thus, the cooperative may incur agency costs manifested as monitoring costs, bonding costs or residual loss.

As the agriculture and food sectors become increasingly capital intensive, the function of acquiring and rewarding equity/risk capital creates the probability of greater tension between cooperative leadership and the membership subgroups increases. Consequently, we delve more deeply into a few friction points to increase our understanding of processes and goals for survivability.

Corporate finance distinguishes between financial slack and free cash flow (FCF) [69]. Financial slack refers to liquid assets and unused debt capacity beyond what is needed to meet current operating and debt servicing needs [70,71]. Slack-rich cooperatives may attain superior performance levels because decision-makers have liquidity available to fund all positive-net-present-value opportunities in a timely manner.

FCF refers to funds in excess of those required to invest in positive-net-present-value projects discounted at the relevant cost of capital [72]. Individuals possessing control rights may have an incentive to refrain from paying out excess resources or to invest in negative-net-present-value projects. Thus, FCF can result in substantial agency costs. FCF costs are likely to be more prevalent in cooperatives in mature and declining industries, as FCF is a function of the number

of positive-net-present-value projects available to the firm [73]. Firms with available liquidity or strong equity positions and fewer investment opportunities are more likely to succumb to funding negative-net-present-value projects. Finally, residual claimants may have difficulty observing projects financed internally or be relatively passive in demanding disgorgement of excess cash [36].

Optimally, cooperatives would possess sufficient internal financial reserves to fund positive net-present value projects while avoiding FCF problems by distributing funds to members. However, uncertainty, the unobservable nature of investment opportunity schedules, and difficulties in measuring relevant costs of capital complicate determinations of optimal liquidity. We posit a number of reasons cooperatives may be susceptible to FCF [74]. This susceptibility stems from the fundamental role of the cooperatives as well as the existence of ill-defined residual claimant rights. We discuss three traits of traditional agricultural cooperatives that emerge from the investment constraints described in the aforementioned VDPR section, which may cause susceptibility: the risk management function, cost of capital valuation, and cross subsidization. (These examples suggest many hypotheses related to FCF are yet to be explored in the context of cooperatives. This discussion is not exhaustive; we seek to illustrate the FCF dynamic in the cooperative life cycle.) It becomes obvious why these three may cause friction with the cooperative membership and between membership and their agents.

Cooperatives engaging in certain risk management strategies may purposefully hoard cash flow in excess of funds required to finance all positive-net-present-value strategies. They may also favor more cautious use of leverage [75]. Risk pooling and the maintenance of reserve funds (This refers to reserve funds beyond those legally required.) to act as a savings bank, “saving member returns in ‘good’ times and paying them back in ‘poor’ times,” are two examples of cooperative strategies that seek to maintain a slack-rich organization [76]. While these legitimate cooperative strategies are well-suited for risk reduction purposes, they also provide a strong argument for refusing to pay out earnings to members, creating opportunities for leaders to utilize resources on projects providing little return to current members. Cooperatives formed to mitigate member-patron risk may be more susceptible to FCF problems, as board and management may come under pressure to utilize “savings bank” funds as risk capital.

The cost of capital enables decision-makers to distinguish between financial slack and FCF. The decision to invest then considers the return equity providers expect. However, the cooperative structure complicates cost of capital calculations due to the vertically integrated nature of patron ownership. Cost of capital may be measured at the level of the cooperative, or as an opportunity cost of funds to individual members [74].

Elements complicating cost of capital considerations at the member level include differing tax rates among patrons, members who primarily value their return through the value generated by the cooperative for their on-farm business, non-transferrable equity participation units, lack of provisions for payment of interest on retained funds, and lack of provisions for distributing dividends on equity capital [75,77,78]. Lack of appreciability of allocated equity distorts cooperative leaders’ perception of cost of capital: the effective cost of capital may be undervalued or perceived as zero [51,79,80]. However, members may bear significant costs of capital if the time value of money, individual-level opportunity costs, applicable tax schedules and relevant interest rates are taken into consideration [51,74].

Patron equity may be used to finance business units from which individual members receive little benefit. Cross subsidization is related to portfolio problems. However, this becomes an FCF issue when managers cross subsidize at their discretion. Murray uses the term covert accumulation to describe financing arrangements undertaken without membership express consent [81]. Cross subsidization may constitute a greater threat in multipurpose cooperatives or cooperatives seeking to serve a pooling function, reduce risk or stabilize grower revenue streams [82]. While these functions may be legitimate cooperative objectives, recognizing their potential to contribute to FCF problems encourages decision makers to be alert to potential ownership costs. Continual cross subsidization may lead to market signal distortion and growing fractionalization of membership [5,83].

If a cooperative is able to avoid underinvestment by reducing capitalization and control problems or through Ricardian rent generation, the reward would tend to be financial slack. However, financial slack can create the opportunity for FCF problems. Heterogeneous member-patron investment preferences and valuations of equity capital complicate positive-net-present-value opportunity determination. Careful consideration of cooperative objectives as defined in phases 1 and 2, or refinement of those objectives, may be necessary. If cooperative success is generated as a result of member-allocated equity investments without reward to this equity capital, members have an incentive to favor measures that force the cooperative to disgorge dividends or accelerate patronage refunds or retains. Sometimes, the opposite strategy of disbursement of all surplus in the form of pay price or dividends is pursued. Consequently, working capital shortages with bank credit no longer available terminates the life of a cooperative as witnessed in 2018 with the 70-year-old Australian legacy dairy cooperative, Murray Goulburn sale to investor owned Saputo [84].

As risk bearing complexity and costs increase, collective decision-making costs, particularly in the form of costly decisions and conflict resolution, rise. Phase 4 involves recognizing in a transparent manner, analyzing the causes of, and contemplating options to these rising ownership costs. This phase nears completion when cooperative leadership presents or membership demands explicit action to remedy challenges not correctable by tinkering.

2.5. Phase 5: Choice

By the end of phase 4, the member-patrons are being asked to inform a decision affecting organizational longevity. The membership may attempt to minimize cooperative health constraints by choosing to maintain the status quo position, to spawn, to exit, or to reinvent the cooperative's organizational structure.

The status quo option suggests the membership assumes exogenous forces will allow continuation of the existing entity as currently structured. Generally, this option of inaction is the result of factional gridlock and the inability to reach consensus regarding macro environment conditions, industry structure, degree of rivalry, or reluctance to adapt or change. Patron drift and substitution usually have drained membership patronage and leadership resources to the point where exit is soon the optimal choice. The aforementioned Murray Goulburn cooperative chose this option for the previous ten years before liquidating in April 2018.

We utilize the term spawning to refer to a process where a group of employees and a subset of member patrons formerly affiliated with a 'parent' cooperative organize a separate venture [85]. These ventures are often interlocking in nature and utilize joint investor networks cultivated as a result of interaction within the parent organization [86]. Spawning results in the development of a separate organizational entity—addressing portfolio or free cash flow concerns by establishing separate capital and governance pools. The Renville area of Southern Minnesota experienced a number of new generation cooperatives that were spawned by Southern Minnesota Sugar Beet Growers Cooperative [86].

The option "exit", if chosen, means the cooperative no longer bases ownership rights on patronage. This may involve conversion to an investor-driven firm, conversion to a hybrid where member-patrons lose majority control rights, entrepreneurial harvesting, or liquidation. Schrader suggests choice of the exit option depends on cooperative asset valuation [75]. Collins contends conversions take place when member-provided equity is more costly than publicly-held equity [87]. Numerous scholars have analyzed the process and implications of a multitude of forms of exit. Nourse's suggestion that exit be considered once market failure amelioration succeeded has influenced numerous cooperative structure thought pieces [41,59,62,88–93].

Reinvention explicitly affects at least one of the following: cooperative purpose, organizational culture, and/or member-patron ownership rights. Most cases of reinvention redistribute claimant and/or control rights among member-patrons or redirect the purpose and/or culture by adapting major shifts in strategy. Examples of successful hybrids that assign ownership rights to patrons and

non-patrons remain relatively rare. More common are cases of reinvention altering share redeemability or reassigning claimant rights partially on an investment, rather than patronage basis. However, residual claimant rights remain distributed primarily among member-producers. Much of the academic literature investigating alternative claimant and control rights describes this strategy [27,94–97]. The choice of reinvention is usually a highly visible, thoroughly debated, and sometimes contentious exercise and the transition to the next life cycle might not be immediate.

The dynamic nature of this multidisciplinary sourced framework allows cooperative leaders to consider social and institutional processes affecting cooperative sustainability, which may take years to unfold [57]. By understanding a cooperative's system in the context of a life cycle, cooperators learn from past successes or failures within the organization as they reexamine and reformulate justification, design, and cooperative health metrics in phases 1 and 2 of the next life cycle. Therefore, we conclude that, while cooperative health may decline in a given life cycle, this does not mean degeneration is imminent. Adaptive cooperatives pursue the opportunity to regenerate through multiple life cycles. See Figure 2.

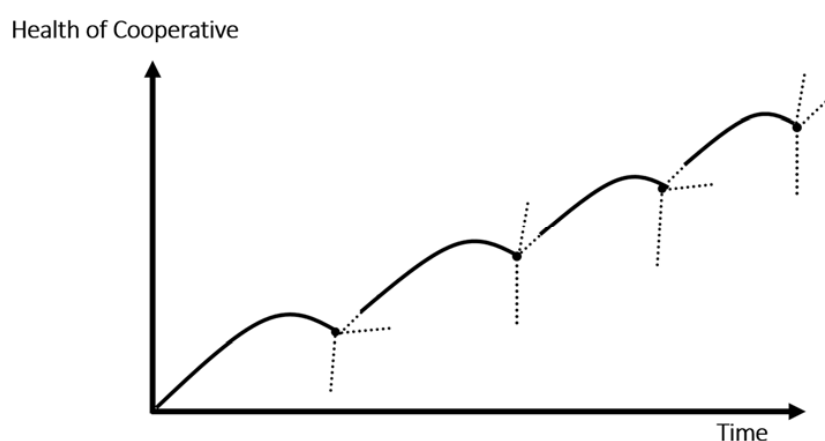


Figure 2. Example of multiple cooperative life cycles.

The process observed as a cooperative begins a new life cycle is as follows. The logic and rules developed in the first two phases of the new life cycle (justification and organizational design) are negotiated and emerge from a consensus of the current and potentially new member patrons. The choice to reinvent (other terms used by practitioners include “overhaul” and “regenerate”) is drawn from the logic of the analysis conducted in the previous life cycle's phase 4. The results serve as a foundation and inform the reformulation of purpose and rules of the game for the new life cycle. The membership through direct vote or representative vote subsequently begins the path toward phase 3 (growth, glory and heterogeneity). Our team has had in depth discussions with cooperatives who are in their third or fourth life cycle. Examples will be mentioned in the final section of this paper.

3. Discussion

What theoretical conditions lead to the inclusion of multiple life cycles in a framework focused on intra-organizational dynamics? Higher order collective action constraints and the notion of intentionality suggest single life cycle models may be shortsighted. Constraints to collective action can be mitigated through the design of selective incentives to ameliorate incomplete contracting problems. However, second order problems may arise because incentives are non-excludable goods from which certain actors may benefit without bearing provision costs [35,56,98,99]. For example, free riders may be discouraged by sanctions. However, the sanctioning system is subject to free riding; all members benefit from sanctioning activities regardless of their resource contribution [100]. In the same manner, we may mitigate agency costs through monitoring. However, an incentive exists among multiple owners to shirk monitoring responsibilities [8]. Thus, collective action may be constrained by an

infinite regress of capitalization and control problems in which the solution to one constraint instigates higher order constraints [101]. However, social, management, and organizational entities possess the ability to intentionally redesign their systems [19,102]. Therefore, we propose that these systems have the ability to continually adopt mechanisms to mitigate the aforementioned frictions and reduce ownership costs despite recursive constraints. Certain adaptations may change ownership rights, purpose, or internal culture to such an extent as to, de facto, initiate a new cooperative organization life cycle.

Cooperative health degeneration may be avoided through ownership cost evasion. A dynamic life cycle framework utilizes analysis of the etiology of organizational challenges to inform the degeneration hypothesis. Figure 3 exhibits the relationship between ownership costs (survivability proxy) and probability of cooperative degeneration. Cells A and C suggest conditions supporting a regeneration hypothesis while Cells B and D suggest conditions supporting the degeneration hypothesis.

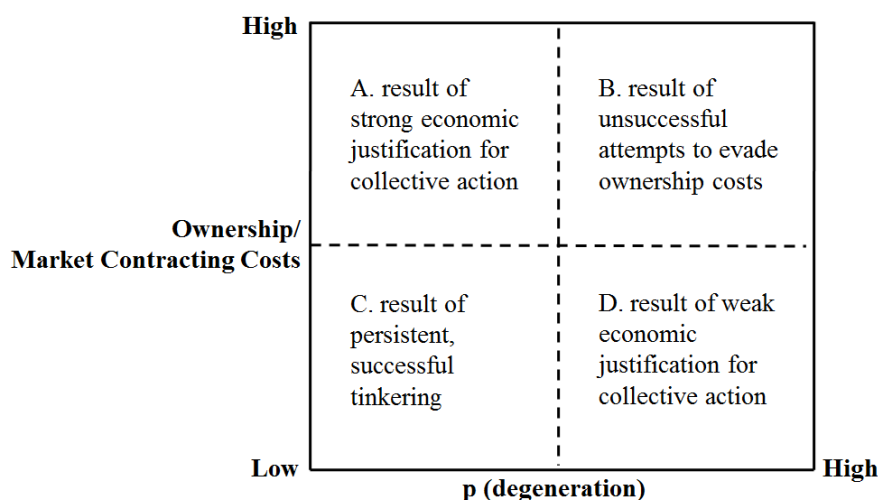


Figure 3. Ownership costs and probability of degeneration.

Evolution or persistence of cooperation may occur in spite of high ownership costs when market failure conditions are more costly than ownership and coordination problems. Using Hansmann's terminology, market contracting costs may exceed ownership costs [8]. This case is shown in Cell A. The ability of strong exogenous economic factors to overcome detrimental ownership costs is congruent with several theories regarding the sustainability and evolution of agricultural producer cooperatives including the wave, wind-it-up, pacemaker and mop-up theories [3].

Cell B indicates potential degeneration for cooperatives confronting overwhelming ownership costs, despite high levels of market contracting costs. We characterize this as an inability to evade ownership costs despite centripetal forces of market imperfections. If producers are not able to jointly devise appropriate constitutional and operational mechanisms to organize their interests or mitigate heterogeneity in investment preferences, they are likely to prefer independent action in the marketplace.

Analysis of cooperatives from a property rights perspective suggests cooperatives able to minimize ownership costs may persist as founding market failure conditions diminish. Cell C indicates that low probability of cooperative degeneration in the absence of strong exogenous market conditions will depend upon cooperators' ability to minimize ownership costs, ensuring they remain low in comparison to market contracting costs. We hypothesize that organizations sustaining cooperation after amelioration of initial market conditions are able to do so through continuous improvement of collective choice mechanisms and minimization of higher order constraints. This would suggest these cooperatives have a high level of "cooperative genius" and are involved in continual "tinkering".

Drawing from cooperative archives including internal reports, consulting studies, accumulated empirical studies, and creditor opinions, Cook and Iliopoulos propose a set of generic solutions presented in the form of questions:

Will the option improve “user alignment”?

Will the reinvention option improve “member retention” policies, practices and initiatives?

Will or can the option achieve realistic “supply/demand” balance policies and strategies?

Will the option allow for the design of “transparency” mechanisms? [1,2].

They support their conclusions with examples of generic and specific solutions from Europe and North American cooperatives. Reinventions, that is, changes in purpose, culture and/or ownership rights can occur for numerous reasons and unforeseen times but are most frequent of times of cooperative firm chaos, mergers and acquisition, and as a result of innovative and collective entrepreneurial member and management leadership [103].

Cell D reveals low ownership costs will not sustain joint producer action if market contracting costs drop below ownership costs. We characterize Cell D as a result of a weakening economic justification over time. We hypothesize cooperatives having exhausted all avenues to lower ownership costs may find it necessary to commence strategic initiatives that shift cooperative operations to remaining market imperfections or arbitrage opportunities, thus beginning a new life cycle by instituting an alternative economic justification.

The prevalence of the degeneration hypothesis leads us to include this central tenet in the cooperative life cycle framework. However, the life cycle framework posited here suggests that cooperatives may avoid degeneration through ownership cost evasion. Thus, in addition to operational cost reduction and growth strategies, efforts to reduce ownership costs are of great importance to cooperative leaders.

We note the structurally caused inefficiencies in the cooperative organizational form combined with member heterogeneity may lead to increased ownership costs. Ownership costs present a unique opportunity to cooperative leaders. If we recognize heterogeneity as a threat to cooperative longevity, cooperators possess the option of acting to evade ownership costs. This life cycle framework suggests ownership cost evasion through cooperative genius process and the resultant tinkering entails the continuous redesign of collective choice arrangements to achieve regeneration. (Several examples might clarify this process. Citrus World (Florida’s Natural), a traditional production oriented federated cooperative reinvented itself as a closed, branded, marketing cooperative during the period of 1987–1992. It changed its purpose, member and employee culture, and modified ownership rights. In the early 1990s, Farmland Industries, the largest U.S. agricultural cooperative, changed its control rights and member culture. More recently, Fonterra, New Zealand’s largest cooperative changed its ownership rights along with its purpose and culture by adopting tradeable shares.)

4. Conclusions

The framework described in this paper deconstructs an observed hypothetical life cycle of a single agricultural cooperative in an advanced agricultural country where agriculture is primarily dominated by family farms. This conceptual framework is informed by observations and insights of more than 5000 participants engaged in interactive learning events. These workshops, classes, seminars, and symposia occurred (and continue to be held) over a period of twenty five years of field work combined with advances in new social science theories and empirical studies informing the ownership of enterprise and factors influencing successful and less than successful collective action in the organizational form known as an agricultural cooperative. The framework identifies five separate phases: justification, organizational design, growth, analytical reflection, and choice. The inductive and deductive inputs utilized to develop the framework for “long enduring successful agricultural cooperatives” suggest the following:

- a. Phase one, the economic justification for founding a cooperative tends to be motivated primarily for defensive reasons, which is the amelioration of market contracting costs/market failures;

- b. Phase two, the organizational design phase, serves as a search mechanism to screen potential members as the rules of the game and particularly the enforcement of those rules are determined and formalized. This phase also is extremely important in identifying members who initially share similar preferences as they identify and define the metric of performance called “cooperative health”.
- c. Phase three, usually but not necessarily the longest of the five phases, includes the period the cooperative moves toward achieving its goals but is also the phase where negative consequences of heterogeneity among and between member stakeholder preferences begin to emerge. Long enduring cooperatives appear to be particularly astute at identifying and ameliorating these frictions before they lead to the formation of factional coalitions. This ability is the outcome of the previously defined process called cooperative genius and the resultant action taken named tinkering. When tinkering has exhausted the attractiveness or ability to ameliorate emerging frictions, the framework suggests moving on to phase four.
- d. Phase four is dedicated to understanding the fundamental causes of recurrent frictions and restraint factions embedded in structural, strategic, governance, management and member preference factors, which need in-depth analysis. The results of this phase identify options for cooperative membership: exit, status quo, spawn or reinvention.
- e. Phase five is the process of choosing between the four options. Long enduring cooperatives usually choose reinvention. Reinvention suggests a significant change in any subset or the entirety of the following policies or practices:
 - i. change the purpose,
 - ii. change the member and employee culture,
 - iii. change the residual claim rights, and/or
 - iv. change the control rights.

If membership agrees to the reinvention option, the cooperative begins a new life cycle.

Future research outputs in management and social science disciplines will contribute to further discussion of what leads to long enduring cooperatives. Economists have contributed significantly to the important phase of justification as a reaction to market failure. Sociologists, political scientists, and organizational economists have contributed significantly to the understanding of collective action organizational design and the non-financial aspects of continued collaboration. Applied and financial economists have consistently examined financial measures of performance. However, we now have behavioral and institutional theories and measurement tools that allow us to examine in a more micro analytical manner the complexities and multiple interdependencies of patron owned and controlled organizations—an area awaiting more forensic examination of relationships identified in this proposed micro analytical approach. However, we would suggest to future researchers—no matter what their discipline—first conduct a detailed descriptive exploratory research case on the evolution and workings of a single cooperative to gain an appreciation of the complexities of governing, managing and leading a patron owned and controlled commercial entity. This appreciation will lead us to more powerful insights into the workings of this captivating and sometimes long enduring organizational arrangement.

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