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Toolkit

Lead a strategy in an agricultural cooperative—methods of strategic business analysis for agri-cooperatives (LESACCOOP)

Agricultural Economics Research Institute (AGRERI)
Hellenic Agriculture Organization-Demeter

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Introduction to the toolkit

What is LESACOOP?

LESACOOP is a training toolkit, developed at the Agricultural Economics Research Institute (AGRERI), Greece, in the framework of the ERASMUS+ GGPAC project in 2022-2023. It is a set of six training modules and various learning elements tailored to the needs of participating agricultural cooperatives but, also, applicable to any agricultural cooperative.

For whom?

- * **Direct Beneficiaries:** Cooperative advisers, trainers (training institutions, NGOs, project staff, government officials of specialized training institutions for cooperative organizations, persons from the cooperative movement).
- * **Ultimate Beneficiaries:** Board members, managers, members, and employees of cooperatives.

Purpose

The purpose of **LESACOOP** toolkit is to provide cooperative trainers with the knowledge necessary in order to facilitate cooperative leaders in identifying and analyzing the intra-organizational strengths and weaknesses of their cooperative and, thus, design and implement successful competitive strategies in the medium to long run. The approach introduced in this toolkit for analyzing strategically an agricultural cooperative is based on the seminal work of Professor Michael L. Cook and colleagues at the University of Missouri-Columbia, USA¹.

What does LESACOOP include?

LESACOOP includes a Trainers' Manual on the Cooperative Lifecycle Framework (CLF), developed in six modules as follows:

- Module 1: The Cooperative Lifecycle Framework (CLF)—Introduction and Overview

¹ The first author of this toolkit was the first member of the Cook team and has participated for almost 20 years in the development of the underlying scientific research approach, as well as in the training of hundreds of cooperative board members, management, and members at large in numerous countries.

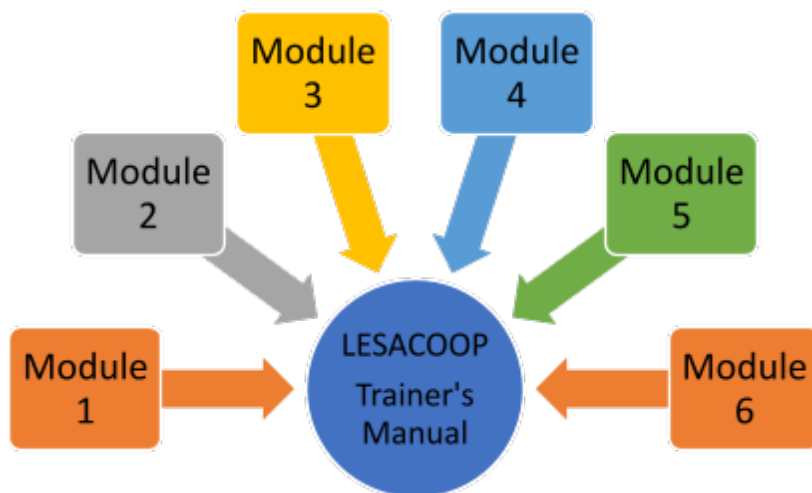
- Module 2: The Cooperative Lifecycle Framework (CLF)—Phase 1: Economic Justification
- Module 3: The Cooperative Lifecycle Framework (CLF)—Phase 2: Organizational Design
- The Cooperative Lifecycle Framework (CLF)—Phase 3: Growth, Glory and Heterogeneity
- The Cooperative Lifecycle Framework (CLF)—Phase 4: Recognition and Introspection
- The Cooperative Lifecycle Framework (CLF)—Phase 5: Choice

Each module includes:

- Explanatory boxes on definitions and concepts.
- Self-assessment questions that help the self-learner apply the contents to his or her own cooperative or situation and enable workshop participants to gain a deeper understanding on the Module topic.

At the end of the LESACOOP, the user will find further resources, including an extensive bibliography on the topics covered in all modules. The user will also find appendices with answers to the self-assessment questions and mini cases that apply the concepts developed in LESACOOP to real agricultural cooperatives.

The LESACOOP Training Toolkit



Module 1:

The Cooperative Lifecycle Framework-Introduction and Overview

Introduction to the Cooperative Lifecycle Framework (CLF)

The basic idea behind the cooperative lifecycle framework (CLF) is that cooperatives, like all other organizations, evolve through certain phases in their lifetime. Unlike natural organizations, however, social organizations, such as cooperatives, need not to die at the end. The observed resilience of agricultural cooperatives in times of crises and turmoil, as well as the reported almost double lifespan of these unique organizational forms relative to investor-oriented firms (IOFs) in many countries, sparked the interest of researchers, who through laborious, multi-decades research concluded that agricultural cooperatives go through five distinct phases during their lifetime. The lifecycle may end at some point in time. However, numerous cooperatives have managed to reinvent themselves and start a new lifecycle.

The CLF can be used in numerous ways by cooperative leaders (board members, management), members, experts, and policy-makers. In the current toolkit we focus primarily on the CLF as a framework and a set of tools to be used in the strategic analysis of individual agricultural cooperatives. More specifically, we focus on the intra-organizational aspects of strategy design, when cooperative leaders need to understand in depth the strengths and weaknesses of their cooperative, in order to design and implement fruitful strategies through a transformative scenario planning approach.

Transformative scenario planning is a process of imagining and creating alternative futures to help individuals and organizations adapt to uncertainty and change. It involves developing a set of plausible scenarios that challenge existing assumptions about the future and explore new possibilities. The goal is to identify potential opportunities and threats, and develop strategies to respond to them. For example, a company might use transformative scenario planning to explore the impact of emerging technologies, changing consumer preferences, or global economic trends on their business. By developing scenarios that challenge their assumptions about the future, they can better prepare for a range of potential outcomes and develop more resilient strategies.

Cooperative Lifecycle Phases

The CLF divides the evolution of a cooperative life cycle into five separate and sequenced phases. The first phase, economic justification, discusses the reasoning behind the decision to enter 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 needs. The organizational model refers to the answers founding members give to the three basic questions of economic organization: Who owns? Who controls? Who benefits? 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. In North America, the cooperative's average age is 75 to 90 years with the youngest being 30 and the oldest 120. European agricultural cooperatives are even older. Surviving cooperatives have developed a collective process we call **"cooperative genius"** (to be defined and explained in Module 4) associated with the longevity of agricultural cooperatives. 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

incentives², policies balancing supply and demand³, member retention investments⁴ and transparency practices⁵ have the potential to regenerate the level of cooperative health are also evaluated. 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 the following generic structural changes, which is deemed necessary to initiate a new life cycle: (a) modification to residual income rights⁶, that is, adopting a different ownership model; (b) readjustment to residual control rights⁷, that is, adopting a different governance model; (c) a significant change in the purpose of the cooperative (see Box A below) or (d) a dramatic shift in cooperative culture and/or mindset (see Appendix 1). The five phases of the CLF are shown in Figure 1 below, developed by Cook (2018, p. 5).

² Realignment of user incentives refers to changes in cooperative policies and/or bylaws so that for each member patronage (value of transactions with the cooperative), ownership (money contributed), and control of the cooperative are proportional to each other.

³ Balancing supply and demand refers to policies implemented by the cooperative to make sure that the quantities delivered by members are known in advance, stable, and of desired quality. Such policies may include the introduction of mandatory member contracts, in which the terms of the transaction (volume, quality, date, etc.) are agreed between each member and the cooperative in advance.

⁴ Member retention policies include cooperative policies designed to make members stick to their cooperative. Efficient communication programs, particularly of goals achieved, focus on the cooperative's history and past successes (e.g., by publishing books on the evolution of the cooperative), and the creation of member groups in social media are but a few examples of such policies.

⁵ Transparency policies and practices aim at either adjusting the cooperative portfolio so that each member aligns her/his personal risk preferences to the risk associated with the cooperative's investments, or creating mechanisms for making top management evaluation more transparent, publicly available, and efficient.

⁶ **Residual income right** is the right to receive the residual return from an asset. The **residual return** is the income from an asset or business that remains after all fixed obligations (salaries, debts, etc.) are met. For example, assume a cooperative business is sold and that its total value is 1M Euros. From that amount, the cooperative is obliged by law to subtract: 500,000 Euros of debt, which is paid back to the bank, 250,000 Euros that are paid to suppliers who are not members, 150,000 Euros for salaries not paid so far, and, finally, 10,000 Euros for lawyer fees. The remaining 90,000 Euros represent the residual return; current active members are entitled to share this amount based on the provisions of the cooperative's bylaws.

⁷ **Residual right of control** is the right to make any decision concerning an asset's use that is not explicitly assigned by law or contract to another party.

Health of Cooperative

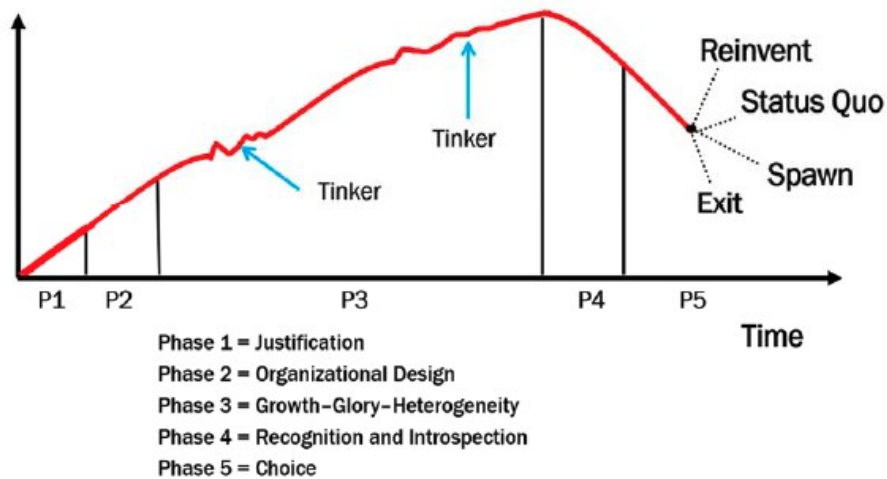


Figure 1. The cooperative life cycle.

Box A: A Significant Change in the Purpose of the Cooperative

Numerous examples of agricultural cooperatives exist, which completely shifted their purpose and from purely defensive organizations became offensive businesses. Being an offensive cooperative entails strategies and actions to ensure that the value of members' farms is not threatened by outside forces (e.g., by accepting lower prices from monopsonistic buyers). As market failure issues were addressed and new generations of members joined such cooperatives, such cooperatives decided to switch into becoming offensive organizations, seeking, for example, to generate profits at as many stages of the vertical food supply chain as possible. Example cooperatives include Citrus World, USA, Tropical Pines in Australia, Pindos, Greece, and many more.

As mentioned in the introduction to this module, many agricultural cooperatives around the globe have managed to survive for 100 years or more. How do they do this? According to all evidence available, this is achieved by constant reinvention. An example of an agricultural cooperative that has moved from lifecycle to lifecycle is depicted in figure 2, below, developed by Cook (2018, p. 13).

Health of Cooperative

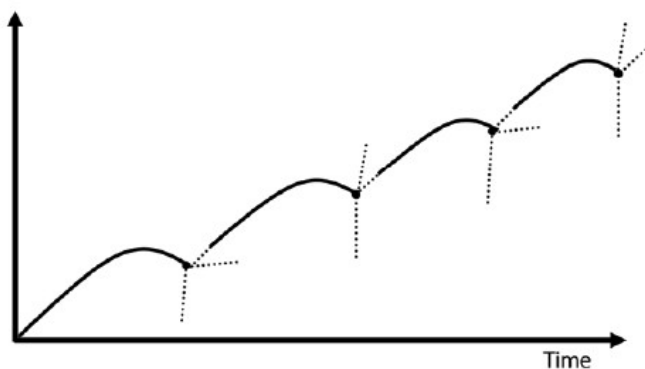


Figure 2. Example of multiple cooperative life cycles.

CLF as a tool: How to use it

The CLF has multiple value adding abilities; it is used in one or more of the following ways:

1. As a diagnostic tool for cooperative leadership⁸ 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.

The CLF also provides a framework for the development of numerous tools to help those using it to implement the framework in the most suitable, for their context, way.

Self-Assessment Questions: Module 1⁹

Question 1-1: Does a cooperative have to die at the end of its lifecycle?

Question 1-2: What sparked the interest of researchers to study the life cycle of agricultural cooperatives?

Question 1-3: What is the residual income right?

Question 1-4: What is the residual control right?

Question 1-5: How can the cooperative lifecycle framework (CLF) be used?

⁸ The term **cooperative leadership** refers, primarily to the elected board members of a cooperative, but it also encompasses hired top management personnel.

⁹ Answers to self-assessment questions are in Appendix 2.

Module 2:

Cooperative Lifecycle 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. Traditionally, agricultural cooperative emergence was seen as collaborative attempts by producers to improve their economic position in the absence of a competitive market. The high market contracting costs facing individual producers provide a strong justification for founding an agricultural cooperative. The economic justifications, therefore, for founding a cooperative are one or more of the following:

Reduce market margin

Reducing the market margin leads to lower or the same consumer price but higher net profit for the farmer. By marketing their produce together through a cooperative, farmers can lower the margin in two ways:

- 1) The cooperative may face lower prices for some of the inputs used in marketing.

While it is unlikely that the cooperative will have access to labor, energy, or other materials at lower prices than other businesses, it may be able to extract savings on the cost of capital due to either the manner in which income is accrued by cooperatives is taxed and/or to possible advantages of cooperatives in securing cheaper debt capital (e.g., through cooperative banks or state-subsidized interest rates on loans).

- 2) The cooperative may market the product more efficiently that is presently done.

The cooperative can handle the marketing functions at lower cost than IOFs. The main advantages of the cooperative stem from the internalization of the transactions (vertical integration) between the members and the cooperative, which are no longer conducted in the open market. These advantages include: (i) internalization creates a common incentive among parties, whereas participants to market exchange usually have opposing interests, i.e., the buyer wants to buy low and the seller wants to sell high; (ii) disputes within an organization can be resolved quickly through internal control, while disputes between independent parties often involve costly litigation; (iii) information usually flows more freely within an organization than across markets.

These advantages to vertical integration become more important when a large portion of farmers' *assets are sunk*¹⁰. Farmers with a high proportion of sunk assets are vulnerable to opportunistic behavior on the part of their trading partners. In other words, farmers whose assets are sunk are "stuck" in the sense of lacking alternative opportunities. Trading partners may try to take advantage of this situation. For example, growers who produce highly perishable commodities such as vegetables are vulnerable to opportunistic price cutting by buyers because the harvested crop is often a sunk asset-its perishability gives the grower few resale opportunities.

Similarly on the input supply side farmers who need immediate supplies of inputs such as liquid fertilizers, chemicals, and petroleum are potentially vulnerable to hold-ups by sellers who may try to take advantage of the situation by extracting higher prices.

Avoid market power

The behavior we discussed earlier leads to trading partners trying to take advantage of short-term market power over farmers. In contrast, long-term market power may exist when farmers have limited options for selling their production and buying supplies, with only one or a few firms as buyers. This is referred to as monopsony with one buyer and oligopsony with a few buyers by economists. In these cases, farmers may receive lower prices than the fair market value due to the lack of competition, which would otherwise drive the prices up to the fair market value. The same concept applies to the market for farm supplies, with different terminology used. Monopoly refers to a market with a single seller; oligopoly describes markets with only a few sellers. In these markets, sellers will probably try to charge more for farm supplies than it costs to provide them, and competitive forces are often not strong enough to prevent this type of overpricing. Aside from charging high {paying low} prices, another feature of monopoly {monopsony} power is likely to be charging {paying} different prices to different farmers for no good, i.e., cost-justified, reason. This type of conduct is called price discrimination. Price discrimination can be the outcome of playing farmers off against one another and attempting to discern each's minimum selling price for farm production or maximum buying price for supplies. This type of pricing behavior can persist because competitive forces are usually weak in monopoly/ monopsony markets. If

¹⁰ A **sunk asset** is an asset whose cost cannot be recovered by resale within a given time period. An asset is partially sunk if only a portion of the cost can be recovered. For example, a custom-built milking parlor is likely to be a sunk asset because it cannot be resold quickly or without considerable loss.

markets were competitive, attempts at price discrimination would fail because competition among buyers or sellers would bid the price to a uniform "competitive" level. Several respondents to our survey indicated the presence of this type of discriminatory pricing behavior in their buying or selling markets. Cooperation is a way to integrate around market power. Simply put, farmers can organize a cooperative to market their product and no longer have to deal with the monopsony or oligopsony firms. The cooperative will pay its members the largest net price possible subject to covering its marketing costs. Similarly, the purchasing cooperative integrates farmers around monopoly or oligopoly power and supplies its members farm inputs as cheaply as possible subject to covering costs.

Influence consumer price

If farmers can increase the prices for their products at retail, naturally farm prices will also increase. Two possible avenues exist to accomplish this goal:

1. The cooperative may be able to restrict the flow of farm products to the market.

European regulations and national legislations give farmers the right to organize into cooperatives, but it also authorizes competition authorities to investigate instances of undue price enhancement by cooperatives. That this authority has never been exercised is probably evidence of the limited success cooperatives have had at monopoly price enhancement.

2. The cooperative may be able to improve the quality of the finished products.

This way to raise retail and, thus, farm prices through cooperatives is by improving quality assurance. There are two reasons why a cooperative may be effective in this regard: (i) production and marketing may be better coordinated through a cooperative than through ordinary market channels due to the improved flow of information, characteristic of a vertically integrated enterprise. Thus, the marketing cooperative may be able to successfully coordinate quality specifications with its members, set planting and harvest times to maximize quality and so forth; and (ii) private handlers of farm products at times will have incentive to shirk on quality.

Reduce risk through cooperatives

Agricultural cooperatives reduce their members' exposure to market risks by pooling together commodities with inversely correlated income streams. Pooling occurs when a

cooperative markets several different products (or supplies several different inputs) and lumps all proceeds into one or a few "pools." Farmers then receive allocations from the pools in proportion to their patronage with the cooperative. For example, a cooperative may market several different fruit and vegetable commodities. It will usually give growers a partial payment (a so-called "established value") at the time of harvest. Subsequent payments come from the pools. This feature results, for example, in peach growers sharing in income from tomato production and vice versa. By lumping the returns from several commodities together in this fashion, the effect may be to diversify risks and stabilize growers' income streams. In fact, agricultural producers themselves are often diversified, producing and selling multiple commodities. However, modern capital-intensive farming systems tend to encourage specialization. Thus, as producers lose the risk diversifying effect of producing several commodities on the farm, it may make sense to regain diversification through a cooperative.

Provide missing services

So far, we have explored the benefits of cooperative marketing and purchasing compared to working with independent organizations in the same market. However, there are instances where farmers have trouble finding an IOF to serve their market. In these cases, it may seem that forming a cooperative is not a viable option, as a for-profit company is unable to make a profit in the market. However, there are three reasons that suggest a cooperative might succeed where for-profit companies have failed. Producers who are losing their markets due to the exit of all for-profit handlers should at least consider forming a cooperative to acquire one or more facilities. These reasons are:

1. As previously discussed, a cooperative may have the ability to operate more efficiently than previous IOF handlers, potentially allowing for a smaller margin in product marketing.
2. The farmer-members of a cooperative are likely to accept a lower return on investment compared to IOF owners, as farming often provides intrinsic satisfaction for farmers. This means that a rate of return that may not be attractive to non-farm investors may be acceptable to farmers, especially if it helps preserve their livelihood.

3. The coordination and collaboration achieved through cooperation allows for more flexible pricing strategies that can capture value in product marketing or input purchasing that may not be possible for IOFs.

Summarizing this module, cooperation's possible benefits that act as justification for founding an agricultural cooperative include the following:

- Cooperatives may be able to operate more efficiently (on a smaller margin) than IOF counterparts.
- Cooperatives may help farmers avoid the effects of their trading partners' market power.
- By controlling the flow of production or by assuring product quality, marketing cooperatives may increase prices paid at retail for their finished farm products.
- Cooperatives may reduce aspects of the risk and uncertainty that plague farming.
- Cooperatives may be able to operate successfully in markets that no for-profit IOF will serve.

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.

Traditionally, founding members have chosen a defensive strategy for their cooperative; that is, to protect the value of assets at the farm-member level. Such a defensive strategy implies that the cooperative plays a competitive yardstick role in order to modify the behavior of IOF rivals. Member-patrons are in control of the cooperative, which provides a missing service and, also, achieves risk reduction. The apparent benefits accruing to members create and reinforce solidarity among members. Forming these traditional agricultural cooperatives was largely based and depended upon preexisting high levels of social capital in the farming community. Such social capital would assume various forms, including trust among farmers, social ties and relationships galvanized over a long time period, etc.

Later, agricultural cooperatives started being founded also for offensive reasons; extracting profits not only from farming, but from as many levels of the vertical supply chain as possible. Additional sources of income were generated by gaining from scale and scope economies and/or achieving coordination efficiencies. This shift in strategy of some agricultural cooperatives necessitated the adoption of the user-investor principle, where member-patrons are rewarded for both transacting with the cooperative and for investing in it.

When the first modern agricultural cooperatives were founded, the members shared a homogeneous purpose, resulting from facing common grievances and common dilemmas. Consequently, the shared identity acted as a selection process for building a strong membership base. The outside threat from IOF rivals acted as an external rallying force gluing together members around the common purpose. At the same time, and in most cases, the existence of credible economic opportunities supported the establishment and fast growth of these cooperatives and acted as a further incentive for joining agricultural cooperatives of that era.

Module 2 Takeaways

- A strong economic justification is essential for starting an agricultural cooperative.
- A strong economic justification is essential for the survival of an agricultural cooperative in both the short and long run.
- A prerequisite for cooperative longevity and competitiveness is a strategy well aligned with economic justification.

Self-Assessment Questions: Module 2¹¹

Question 2-1: What are the alternative or complementary economic reasons an agricultural cooperative is founded for?

Question 2-2: What is a “defensive cooperative strategy”?

Question 2-3: What is an “offensive cooperative strategy”?

Question 2-4: How does the outside threat from investor-oriented firms (IOFs) act during phase 1 of a cooperative’s life cycle?

Question 2-5: Why is a strong economic justification essential for the survival of a cooperative?

¹¹ Answers to self-assessment questions are in Appendix 2.

Module 3:

Cooperative Lifecycle Phase 2—Organizational Design

Once economic justification motivates collaboration, producers begin to design the rules of the game to build and sustain cooperation. Assuming a cooperative organizational form is chosen, we observe that most institutional environments permit the embedding of cooperative principles into their articles of incorporation, the statutory documents, or their bylaws and practices. Cooperative principles impact the distribution of residual income 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, including most of Europe, are guided by the seven International Cooperative Alliance principles: 1) voluntary and open membership, 2) democratic member control, 3) member economic participation, 4) autonomy and independence, 5) education, training, information, 6) cooperation among cooperatives, and 7) concern for the community.

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.

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. The implications and consequences of the emergent organizational architecture are significant as they influence cooperative longevity. 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.

Based on the definition and allocation of ownership rights, a traditional agricultural cooperative is a farmer organization with the following characteristics:

Ownership	<ul style="list-style-type: none"> • Open, Producers
Control	<ul style="list-style-type: none"> • One-member, One-vote • District, At Large
Benefits	<ul style="list-style-type: none"> • Proportional to Patronage
Primary Risk K Generation	<ul style="list-style-type: none"> • Earnings, Retains
Supply Control	<ul style="list-style-type: none"> • Limited • No Delivery Obligation
Equity Investment	<ul style="list-style-type: none"> • Illiquid, Exit constraints • Non-transferable • Non-appreciable • Redeemable

According to practitioner input, the most challenging element of organizational design is agreeing on well-defined performance metric(s) and subsequently achieving member consensus. Experience suggests 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 may 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. More recently introduced measures of performance include non-financial measures of the private/collective good portion of cooperative health (relative position in the industry, member satisfaction, vision attainment). Because a cooperative is a member-patron controlled entity, performance objectives or cooperative health metric is broader and more diffuse than IOFs. Thus, how is cooperative health measured? It is measured by means of a performance metric called “cooperative health”, which incorporates 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?). 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 (repeated here from Module 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 costs¹².

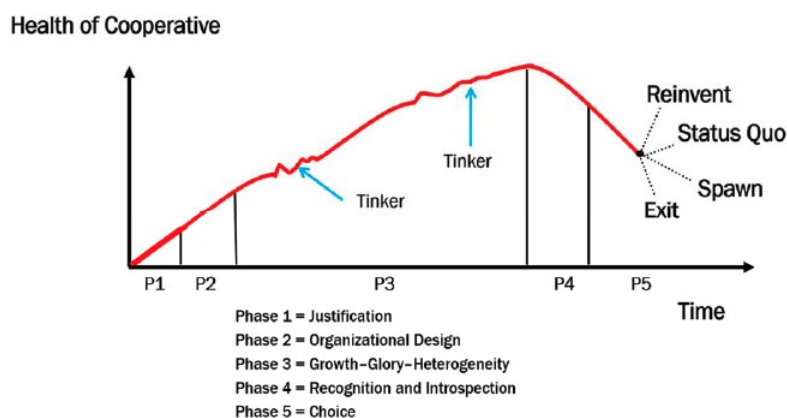


Figure 1. The cooperative life cycle.

In phase 2 of a cooperative’s lifecycle, members and their leaders also decide on how to finance their organization. Initial funding usually is generated in one of the following ways:

¹² Ownership costs include both the costs of founding a cooperative and the costs of optimizing its organizational health thereafter.

- Seed capital contributions
- Non-redeemable shares
- Development loans and grants
- Government programs
- Venture capital financing
- Loans

Subsequently, agricultural cooperatives raise equity by means of:

- Net income as allocated patronage refunds: Retained patronage refunds are portions of net income allocated to members but retained by the cooperative. In fact, they are new investments made in the cooperative by those who are patronizing it.
- Per-unit capital retains: Per-unit capital retains are patrons' investments in the cooperative that are based on the value or number of units handled for each patron. Marketing cooperatives are the major users of this method of accumulating equity capital. These patron investments are deducted from the proceeds of products marketed.
- Direct member investments: These include cash purchases of common or preferred stock, membership certificates, or other forms of equity.
- Net income from non-patronage business: In this method, the cooperative, after paying taxes, maintains net income generated from nonmember business. While members tend to prefer this method, it is associated with certain disadvantages, such as making investments whose ownership does not really belong to member-owners. Further, if this equity accumulation method is overused, problems with law may arise, since many countries do not consider businesses whose transactions with non-members is above a certain threshold to be cooperatives.
- Taxed unallocated capital reserves: Equity can also be accumulated by building up funds that are not allocated to any member, patron, or other individual account by any form of certificate or book credit. Instead, this equity would show up as member equity on the balance sheet but in an unallocated account. It may come from sources such as non-operating income (interest rent, etc.). acquisitions of businesses whose purchase prices are less than the book value of the assets, or from net income (from nonmembers or even members) which was not allocated or refunded. It can also

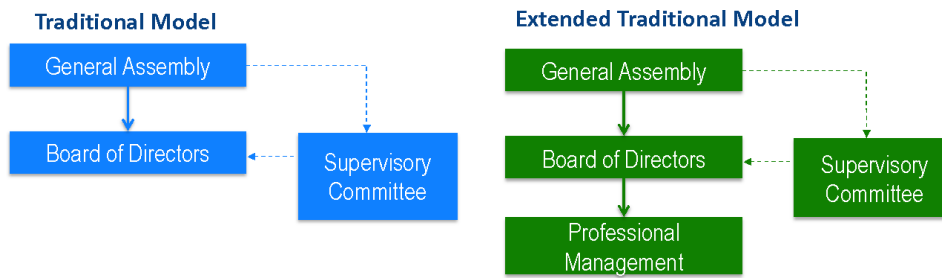
result from the sale of assets in cases where market values are greater than book values.

However, cooperatives need also to redeem members' equity. Equity redemption is returning equity in cash to member-patrons who have previously invested it. Over the years, patrons build up equity from direct investments, per-unit capital retains, and retained patronage refunds. But as individual patronage declines or ceases, cooperatives need to redeem equity to avoid overinvestment by some patrons. Equity redemption plans provide a means of returning these funds to the member-patrons who invested them. Not implementing an equity redemption plan is a serious flaw because members are not financing their cooperative according to use, a serious violation of cooperative principles.

Agricultural cooperatives usually implement one of the following equity redemption plans:

- Revolving fund plan: Under this plan, a cooperative pays off or retires in cash the oldest equities on a first-in, first-out basis, or, in other words, in the same chronological order in which they were allocated. The length of a revolving period is a compromise between the time necessary to accumulate equity and the time necessary to redeem it. Revolving periods range from 18 months to more than 30 years.
- Percentage-of-all-equities: In this equity redemption plan, the cooperative retires a percentage of all outstanding equity, regardless of issue dates. In other words, the cooperative reduces the equity of all members by the same percentage.
- Base capital plan: When a cooperative implements a base capital plan, it determines a member's equity obligation annually, based on the cooperative's need for capital and on the member's use of the cooperative. Underinvested members continue to invest, using the methods previously outlined. They may be required to pay an interest charge on the amount of their underinvestment. Overinvested members generally begin to receive at least partially, if not full, redemption of their excess investment.
- A combination of two of the above.

The organizational design phase also includes the choice of the governance model adopted by the cooperative. Traditional agricultural cooperatives adopt one of two models; the traditional and the extended traditional governance models, shown next.



In the traditional governance model, the higher decision-making body is the General Assembly of members (GA), which elects a board of directors (BoD) and, if the cooperative law makes it mandatory, a Supervisory Committee (SC). The BoD is usually responsible for designing the long-term strategy of the cooperative and making all strategic decisions. In this model, one board member, most commonly the Chairperson, also acts as the general manager of the cooperative, responsible for day-day operations. The extended traditional model is the same as the traditional one, except that the BoD hires and supervises professional management to run the cooperative. The extended traditional model is the governance model most widely used by agricultural cooperatives around the world.

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 module.

Module 3 Takeaways

- The dynamic balance between ownership (including financing), patronage, and control is key to survival.
- Cooperative members and leaders should be part of a bottom-up process of organizational design.
- The time and quality work members and their leaders devote to phase 2 of the lifecycle (organizational design) may act as a predictor of the cooperative's longevity.

Self-Assessment Questions: Module 3¹³

Question 3-1: Which basic questions does the organizational design of a cooperative answer?

Question 3-2: What are the basic ingredients of organizational design in agricultural cooperatives?

Question 3-3: What is a traditional agricultural cooperative?

Question 3-4: What is the most challenging element of organizational design in agricultural cooperatives and why?

Question 3-5: What are the most common methods used by agricultural cooperatives for equity capital accumulation?

Question 3-6: What is governance model most widely used by agricultural cooperative around the globe?

¹³ Answers to self-assessment questions are in Appendix 2.

Module 4:

Cooperative Lifecycle 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 members who prefer the distribution of higher surpluses in the short-run (e.g., because they plan to retire and have no kids to succeed them) and members who prefer to the distribution of surpluses to be stable over a number of years.

To understand member preference heterogeneity, imagine you and your friends are all going on a picnic. Each of you has your own favorite food, drink, and activity. Some of you prefer sandwiches, some prefer fruit, and some prefer chips. Some like lemonade, some like soda, and some like water. Some want to play frisbee, some want to go for a hike, and some just want to relax in the shade. This is similar to the heterogeneity of member preferences in agricultural cooperatives. Just like each person in the picnic group has their own preferred food, drink, and activity, each member of an agricultural cooperative has their own preferred products, services, and goals. Some farmers might prefer to produce one type of crop, while others might prefer to produce another type. Some might want to focus on expanding their business, while others might want to focus on preserving the environment. The challenge for the cooperative is to balance the diverse preferences of its members and make decisions that are in the best interest of the group as a whole. Just like the picnic group needs to

compromise and choose a mix of food, drink, and activities that everyone can enjoy, the cooperative needs to find a way to balance the preferences of its members and keep the cooperative functioning smoothly.

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.

Heterogeneity in Member 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. 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.

However, member heterogeneity may undermine organizational processes by affecting investment behavior, collective decision-making costs, member commitment, and contribute to cooperative demise. Unaligned preferences among members result in frictions that lead to fragmented membership, which may foster the development of distributional coalitions and institutional sclerosis. 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.

Why and How Heterogeneity Increases Over Time?

The historical analysis associates the rise in diversity among members with things like differences in farm size, unique farm strategies, consolidation of cooperatives through mergers and acquisitions, and shifts in consumer demand. However, it also acknowledges internal organizational factors such as unequal equity distribution and the formation of special interest groups that put pressure on management as causes of growing heterogeneity over time. To determine if diversity increases over time, the analysis considers the effects of equity allocation, changes in membership, substitution effects, and transactional impacts.

Members with similar investment and risk preferences at the start may see their interests diverge over time due to unequal equity allocations. Even though these patrons may initially join the cooperative at the same time, their equity investments may end up vastly different due to disparities in the growth of allocated equity under the cooperative's proportionality rule. These disparities may be due to differences in farm strategies, farm productivity, or the value of transactions the patron-member conducts with the cooperative. As a result, producers with similar preferences may face investment decisions that vary greatly in terms of the wealth impact on each individual, leading to disagreements about whether the cooperative should invest in a specific project. These wealth impacts are felt through slower revolving periods or changes in the patronage allocation ratios.

Founders may have possessed relatively homogeneous interests; however, a natural exodus of founding members occurs. 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. 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. How size impacts collective action has proven a challenging question. 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. In the case of cooperatives formed to fulfill a competitive yardstick role, there is a tendency to defect in the absence of external pressure to cooperate. We suggest that a substitution effect may also develop in which private firms become substitutes for the cooperative. If the cooperative has succeeded in combating the market power of IOFs, the latter 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. 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. Heterogeneity among the operations of members is the root cause of difficulty in cooperative-level allocation decisions. 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 goods and services 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. 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. 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. This modification and/or process is called “tinkering” (see [Appendix 3 for examples of tinkering solutions adopted by selected agricultural cooperatives in Europe and the U.S.A.](#)).

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 widespread 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. If the problems of agency, opportunism, and risk-bearing costs persist, the stability of the cooperative becomes endangered, and it is often a minor crisis that triggers the start of lifecycle phase 4.

Module 4 Takeaways

- Unaddressed high heterogeneity of member preferences significantly increases the chances for diminished longevity.
- Cooperative genius as a process designs and implements tinkering solutions that aim to minimize the organizational costs incurred by cooperatives in the form of frictions caused by extreme heterogeneity in member preferences.
- Tinkering addresses the symptoms of organizational costs and, thus, will inevitably fail to address the underlying problems. However, tinkering can last a long time.

Self-Assessment Questions: Module 4¹⁴

Question 4-1: In which ways can member heterogeneity undermine cooperative processes?

Question 4-2: What are the main sources of member heterogeneity?

Question 4-3: Why should cooperatives expect an increase in membership over time?

Question 4-4: What is tinkering?

Question 4-5: What is cooperative genius?

¹⁴ Answers to self-assessment questions are in Appendix 2.

Module 5:

Cooperative Lifecycle Phase 4—Recognition and Introspection

As the positive effects of having diverse members decline and turn into factors that cause the formation of separated groups, the cooperative's goals and direction become vague and multifaceted, leading to a rapid decline. An attempt to harmonize multiple objective functions may result in allocative, price, and technical inefficiencies. Conflict may arise between different groups within the cooperative, as some may prefer to stick to the original cooperative goals, while others may push for a change in purpose or strategy to gain a one-time benefit or shift in direction.

At this stage, the cooperative can be seen as a complex system of mechanisms that regulate the interactions of its producers. This system may have a tendency to persist in its current state, making it hard to predict its future outcomes without understanding its past. Phase 4 is a time of self-reflection, where the cooperative must examine its past growth and the formation of distributional coalitions. However, this analysis can be difficult due to the conflicts and resistance to change that exist within the cooperative.

By the end of the third phase, cooperative leaders become aware of the negative effects of increasing member diversity. Typically, a group of people, including both internal members and outsiders, is formed to explore the cooperative's options and find a solution. This team often concludes that patching up the inefficiencies caused by different preferences among subgroups will no longer be a viable solution in the long term. The cooperative faces issues such as lack of interest from members, declining or stagnant transactions, loss of patrons, and the development of multiple subgroup cultures, indicating that changes in the initial values, beliefs, and objectives must be addressed. The analytical team comes to the realization that the solutions to the problems faced by the cooperative might be politically sensitive, as they stem from deeper issues such as the original organizational structure. Upon reviewing the restrictions set by statutory legislation and established policies and practices, the committee determines that the main problems are related to control and

capitalization. The team recognizes that the same issues of control and capitalization, which had arisen when the cooperative's original design was being developed, have resurfaced. Despite being aware of the difficulties posed by the cooperative's dual role as both a patron and investor, the founders believed the benefits of proceeding with the design outweighed the costs. A few of the founders understood that control and investment allocation problems might arise, but most of the original leaders believed these challenges could be solved through minor adjustments, reducing some of the negative effects from the inherent cooperative characteristics. However, as these adjustments failed to stop the decline in cooperative behavior among members, they looked to phase 4 for a solution.

The analysis team's investigation of the inherent flaws in the cooperative's organization and the repeated need for temporary fixes would lead to identifying the persistent appearance of tensions. Vaguely or ill-defined property rights (VDPRs) are viewed as root causes of cooperative inefficiencies leading toward symptoms identified as frictions. These VDPRs

Box B. Vaguely Defined Property Rights Constraints in Agricultural Cooperatives (1)

Property rights refer to the legal ownership of physical and intangible assets, including land, buildings, intellectual property, and natural resources. In agricultural cooperatives, property rights are often defined in a way that allows multiple stakeholders to share in the ownership and control of the assets. However, this can sometimes lead to vague and conflicting property rights constraints, which can create obstacles to effective decision-making and cooperation within the cooperative. It is important for agricultural cooperatives to have clear and well-defined property rights in order to ensure the efficient and sustainable use of resources and to avoid disputes among members. When property rights over cooperative assets are not clearly defined, they usually give rise to two sets of problems or constraints; capital acquisition and control constraints. The first set, capital acquisition constraints include three problems: free rider, investment horizon, and investment portfolio constraints.

The **free rider problem** in agricultural cooperatives refers to a situation where some members of the cooperative benefit from the efforts and investments of others, without contributing themselves. This can arise when some members are able or unwilling to contribute to the cooperative's activities, but still benefit from its resources and services. The free rider problem can reduce the incentives for individuals to contribute, leading to reduced cooperation and lower overall productivity. To mitigate the free rider problem, agricultural cooperatives may implement policies and mechanisms to encourage and reward individual contributions, such as sharing profits and benefits based on each member's participation and investment.

The **investment horizon problem** in agricultural cooperatives refers to the difficulty of aligning the investment decisions of cooperative members with the long-term goals and objectives of the cooperative. This can occur because individual members may have different time horizons for their investments, with some members focusing on short-term profits and others focused on long-term growth and sustainability. The investment horizon problem can lead to conflicts among members and result in suboptimal investment decisions for the cooperative as a whole. To address this problem, agricultural cooperatives may implement policies and mechanisms to encourage and support long-term investment planning, such as providing education and training on the benefits of long-term thinking, and rewarding members who contribute to the long-term success of the cooperative.

The **investment portfolio problem** in agricultural cooperatives refers to the difficulty of balancing the allocation of resources and investments among different projects, activities, and opportunities. This can arise because cooperative members may have different opinions and preferences regarding the allocation of resources, leading to conflicting goals and objectives. The investment portfolio problem can result in suboptimal investment decisions for the cooperative and reduce its overall efficiency and effectiveness. To address this problem, agricultural cooperatives may implement policies and mechanisms to ensure that investment decisions are based on a comprehensive analysis of the potential risks and benefits of different projects and opportunities, taking into account the views and preferences of all members. This

Box C. Vaguely Defined Property Rights Constraints in Agricultural Cooperatives (2)

The second set of vaguely-defined property right constraints are called control constraints and include: the control problem, the influence costs problem, and the collective decision-making constraint.

The **control problem** in agricultural cooperatives refers to a situation where the interests and incentives of the cooperative's management (the agent) may not align with the goals and interests of the members (the principals). This can occur when the management has more information, power, or incentives to act in their own interest rather than the interest of the members. The principal-agent problem can lead to suboptimal outcomes for the cooperative and reduce trust and cooperation among members. To address this problem, agricultural cooperatives may implement policies and mechanisms to align the incentives and objectives of the management with those of the members, such as performance-based compensation, regular reporting and accountability systems, and independent oversight mechanisms. Additionally, members may also play a more active role in decision-making processes and governance to ensure that the management is acting in the best interest of the cooperative as a whole.

The **influence costs problem** arises in agricultural cooperatives when members attempt to influence wealth distribution decisions to their individual benefit and contrary to the benefit of the cooperative as a whole. This is done by providing misleading information or, simply, communicating their preferences to the board of directors and/or the CEO. Cooperative leaders have two options; wither to ignore influence attempts, which is difficult because members are the owners of the cooperative, or install management information systems that test the accurateness of information provided by members. In both cases, the cooperative incurs an extra cost. IOFs also incur similar costs, but only from employees attempting to influence decisions to their benefit; in agricultural cooperatives, member-owners also try to influence wealth distribution decisions as well.

Collective decision-making costs in agricultural cooperatives refer to the costs associated with the process of making decisions collectively, such as the time and resources required to coordinate and communicate with all members, to gather information and opinions, and to reach consensus. Collective decision-making can be more complex and time-consuming than individual decision-making, especially in larger cooperatives with a diverse membership. The collective decision-making costs can reduce the efficiency and effectiveness of the cooperative, and may discourage members from participating in the decision-making process. To address this problem, agricultural cooperatives may implement policies and mechanisms to simplify and streamline the collective decision-making process, such as using technology to facilitate communication and information sharing, and encouraging members to participate in regular training and education programs to improve their decision-making skills. Additionally, the cooperative may also adopt alternative decision-making processes, such as consensus-based decision-making or majority voting, to balance the need for inclusiveness with the need for efficiency.

Free riding, horizon, and portfolio problems may result in collective decision-making costs, and/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.

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, equity redemption demands may increase collective decision-making costs when distinct residual claim horizons lead to heterogeneous investment preferences among patrons.

The cooperative portfolio problem arises when a member is unable to align the cooperative's assets with their own personal risk tolerance or investment goals. This can result in members being hesitant to invest in cooperative ventures that do not align with their farm-level business plans or desired level of risk. This issue can be particularly prevalent in cooperatives involved in marketing multiple commodities or those that serve multiple purposes. As the diversity in farm production or member demographics increases, it becomes more challenging to apply the principle of proportional patronage benefits in a clear and straightforward manner.

Influence costs and control problems represent control constraints. These constraints refer to the potential for organizational design to introduce inefficiencies as a result of collective decision-making processes and information collection activities. Influence problems occur when individuals attempt to influence the distribution of wealth or benefits in the pursuit of opportunistic interests. The control or agency problem refers to the agent's incentive to maximize self-interest instead of pooling returns to patron-shareholders. Thus, the cooperative may incur agency costs manifested as monitoring costs, bonding costs or residual loss.

As the agriculture and food industries become more reliant on capital, the task of obtaining and compensating equity/risk capital increases the likelihood of conflict between cooperative leadership and member subgroups. Therefore, it becomes important to examine key points of tension in greater detail to improve our understanding of the processes and goals that are necessary for the cooperative's survival.

In corporate finance, there is a distinction between financial slack and free cash flow (FCF). Financial slack refers to the surplus of liquid assets and unused borrowing capacity that exceeds the requirements for meeting current operating expenses and debt obligations. Cooperatives with a high level of financial slack may achieve better performance outcomes because their decision-makers have the flexibility to take advantage of favorable investment opportunities that have a positive net present value in a timely manner.

Free cash flow (FCF) refers to the funds that exceed the amount needed to invest in projects with a positive net present value, discounted at the appropriate cost of capital. Those with control rights may be inclined to retain extra resources or invest in projects with negative net present value, leading to significant agency costs. This is particularly likely in cooperatives operating in mature or declining industries, as FCF depends on the number of positive net present value projects available to the cooperative. Cooperatives with ample liquidity or strong equity positions and limited investment opportunities are more susceptible to funding projects with negative net present value. Additionally, residual claimants may struggle to monitor internal financing or be passive in calling for the release of surplus funds.

Ideally, cooperatives would have enough internal financial resources to finance positive net present value projects and avoid FCF issues by distributing the funds to members. However, determining the optimal level of liquidity is complicated by factors such as uncertainty, the intangible nature of investment opportunities, and the difficulty of assessing the relevant cost of capital. The academic literature proposes several reasons why cooperatives may be prone to FCF problems. This vulnerability arises from the fundamental nature of cooperatives and the unclear rights of residual claimants. We highlight three characteristics of conventional agricultural cooperatives that are influenced by the vague property rights constraints outlined in the previous section, which may result in vulnerability: risk management, cost of capital evaluation, and cross-subsidization. The analysis is not comprehensive, but serves to illustrate the FCF dynamic throughout the cooperative

lifecycle. It is clear why these three characteristics may create conflict between cooperative members and their agents.

Cooperatives that employ certain risk management techniques may intentionally accumulate cash flow beyond what is needed to finance all positive net-present value initiatives. They may also adopt a more cautious approach to leveraging. For example, risk pooling and maintaining surplus reserve funds (in addition to legally required reserves) to act as a savings bank, allowing the cooperative to "save member returns during good times and repay them during poor times," are two strategies that aim to maintain a financially secure organization. While these strategies are effective in reducing risk, they also provide a strong incentive for leaders to retain earnings instead of distributing them to members, enabling them to use resources for projects with limited returns for current members. Cooperatives formed to mitigate the risk for their members may be more susceptible to FCF problems as leaders and management may feel pressure to use the "savings bank" funds as risk capital.

The cost of capital plays a key role in determining the difference between financial slack and free cash flow (FCF). Investment decisions are made based on the expected returns for equity providers. However, the structure of cooperatives creates challenges in determining the cost of capital because of the integration of ownership by patrons. The cost of capital can be calculated at the cooperative level or as the opportunity cost of funds for individual members.

The calculation of the cost of capital in a cooperative is complicated by the vertical integration of patron ownership and various factors at the member level. These factors can include differences in tax rates among patrons, members who value their returns through the cooperative's impact on their farm business, non-transferable equity units, the lack of provisions for paying interest on retained funds, and distributing dividends on equity capital. The absence of clear appreciation of allocated equity can lead to an incorrect perception of the cost of capital by cooperative leaders, who may undervalue or see it as zero. However, members may incur significant costs of capital if the time value of money, personal opportunity costs, tax laws, and relevant interest rates are taken into account.

The practice of using equity from members to finance operations or initiatives that may not directly benefit them, known as cross subsidization, can result in financial slack and create

issues of free cash flow (FCF). This becomes a concern when managers use this equity at their discretion without the express consent of the members. This problem is particularly prevalent in cooperatives that serve multiple purposes or aim to reduce risk or stabilize revenue. It is crucial for decision-makers to be aware of the potential impact cross subsidization can have on FCF, as it can result in market signal distortion and a fragmented membership. The concept of covert accumulation is used to describe such financing arrangements.

If a cooperative manages to avoid underinvestment by addressing capitalization and control problems or through the generation of profits, the outcome would generally be financial slack. However, financial slack can also lead to FCF problems. The difficulty in determining positive-net-present-value opportunities is complicated by the diverse investment preferences and equity capital valuations of the members. It may be necessary to carefully review and potentially adjust the cooperative objectives as established in phases 1 and 2. If the success of the cooperative is generated through member-allocated equity investments without a return on this equity, members will have an incentive to advocate for measures that require the cooperative to pay dividends or speed up patronage refunds or retains. On the other hand, some cooperatives may pursue the strategy of disbursing all surplus as pay price or dividends. As a result, a shortage of working capital, combined with the unavailability of bank credit, can bring about the end of a cooperative, as seen in 2018 with the sale of the 70-year-old Australian dairy cooperative Murray Goulburn to the investor-owned company Saputo.

In the final phase of the cooperative life cycle, the increasing complexity and cost of risk bearing lead to an increase in the costs of collective decision-making, such as costly decisions and conflict resolution. This phase requires transparency in recognizing and analyzing the sources of rising ownership costs and considering various solutions. The phase is considered complete when cooperative leadership takes explicit action to address challenges that cannot be solved with minor adjustments, or when such action is demanded by the membership.

Module 5 Takeaways

- The free rider, horizon, portfolio, control, influence costs, and collective decision-making costs problems are caused by not clearly defined ownership and control rights for cooperative member-patrons. These problems act as the underlying causes of high maintenance organizational costs incurred by agricultural cooperatives in phases 3 and 4 of their life cycle.
- Without addressing these root causes, organizational costs will rise until the collapse of the cooperative, sooner or later.

Self-Assessment Questions: Module 5

Question 5-1: When does phase 4 of the cooperative life cycle begin?

Question 5-2: Which are the underlying causes of frictions observed in agricultural cooperatives in phases 3 and 4 of their life cycle?

Question 5-3: What is the free cash flow problem in agricultural cooperatives and what are its consequences?

Question 5-4: What symptoms do we observe in agricultural cooperatives during phase 4 of their life cycle?

Question 5-5: What is the investment horizon problem in agricultural cooperatives and what are its consequences?

Module 6:

Cooperative Lifecycle Phase 5—Choice

At the end of phase 4, the members are faced with a decision that will impact the longevity of the cooperative. They may opt to keep things as they are, create a new cooperative, exit the cooperative organizational form, or fundamentally change its structure in an effort to minimize any issues affecting its well-being. These options are identified as “status quo,” “spawn,” “exit,” or “reinvent.”

The option to maintain the status quo assumes that external factors will permit the continuation of the current cooperative structure. Often, this choice of inaction is caused by a lack of agreement among factions, difficulty in coming to a consensus on external conditions, industry structure, competition, or resistance to change. Over time, patron drift and substitution can lead to a decrease in membership and leadership resources, making exit the preferred choice. This was the case with the Murray Goulburn cooperative in Australia, which chose this option for a decade before dissolving in April 2018.

Spawning is a process in which a group of employees and some member-patrons who were previously part of a parent cooperative form a new separate venture. These ventures are often interconnected and make use of joint investment networks that have been built through their association with the parent cooperative. This results in the creation of a separate organizational entity that addresses portfolio or free cash flow issues by establishing separate pools of capital and governance. An example of this is the new generation cooperatives that were created from the Southern Minnesota Sugar Beet Growers Cooperative in the Renville area of Southern Minnesota, U.S.A.

The "exit" option means the end of the cooperative's patronage-based ownership, which may involve becoming an investor-owned firm, a hybrid with reduced member-patron control, entrepreneurial harvesting, or liquidation. The choice of this option depends on the valuation of the cooperative's assets, or on the cost of member-provided equity compared to publicly-held equity. The concept of exit as a solution when market failure has been addressed has been widely discussed by many scholars in the field of cooperative structures.

Reinvention explicitly affects at least one of the following: cooperative purpose, organizational culture, and/or member-patron ownership rights ([see Box D at the end of Module 6 for a mini case of tinkering and reinvention that failed](#)). 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. 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. 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.

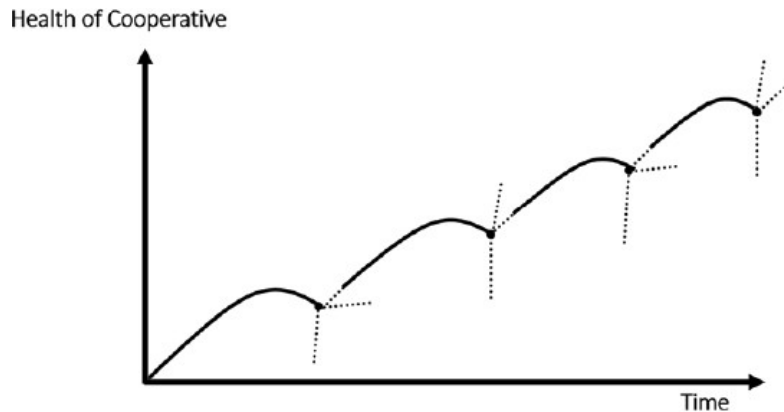


Figure 2. Example of multiple cooperative life cycles.

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).

Module 6 Takeaways

- Phase 5 is dedicated to choosing between the four options for cooperative membership: exit, status quo, spawn or reinvention.
- Long enduring cooperatives usually choose reinvention. Reinvention suggests a significant change in any subset or the entirety of the following policies or practices:
 - The purpose of the cooperative.
 - The member and employee culture.
 - The residual income rights.
 - The residual control rights.

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

Self-Assessment Questions: Module 6

Question 6-1: When do agricultural cooperatives choose the option of status quo in phase 5 of their life cycle?

Question 6-2: What is spawning as an option for agricultural cooperatives in phase 5 of their life cycle?

Question 6-3: What changes in the cooperative does the choice of reinvention entail?

Question 6-4: What is the basic change associated with the exit option in phase 5 of a cooperative's life cycle?

Question 6-5: How do agricultural cooperatives succeed in enduring for more than 100 years?

Box D. Tinkering and Reinvention in the Cooperative World: The Case of CEBECO

Royal Cebeco was a Dutch multipurpose federated cooperative, which celebrated 100 years of service to its members in 1999. Less than five years later, the cooperative seized operations, while parts of its assets were bought by former local cooperative-members or other companies. However, the periods 1989-1992 and 1998-2001 were times of constant tinkering efforts by the management and board members of Cebeco. Focusing in the 1998-2001 period, we observe that member-cooperatives aimed to enhance their control over Cebeco, increase the transparency of decision-making processes, gain more direct control, and strengthen the relationship between member cooperatives and Cebeco's business units. After extensive discussion, the changes to Cebeco Group's bylaws were approved during the May 2000 General Meeting, and became effective on January 1, 2001.

- To bring all activities of the Cebeco Group under one limited company, Cebeco Group B.V., with Royal Cebeco Group Cooperative as the only shareholder;
- to strengthen the decision-making power of the General Assembly of member cooperatives over strategic issues;
- to change the decision-making structure by creating a personal union between the board of directors of Royal Cebeco Group Cooperative and the board of commissioners of Cebeco Group B.V.;
- to allocate the general reserves of Cebeco to participation shares of the member cooperatives, and to establish a direct link between number of votes and number of participation shares;
- to introduce the opportunity for member cooperatives and (groups of) farmers to financially participate directly in specific chains, by issuing (by Cebeco Group) of chain-specific participation shares.

However, these tinkering changes did not suffice to save Cebeco; 2001 was a financial disaster for the cooperative. In order to implement the decisions made in 2000 to strengthen the relationship between member cooperatives and Cebeco business units and improve financial prospects, the General Meeting in October 2001 determined that members would take a majority stake in subsidiaries responsible for purchasing feed ingredients, fertilizers, grains, and crop protection products, with Cebeco Group retaining a minority position. In November 2001, Cebeco Group sold its Verbeek's Hatchery business unit to two member cooperatives: Bijnullei (70%) and ACM (30%). Bijnullei acquired all control rights; ACM's share only held income

Further Resources

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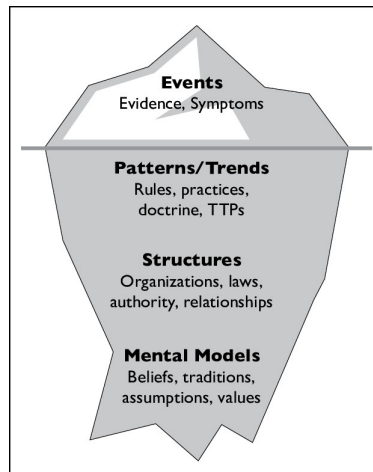
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Appendix 1: A dramatic shift in cooperative culture and/or mindset: The Iceberg Model

Such a shift occurs when, during the fourth phase of the cooperative life cycle, cooperative leaders and members realize that there is a pressing need to do things differently. Doing things differently, though, necessitates going beyond facts and into motives, structures, and mental models. Knowingly or not, this is the time when introspection and diagnosis attempts utilize the *Iceberg Model*.

The **Iceberg Model** is a diagnostic tool that is used to analyze systemic structures and identify blind spots that cause a team/organization/society to collectively reproduce results that no one wants. The iceberg makes us look at a system through different lenses and provides a way to talk about the pictures we each hold of what is happening in the system. It forces us to expand our horizon and not limit ourselves to looking at just a single activity or event, but to step back and identify the different patterns that that event is part of, the possible structures that might be causing it to occur, and finally, the thinking that is creating those structures. It also helps us identify our own mental models, because in the end, the only thing we really can change is ourselves. By changing the way we think, we change the way we act, and therefore can create the transformation that we seek.



The iceberg is a common image that helps us recognize different ways to look at the same issue and helps us make explicit what we think is happening in a system.

- Only 10 percent of an iceberg is visible above the water line. Ninety percent of it is underwater.
- Throughout the sensing process, we have asked you to focus on what you were actually seeing, not what you thought you saw, what you wanted to see, or how you interpreted what you saw.
- Now we are going to look at what we observed as well as explore what might be happening “below the surface.”
- Above the water line are the events. They are the “what’s happened,” the newspaper headlines, the “what we saw.” They are discreet activities.
- A bit deeper and just above and below the waterline are patterns of events. If you look at events over some period of time, you will start to notice patterns. Patterns answer the questions, what’s been happening? or what’s changing? If you expand the time period broadly enough, eventually all events will show up as part of some sort of a pattern.
- Be careful here though—sometimes you might think you see a pattern only to find out that it is not really one. Only the events are real data; patterns require some interpretation of the data. It’s important to get group agreement as to whether a pattern really exists.
- Below the patterns of events are the structures that are causing those patterns of events and the events that we saw to occur. Structures are the “rules of the game.” They can be written or unwritten; they can be physical and visible or invisible. They are rules, norms, policies, guidelines, power structures, distribution of resources, cultural rules, or informal ways of work that have been tacitly or explicitly institutionalized. They answer the question, what might explain these patterns?
- Below the structures are the mental models. These define the thinking that creates the structures that then manifest themselves in the patterns of events. Mental models are people’s deeply held assumptions and beliefs, whether conscious (“I know I think like this”) or unconscious (“I’ve always thought this way and don’t even question it, the idea is so core to my being”) that drive behavior. Note: Some people consider mental models to be structures. For this exercise, we find it helpful to separate them out.
- If we only look at events, the best we can do is react. Something happens, and we fix it. We firefight. The first time an event pops up, we address it. We don’t shift our thinking in any way; we just act swiftly to fix the immediate problem. And for some things, this

approach works well. When there is an actual fire, getting out of the building is a good reaction.

- When we start to notice a pattern of those events, we have more options. We can anticipate what's going to happen and we can plan for it. When we start noticing patterns, we can begin to consider what is causing the same things to happen over and over again.
- When we start to pay attention to the underlying structures, we begin to see where we can change what is happening.
- *We are no longer at the mercy of the system. We can begin to identify the thinking and the mental models that are causing those structures to be the way they are.*
- *If my mental model is, "my employees are inherently good people who work hard," then I would be more likely to create a personnel policy (a structure) centered on rewards and incentives than if my mental model is, "my employees are not motivated and try to get away with anything than can." That mindset would likely lead to personnel policies based on punishments for lack of performance.*
- *The more we can understand what is happening under the surface, the more we will be able to influence how a system works.*

Appendix 2: Answers to Self-Assessment Questions

Module 1

Question 1-1: Does the cooperative have to die at the end of its lifecycle?

Answer 1-1: No, the cooperative may reinvent itself and start a new life cycle.

Question 1-2: What sparked the interest of researchers to study the life cycle of agricultural cooperatives?

Answer 1-2: Researchers were attracted to the study of agricultural cooperatives' life cycles because numerous agricultural cooperatives have survived for more than a century. Thus, researchers asked what made these organizations so resilient and sustainable.

Question 1-3: What is the residual income right?

Answer 1-3: Residual income right is the right to receive the residual return from an asset. The residual return is the income from an asset or business that remains after all fixed obligations (salaries, debts, etc.) are met.

Question 1-4: What is the residual control right?

Answer 1-4: Residual right of control is the right to make any decision concerning an asset's use that is not explicitly assigned by law or contract to another party.

Question 1-5: How can the cooperative lifecycle framework (CLF) be used?

Answer 1-5: The CLF has multiple value adding abilities; it is used in one or more of the following ways:

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

Module 2

Question 2-1: What are the alternative or complementary economic reasons an agricultural cooperative is founded for?

Answer 2-1: Agricultural cooperatives have traditionally been founded for one or more of the following reasons:

- Cooperatives may be able to operate more efficiently (on a smaller margin) than IOF counterparts.
- Cooperatives may help farmers avoid the effects of their trading partners' market power.
- By controlling the flow of production or by assuring product quality, marketing cooperatives may increase prices paid at retail for their finished farm products.
- Cooperatives may reduce aspects of the risk and uncertainty that plague farming.
- Cooperatives may be able to operate successfully in markets that no for-profit IOF will serve.

Question 2-2: What is a "defensive cooperative strategy"?

Answer 2-2: A defensive cooperative strategy sets as its goal to protect the value of the assets of members' farms (e.g., ensuring maximum product price or minimum farm input prices).

Question 2-3: What is an "offensive cooperative strategy"?

Answer 2-3: An offensive cooperative strategy sets as its goals to add value to the assets of members' farms (e.g., by generating profits from as many stages of the vertical supply chain as possible).

Question 2-4: How does the outside threat from investor-oriented firms (IOFs) act during phase 1 of a cooperative's life cycle?

Answer 2-4: The external threat posed by rival IOFs serves as a unifying force, bringing members together and strengthening their shared purpose.

Question 2-5: Why is a strong economic justification essential for the survival of a cooperative?

Answer 2-5: Because a strong economic justification ensures that members have a strong reason to transact with and support the cooperative in any way possible. Particularly during difficult times, a strong economic justification will act as a glue tying members together.

Module 3

Question 3-1: Which basic questions does the organizational design of a cooperative answer?

Answer 3-1: the three basic questions answered by the organizational design adopted by a cooperative (or any other organization) are:

- Who owns?
- Who controls?
- Who benefits?

Question 3-2: What are the basic ingredients of organizational design in agricultural cooperatives?

Answer 3-2: the basic ingredients of organizational design in agricultural cooperatives are:

- Ownership model
- Governance model
- Performance metric
- Top management
- Employee and membership culture

Question 3-3: What is a traditional agricultural cooperative?

Answer 3-3: A traditional agricultural cooperative is a business organization with the following characteristics:

Ownership	<ul style="list-style-type: none">• Open, Producers
Control	<ul style="list-style-type: none">• One-member, One-vote District, At Large
Benefits	<ul style="list-style-type: none">• Proportional to Patronage
Primary Risk K Generation	<ul style="list-style-type: none">• Earnings, Retains
Supply Control	<ul style="list-style-type: none">• Limited• No Delivery Obligation
Equity Investment	<ul style="list-style-type: none">• Illiquid, Exit constraints• Non-transferable• Non-appreciable• Redeemable

Question 3-4: What is the most challenging element of organizational design in agricultural cooperatives and why?

Answer 3-4: Practitioners have noted that the toughest aspect of organizational design is reaching consensus on clear performance metrics. There is a wide range of views on how to measure cooperative performance, influenced by the backgrounds and expectations of both founding and future members.

Question 3-5: What are the most common methods used by agricultural cooperatives for equity capital accumulation?

Answer 3-5: The most widely used methods are:

- Net income as allocated patronage refunds
- Per-unit capital retains
- Direct member investments
- Net income from non-patronage business
- Taxed unallocated capital reserves

Question 3-6: What is the governance model most widely used by agricultural cooperatives around the globe?

Answer 3-6: the governance model most widely adopted by agricultural cooperatives in Europe, North America, and Oceania is the extended traditional governance model.

Module 4

Question 4-1: In which ways can member heterogeneity undermine cooperative processes?

Answer 4-1: Organizational processes can be negatively impacted by the diverse backgrounds and perspectives of members, which can impact investment behavior, increase decision-making costs, decrease member commitment, and ultimately lead to the downfall of the organization. When members have differing preferences, it creates friction that can lead to division and the formation of interest-based coalitions, resulting in a rigid and inflexible organizational structure. It's important to note that the presence of heterogeneity does not always directly result in these negative outcomes.

Question 4-2: What are the main sources of member heterogeneity?

Answer 4-2: The study of history shows that the increase in member diversity can be attributed to factors such as variations in farm size, diverse farm approaches, consolidation of cooperatives through mergers and acquisitions, and changes in consumer demands. However, it recognizes that internal organizational issues such as unequal distribution of equity and the formation of interest groups that exert pressure on management also contribute to the growing heterogeneity over time. Member heterogeneity increases over time due to the influence of disproportionate equity distribution, alterations in membership, replacement effects, and transactional effects.

Question 4-3: Why should cooperatives expect an increase in membership over time?

Answer 4-3: Cooperatives can expect an increase in membership over time due to the following factors: (1) potential members may hold back and join the cooperative once it demonstrates progress towards its goals; (2) the cooperative may grow its area of operations or merge with other cooperatives; and (3) former members who no longer transact with the cooperative may still retain their equity and voting rights. While growth in membership can improve efficiency in some cases, it may also increase the likelihood of conflicting interests among the members.

Question 4-4: What is tinkering?

Answer 4-4: Tinkering involves changing practices and altering the accepted operational processes for the members in order to align their preferences and incentives. The tinkering process does not result in major changes to ownership rights. However, it often involves modifications to bylaws, operating procedures, or policies that alleviate immediate or localized conflicts, although not necessarily widespread ones.

Question 4-5: What is cooperative genius?

Answer 4-5: Cooperative genius refers to a process where employees and members work to minimize the costs of collective decision-making by recognizing its value to both the members and the cooperative. In this process, participants identify or anticipate issues (frictions) that could disrupt the coordination, transaction, and control functions of the cooperative before they become costly. These participants not only recognize these frictions but also know how to resolve them and who can do so. The cooperative genius process can be either formal or informal, but it is institutionalized. The success of this process relies on the dynamic knowledge of the unique nature of cooperatives as patron-owned and controlled businesses. Sustainable cooperatives may continuously adjust their practices, but when these adjustments do not eliminate the frictions, the costs of collective decision-making will rise.

Module 5

Question 5-1: When does phase 4 of the cooperative life cycle begin?

Answer 5-1: Phase 4 of a cooperative's life cycle begins when tinkering does not address anymore intra-organizational frictions and other high organizational costs.

Question 5-2: Which are the underlying causes of frictions observed in agricultural cooperatives in phases 3 and 4 of their life cycle?

Answer 5-2: Vaguely-defined property rights in agricultural cooperatives eventually result in high organizational costs, usually in the form of frictions between and among members, and members and leadership. Vaguely-defined property rights over a cooperative's assets are manifested as five problems: the free rider, investment horizon, investment portfolio, control, influence costs, and collective decision-making costs constraints.

Question 5-3: What is the free cash flow problem in agricultural cooperatives and what are its consequences?

Answer 5-3: Free cash flow (FCF) refers to the funds that exceed the amount needed to invest in projects with a positive net present value, discounted at the appropriate cost of capital. Those with control rights may be inclined to retain extra resources or invest in projects with negative net present value, leading to significant agency costs. This is particularly likely in cooperatives operating in mature or declining industries, as FCF depends on the number of positive net present value projects available to the cooperative. Cooperatives with ample liquidity or strong equity positions and limited investment opportunities are more susceptible to funding projects with negative net present value. Additionally, residual claimants may struggle to monitor internal financing or be passive in calling for the release of surplus funds.

Question 5-4: What symptoms do we observe in agricultural cooperatives during phase 4 of their life cycle?

Answer 5-4: In phase 4, the cooperative may face challenges such as decreased member involvement, declining or stagnant transactions, loss of patrons, and the emergence of multiple subgroup cultures, indicating the need to address changes in the original values, beliefs, and goals. The analysis team recognizes that the solutions to these problems may be politically sensitive and rooted in deeper issues such as the original organizational design.

Question 5-5: What is the investment horizon problem in agricultural cooperatives and what are its consequences?

Answer 5-5: Horizon problems arise when a patron's claim on income generated by an asset is shorter than the asset's productive lifespan. This issue can limit collective action when a group of contributors demands access to their claims by requesting the return of their allocated patronage/retains or unallocated surplus. They may try to establish mechanisms to prolong their residual claim. For instance, in some share and delivery right cooperatives, share owners may attempt to lease delivery rights as a way to extend their claim horizon. However, this action may not solve the horizon problem at the cooperative level if lessees have differing investment preferences. These demands can raise the costs of capital for the organization if it is required to seek alternative sources of risk capital. Moreover, these demands can also increase the costs of collective decision-making when patrons have different residual claim horizons, leading to diverse investment preferences.

Module 6

Question 6-1: When do agricultural cooperatives choose the option of status quo in phase 5 of their life cycle?

Answer 6-1: The option to maintain the status quo assumes that external factors will permit the continuation of the current cooperative structure. Often, this choice of inaction is caused by a lack of agreement among factions, difficulty in coming to a consensus on external conditions, industry structure, competition, or resistance to change. Over time, patron drift and substitution can lead to a decrease in membership and leadership resources, making exit the preferred choice.

Question 6-2: What is spawning as an option for agricultural cooperatives in phase 5 of their life cycle?

Answer 6-2: Spawning is a process in which a group of employees and some member-patrons who were previously part of a parent cooperative form a new separate venture. These ventures are often interconnected and make use of joint investment networks that have been built through their association with the parent cooperative. This results in the creation of a separate organizational entity that addresses portfolio or free cash flow issues by establishing separate pools of capital and governance.

Question 6-3: What changes in the cooperative does the choice of reinvention entail?

Answer 6-3: Reinvention involves one or a combination of the following generic structural changes, which is deemed necessary to initiate a new life cycle: (a) modification to residual income rights, that is, adopting a different ownership model; (b) readjustment to residual

control rights, that is, adopting a different governance model; (c) a significant change in the purpose of the cooperative or (d) a dramatic shift in cooperative culture and/or mindset.

Question 6-4: What is the basic change associated with the exit option in phase 5 of a cooperative's life cycle?

Answer 6-4: The option exit means the cooperative no longer bases ownership rights on patronage. If a new legal form is adopted, usually it is investor objectives the new organization seeks to optimize, not patron objectives. Take, for example, a dairy cooperative, whose goal was to ensure the highest possible milk price for its member-patrons. If sold to a dairy IOF, even if some or all previous members become investors in the new entity, now they will be rewarded based on the value of their investment, not their patronage; the dairy IOF will now seek to maximize investor returns, not milk prices.

Question 6-5: How do agricultural cooperatives succeed in enduring for more than 100 years?

Answer 6-5: Agricultural cooperatives endure by tinkering, when tinkering does not work anymore, by reinvention.

Appendix 3: Examples of Tinkering Solutions Adopted by Selected Agricultural Cooperatives in Europe and the U.S.A.

#	Co-op	Country	Sector	Generic Tinkering Solution	Solution Mechanism
1	REO Veilling	Belgium	Fruits and Vegetables (Auction)	1) S-D Balancing 2) Member Retention	1) Binding member contracts 2) Additional services to members (e.g., collection of produce directly from each member's farm)
2	Morakert	Hungary	Purchasing and service cooperative	1) User Alignment	1a) Innovative equity capital acquisition techniques (e.g., limited liability company) 1b) High upfront equity capital
3	Valio	Finland	Dairy (LLC acting as a federated co-op)	1) User Alignment	1) Valio pays the same price to all member-co-ops and adjust dividends and interest paid on shareholders' loans to Valio, so as to reflect patronage by each co-op member.
4	Nordmilch eG	Germany	Dairy	1) Reinvention	1) Nordmilch AG (PLC) was founded as a separate legal entity from the co-op; managerial governance model adopted; outside investors allowed but only up to 24.9% of shares.
5	Nordmilch AAG (PLC)	Germany	Dairy	1) User Alignment 2) Member Retention	1&2) Issuance of profit participation rights (Genussscheine) for members and employees on a voluntary basis (fixed interest for up to 6 years)
6	Conserve Italia (Federated)	Italy	Fruits and Vegetables	1) S-D Balancing 2) User Alignment	1) Single sales organization for 15 co-ops 2a) Enabled control rights partially based on investment. 2b) Non-member investors allowed 3) Multiple types of stock issued.

				3) Transparency	
7	CRV	The Netherlands	Cattle Breeding	1) Member Retention	1) Established a strong member relations department and hired a skillful communications expert
8	Friesland-Campina	The Netherlands	Dairy	1) S-D Balancing	1) Mutually binding member agreements/contracts
9	Land O'Lakes	USA	Dairy	1) User Alignment 2) Member Retention	1) Base capital plan 2) Multiple classes of shares issued
10	Florida's Natural	USA	Citrus	1) S-D Balancing 2) Member Retention	1&2) Adaptable marketing agreement
11	Blue Diamond	USA	Nut	1) Transparency 2) User Alignment 3) Member Retention	1) Transparent premiums and discounts 2&3) Well-defined, strict enforcement
12	Organic Valley-CROPP	USA	Multiple pool – primarily dairy	All four generic solutions	Closed membership policies with strict member constraints
13	GROWMARK	USA	Farm inputs	1) User Alignment	1a) Centralized human resource functioning for federated system
14	Dairy Farmers of America (DFA)	USA	Dairy	1) User Alignment 2) Member Retention	1a) Base Capital plan 2a) Control homogeneity
15	Beke Cooperative/Hadju Gadzak Agricultural Association	Hungary	1)Meat 2)Purchasing & Marketing Co-op	1)Liquidation 2)S-D Balancing, Transparency/member retention	1)50% of co-op shares bought by Government 2) joined input purchasing, co-op assumed the role of information provider for members: new info is shared around as soon as it becomes available
16	Southern Bluefin tuna Fishery (generic)	US	Fish	1) S-D balancing 2) User alignment	1&2) Transferable membership, waiting period, fair sharing rule (each member receives a share of the benefits according to contribution)
17	Viver	Spain	Olive oil	1) User Alignment 2) S-D Balancing	1&2) separate product pools
18	Vall de Almonacia	Spain	Olive oil	S-D Balancing	Bylaws make mandatory the delivery of almost all members' produce

				User Alignment	
19	Viver & Vall de Almonacia	Spain	Olive oil	1) S-D Balancing 2) Member Retention 3) Transparency	1&2&3) Small size; trust-based transactions; shared identity promoted; mutual monitoring from members

Source: Iliopoulos, C., Cook, M. L. (2023). "Organizational Costs in Agricultural Cooperatives: Comparison of European and U.S. Approaches." In M. Boland and M. Elliott (Eds.), *Research Handbook on Cooperatives and Mutuals*, Edward Elgar.