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Co-operatives and forest-based heating entrepreneurship in a rural setting – the Finnish experience

Thomas Rimmler

Natural Resources Institute Finland
Joensuu

This booklet is an outcome of the MADIE-project “Energy co-operatives – A multifunctional agriculture as a driver for innovation in rural Europe”, an initiative supported by the EU’s Erasmus programme.

Foreword

Rural areas, accounting for a large area in Europe, are experiencing significant change. One of the biggest issues is the lack of prospects for young people, who perceive limited work opportunities and therefore limited future perspectives in the most structurally weak areas. The project addressed farmers, forest owners, and small and medium sized enterprises or its associated processing establishments. Different co-operation models, such as local stakeholder co-operatives or associations, have been established in recent years in different regions of the partner countries. This booklet intends to provide insights and to inform the reader about co-operative forest-based heating business partnerships against the background of the Finnish experience.

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Robert Prinz and Thomas Rimmler



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Introduction

The booklet highlights the economics and organizational aspects of small local heating energy supply schemes set up in rural regions as a market-driven business by their owners for earning them a profit and, apart from private self-interests, for promoting the social claims of their stakeholders.

The booklet tells about the Finnish experience in co-operative partnerships, especially in small forest-based local heating energy businesses. Start-up entrepreneurs and their partners need inspiration and guidance in how to establish and operate their business successfully. Besides technical and market information, for starting and organizing a business, multifaceted upfront information is needed. Here, decisions as to the legal form, ownership, liabilities, participation rights and selecting the right partners, are crucial for the continuity of the business. There is a need for arguments that help persuade stakeholders

about the legitimacy of the business and related social benefits.

The booklet, with its focus on renewable energy co-operatives, contributes to the outcomes of the MADIE-project, an initiative supported by the European Union's Erasmus programme, which offers a comprehensive range of views on multifunctional agriculture as a driver for innovation in rural Europe.

The booklet addresses, among others, forest owners, rural entrepreneurs and their public stakeholders. Policy makers have been attracted by a business model that meets the triple bottom line: by offering an attractive return to investment, providing support to renewable energy transition, and creating jobs and income in rural economies. Co-operatives have been able to demonstrate to be a convenient participatory model of organizing joint business activities.



Small-scale forest energy production contributes to the sustainable use of natural resources and to the viability of rural communities. Photo: Natural Resources Institute Finland, media archive.

A local thermal energy supply scheme

A local thermal energy supply scheme denotes a heat-only or combined heat and power boiler station, which provides space and water heating to consumers' building properties. Heating is either generated on the consumers' site or in a centralized locality in their vicinity. In the latter case, heating is delivered to consumers, usually the occupants of a densely populated urban district, by a district heating network. In local thermal energy production biomass has been increasingly substituted for fossil fuels. This kind of heating scheme may vary in size, providing space heating in the range from one or just a few properties up to entire communities or industrial areas.

In Finland, district heating accounts for almost 50 percent of the total heating market, if only traded heat is considered. Heating is produced locally close to the customers. As striving for carbon-neutral heat production,

wood and other biomasses already count for 40 percent of fuels used in separate district heat generation.

Wood-based fuels being the main energy carrier – having a share of about 36 percent in 2015 – , district heating boilers usually range between 5-15 MW, while boilers for on-site production for large properties, such as industrial buildings and multi-storey residential buildings, range below 1 MW. Besides district heating systems, there are micro generation set-ups, located either right at the consumers' site or in its close neighbourhood. Those, which are operated by municipal utilities or increasingly by private entrepreneurs, generate heating for larger properties, and are typically powered by a 0.5 MW wood chip boiler. Heating systems for single detached houses, installed by the home owners, are in the range 20-40 kW of thermal power, depending on property size.

Forest-based biomass - a main renewable energy source in Finland

Forest biomass is very important, if not the most important source of renewable energy in Finland. The demand for forest biomass for energy use will continue to rise in the future. Until now, a major part of the forest biomass used for energy production has been by-products of the wood processing industries and

firewood used by private households. There is, however, a vast amount of biomass from forest operations, which could be used for energy production, but is left unused due to financial reasons. Following planned investments, the use of solid forest fuels in energy production will rise significantly in the years to come.

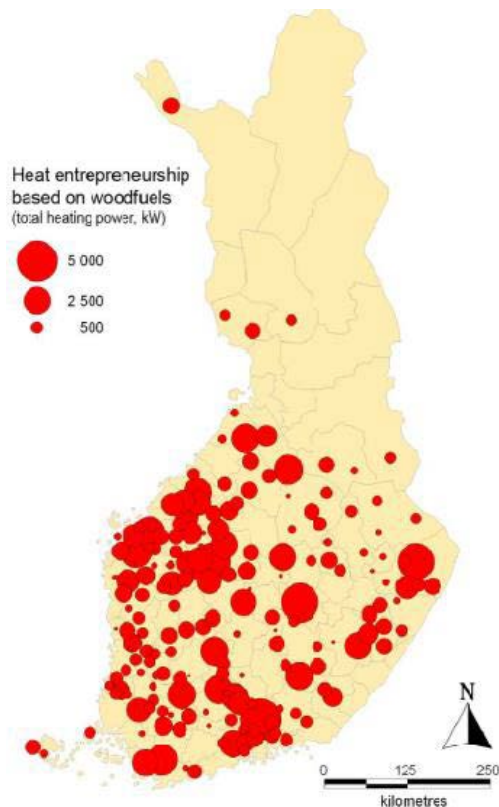
Heat energy entrepreneurship – roots and present state

In Finland, heat entrepreneurship has a long legacy. It emerged as a source of secondary income for farmers and forest owners. The first local heating stations, which were run by small entrepreneurs, either single proprietors or private companies, launched operation already in 1992.

Today, all across the country, there are about 600 heating stations owned by more than 330 private entrepreneurs. Total heat

production sums up to an estimated total of 0.6–1.0 TWh while annual fuel consumption amounts to about 0.4–0.6 million solid cubic meters of wood chips. A median-sized heating station, run by a heating entrepreneur, generates 0.5 MW of thermal power, while size ranges from 20 kW up to several megawatts.

Forest-based wood chips being the main source of heat production, other fuels used are chips generated from slabs left over from



sawing logs, saw dust, bark, peat, recycled wood, and, by an increasing share, pellets.

Heat energy entrepreneurship is a model of governance - that is, of reallocating ownership, residual right and liabilities, to put the outsourcing strategy for communal heat supply services into practice. Entrepreneurship may take several juridical forms. Most common, with equal shares, are joint-stock companies, partnerships and sole proprietorships, co-operatives being the third-most popular. Until now, as a strategy outcome, about 330 private businesses have been incorporated.

Wood-fueled heat-only boiler stations operated as private ventures are located across the country, foremost in its Western parts (Picture: Okkonen, Suhonen & Puhakka-Tarvainen - Business Model Ontology for Heat Entrepreneurship. World Bioenergy Conference 2010, Jönköping, Sweden).

A follow up of the financial performance of heat service contractors, mainly small forest energy enterprises, for 2010-2012 showed that typical performance had improved during the past years up to 7.5 percent as indicated by net profit margin, and up to 10 percent, as indicated by

ROI. Comparing business units of different size, businesses with a boiler capacity between 2-5 MW turned out to be most profitable, yielding a profit margin of 15 percent and an equal return on investment.

A total of more than 600 mainly forest chips fired boiler stations, with unit thermal capacity ranging from 20 kW to several megawatts, are operated by about 300-350 small business units.

Rural forest energy enterprises: financial performance (2012)

○ Median unit sales	370,000 €
○ Median net profit margin	7.5 %
○ Median return on investment	10 %
○ Return on investment, 2-5 MW units	15 %

The concept of a business model

A business model is delineated, first, by the value it creates to customers. A value proposition can usually be broken down into single value contributions related to discrete business activities. A second element is the net revenues it generates to its owners, which, on its part, depends on the ability to generate and capture willingness to pay, and on the operational efficiency of the discrete activities, which contribute to the value delivered to and to be paid for by the customer. The third strategic element is its value architecture, comprising technologies, resources and competencies, and how well their use is organized and managed for the expected outcome to be achieved. The value proposition

and value architecture of a business model extend beyond a business unit's boundaries and span relationships with suppliers, partners, distributing channels and even customers.

Any business model observable in the real world is different, being shaped by unique circumstances in its business environment. In order to be valuable beyond a particular case, a description of a business model must be a simplified portrait of reality. This is not meant to correspond with all the characteristics and elements of the real object, but is confined to the most essential ones, which allows describing and distinguishing dominant varieties.

Whenever a business entity is established, it either explicitly or implicitly employs a particular business model, which, by definition, describes the architecture of the value creation, delivery and capture mechanisms employed by a particular business unit.

A business model for renewable heat from local forest resources

A business model for operating local district heating systems creates value by deploying local renewable forest energy resources. Its core technology is composed of a production system, where thermal energy is generated from the incineration of forest-based fuels. Its core activities comprise procuring primary energy inputs and operating the heat production facility, possibly including heat distribution.

Solid wood fuel, as the main primary energy source, is provided from local forest resources owned either by the heat supplier itself or purchased from other sources in its vicinity. The production of wood fuel may be either controlled by the forest owner or organized by a contract agent.

A co-operative is a joint venture arrangement in the ownership dimension of governance, not a unified ownership under a single entity. Its members – that is, the forest asset owners, or patrons in general, remain economically independent: They do not merge their activities and assets into one entity.

In case heat supply is organized as a co-operative, forest resources are independently owned by individuals, who are patrons of the co-operative, in contrast to the heat production facilities, which are jointly owned by the co-operative's patrons. Also wood fuel production assets are independently owned by the individual suppliers, either forest owners or contract agents. Both of them may be share owning members of the co-operative.

Heat production is sold either directly to the consumer or to the owner of the district heating network, in case heating is to be distributed to a larger number of dispersed and separately owned properties. The heat produced

is sold under a long-term contract, usually for a term of 15 years, which ensures a predictable revenue stream to the investor. Revenues are based on the price to be paid for each unit of heating energy consumed. The price should cover production costs arising from investments into the fixed assets, administration, installation and operation of the system and a rate of return.

While usually considering value creation only in terms of private benefits, social benefits are an integral part of the value proposition characterizing business models of local renewable energy production, especially those co-operatively organized.

Business model varieties

In wood heat contracting, the heat production system is usually self-dependently planned, financed, and installed at its own expense on the part of a professional heat supplier, who is responsible also for the generation and transfer of heating. In this case, the investment and maintenance costs of heat production are eliminated for the building property owner. Here, value is created to the building owner much in the way of a sale and lease back scheme. Costs are recovered over the long-term by charging users for the heating service provided on the basis of their actual use (paid-per-use). Supplying energy from biomass is

highly service intensive in comparison with fossil fuels, which means that contracting models are particularly advisable. Besides heat delivery heating contracts may have provisions that also cover energy efficiency projects.

In addition, local district heat production is often based on a franchising model, on an integrated service model or on different types of co-operation models, either as a partnership between a local district heat producer and an industrial excess heat producer or between a local district heat producer and a large district heating utility.

- During the recent years, the franchising model, better known from consumer markets, has spread also into the heating market. Business-format franchising involves an upstream provider of a business concept and related intangible assets and capabilities and downstream providers of production assets and related capabilities. In contrast with the traditional dealership model, production is relocated to the downstream seller and the upstream manufacturer's role has changed into that of a provider for training and business support.
- In the integrated service model, based on the so called ESCo concept, the local district heat producer offers its clients additional services and support for improved energy performance, including the conversion towards renewable energies, whereby utilizing either its own competencies or those of business partners. Involved in this kind of energy performance contracting are a buyer of energy and a seller of services and investments aiming at the reduction of the buyer's energy consumption. The company improves its client's energy efficiency, and investment outlays are recovered with the savings from reduced energy costs.

- In the co-operation model with industrial producers, the business logic is that of utilizing excess or waste heat from a nearby located industrial site by entering a partnership with an industrial wood processing company. In some cases, a model has proved viable, where a large utility company entered local heating markets by subcontracting operations to local entrepreneurs.

Under conditions prevailing in Finland, all the business model varieties mentioned are evidentially viable for its operators and local communities as well. Heat contracting offers an attractive value proposition to communities in that it alleviates their cost structure by outsourcing the operation of a heating plant to

a professional heat service provider, which self dependently plans, finances, installs and operates it at its own expense. This way, instead of fixed capital investments, expenditures are reduced to a periodical payment for the kilowatt hours of heat actually used.

Heat contracting offers an attractive value proposition to communities as a way to get an asset off the investor's books. While risk and reward of its use are transferred, it retains the right for its use.

Social and environmental benefits for rural areas

Local renewable energy production in rural areas creates direct income when the net income of stakeholders directly and indirectly involved in supply chain activities increases. Additional income is induced by changes in public and private households' expenditures for consumption and investment. These effects are a strong motive for rural communities to support local heat production initiatives. The positive net employment effect of local energy production in terms of demand for labour, which

are mostly positive in rural areas, further encourage public authorities to get involved.

The economic value created for forest biomass may stimulate forest owners to carry out forest operations, which in the longer run result in an increase of forest value growth and forest income. As far as sustainable forest management practices are assumed, a positive impact on carbon sequestration can be expected. Carbon emissions will fall by the amount of biofuel substituted for fossil fuels in energy production.

Replacing a 5,000 MWh fuel oil fired plant by a wood fuel plant:

- creates 2.5 full-time jobs in the local community;
- relieves consumers' heating bills by 90,000 €;
- cuts communal expenditures by 180,000 €;
- saves 300,000 € of money spent on imports.

A forest chip fired 1 MW boiler station reduces CO₂ emissions by an annual amount of 600-1,200 tons.

Energy strategies for small communities in rural areas

Regardless of the economic benefits in terms of income and employment and their positive impact on local government's budget, municipal decision-making is often guided by other reasoning. According to a survey conducted among local authorities in 2007, about one out of five municipalities, about two third of those comprise non urban administrative districts typically encompassing numerous small villages and hamlets, had been worked out an energy strategy guiding their decision making. An energy strategy as guidance for political decision making on energy affairs has been found mostly for larger

communities. In 27 percent of cases where an energy strategy had been formulated, it was included as an integral part of strategic guidelines covering also other policy fields as well.

Ranked the most important in energy strategies passed by local governments is the ability to ensure the continuity of supply of energy services, ranked second and third are the price for energy and the domestic origin of energy raw material, respectively. Energy production and use are the main determinants of policies in pursuit of environmental objectives.

Among the top motives favouring renewables in communal decision-making, besides economics, rank the continuity of energy supply and the use of domestic resources.

Drivers of business formation and transition towards renewable energies

In Finland, local governments are urged towards incorporation of public services. Traditionally, public utility companies owned by the local governments have been responsible for providing heat for their communities as a public service. For quite a while incorporation of public services has been on their agenda, which has been enforced by demerging ownership structures and the formation of independent self-balancing business entities.

Local governments have been seriously committed also to the decarbonization and revitalization of their local economies, which has led them take a leading role particularly in promoting local renewable energy production. Local governments also have a potentially strong role to play in community ownership and participation in local renewable energy production.

Forest biomass feedstock for local heat production

Wood material, which is further processed into wood chips, consists of process residues left over from timber harvesting and timber stand improvement operations. A special source consists of delayed first thinning stands. With the intention to clear the backlog of pre-commercial thinnings postponed by private forest owners due to financial costs, the national government is providing financial incentives for energy wood to be collected from the first thinning operations.

As to its properties, energy wood consists of small-sized trees harvested as whole trees or pruned stem wood and subsequently chipped into pieces of standard particle size and humidity. As a tradeable commodity, energy wood chips are specified by national and European standards. The overall quality is the result of raw material characteristics and how it is harvested, processed and stored.

Co-operatives in modern economies

In modern economies the bulk of production of goods and services and their distribution are carried out by firms owned by investors - that is, the suppliers of capital, whose topmost objective is to maximize their return to investment. However, not all firms are of this type. There are also non-profit organizations and many types of co-operative societies ranging from agricultural co-operatives, co-operative banks and mutual insurance companies to partnerships and franchises organized on a co-operative basis. These

alternatives to investor-owned firms are not just marginal phenomena. In many countries and in many industries, they account for a dominant share of markets.

Among the advantages that owners, to the extent they are owners, seek from their engagement in co-operative enterprises, there are also or even primarily other types of benefits than maximum value to their usually small investment.

Co-operatives, as an alternative to investor-owned firms, are not just marginal phenomena: In the European Union, there are more than 30,000 farmers co-operatives with some 1.2 million members.

Finland - Country of co-operatives

Finland is one of the most co-operative countries in the world with almost 60 percent of the population being members in one or several co-operatives. In Finland co-operative banks account for 33 percent of the banking market, co-operative retailers 39 percent and mutual insurance companies 40 percent of their respective markets. 96 per cent of dairy

products and 69 percent of meat products are produced and marketed by co-operatives. One of the three big Finnish forest industry companies is owned by forest owners. The timber sales of these forest owners account for 33 percent market share in timber purchased from family owned private forest holdings.

Co-operative movement – the early years

The idea of co-operative enterprises was brought to Finland at the turn of the century by an academic, Dr. Hannes Gebhard, who pursued studies on co-operative thinking in various European countries in the late 1890's on an award given by the Finnish Economic Association.

Traditionally organized co-operatives have existed since the middle of the 19th century, when the co-operative movement in Europe began, primarily in Britain and France. The first documented consumer co-operative was founded in 1769. By 1830, there were several hundred co-operatives. By 1844, when the Rochdale Society of Equitable Pioneers set up the "Rochdale Principles" as the basic rules of conduct, the foundation for the modern co-operative movement was laid.

In Finland, the first concepts of the co-operative movement were put into practice in 1899. The governance structure of a co-operative enterprise was legalized by law in 1900. At the same time the first officially recorded Finnish co-operative was formed at the urban community of Tampere by the workers employed at Finlayson's factory.

Since the turn of the century, the co-operative movement has advanced probably more rapidly than in any other country in the World. The first large consumer co-operative was known as Suomen Osuuskauppojen Keskuskunta, Ltd., or S.O.K. In 1904 37 local consumer co-operatives formed a central wholesale society for the purpose to supply and standardize the local co-operatives. Today the group consists of 22 regional co-operatives and operates all around Finland in the markets for groceries, consumer durables, service station, hotel and restaurant services, agricultural supplies, and car sales. During those early years, other large co-operatives were established. Hankkija Society, a farm wholesale co-operative, was organized primarily for buying and selling equipment and supplies for the farmers of Finland.

Metsäliitto Co-operative, today the parent company of Metsä Group, can trace its origins back to the roots of the co-operative movement in Finland. Operations started with shared timber sales and after Metsäliitto plc (Oy) was established in 1934, business operations were expanded to timber exports. In 1947, after being transformed into a co-operative society, Metsäliitto launched its industrial operations - first, through its own sawmill business, and then by entering the paper and pulp industries in the 1950s. After that, the group developed into a diversified industrial enterprise with operations in Europe and a wide range of forest industry products marketed worldwide.

In those years, the Valio dairy co-operative was established, which today is the principal creamery company of Finland. Valio was organized as a dairy products marketing society for trading the butter and cheese of their co-operative creameries.

At the same time, other smaller co-operatives of an agricultural nature were established. Muna was the name of a secondary service co-operative owed by about 160 egg farming societies. There were many farm machinery co-operative societies renting their equipment to small farms.

At the end of the previous century telephone operators organized as mutual associations began serving their members until they were finally demutualized at the beginning of the new millennium. Rural communities established electric co-operatives in the early years of rural electrification. Co-operatives lost their attractiveness over the years and today account for about two percent of communities' electric power supply.

Credit banks were started in Finland in 1902, fashioned after the original German credit bank which was founded by Friedrich Wilhelm Raiffeisen in 1862. The central federation of these local deposit banks was known as O.K.O (Osuuspankkien Keskuspankki

Oy). These credit banks were organized mainly to help the smallholder farmers who, facing mortgage limits, were unable to raise loan capital.

Today, the OP Financial Group is made up of some 170 independent co-operative banks and the OP Co-operative which they jointly own, including its subsidiaries and closely related companies. The OP co-operative banks

have been strongly committed to their rural customers. By its extensive network of more than 400 local branches, OP has been a major employer in many small communities and among the largest taxpayers. The Group takes social responsibility by supporting non-profit organizations, by making donations and by sponsoring events and other activities in the fields of cultural life and education.

In Finland, the first concepts of the co-operative movement were put into practice in 1899. Today, Finnish companies with co-operative ownership are among the most successful global enterprises, still being committed to their rural customers.

Legal forms of business entities

In order to start small scale energy production, creating a distinct legal entity is not always necessary. Sole proprietorship is an informal and the simplest legal form of running a

business. There are, however, several advantages of creating a distinct legal entity, apart from its owner or owners, and in many cases it turns out to be a necessity.

Why create a separate legal entity for running a business?

- To delimit individual liabilities for financial risks;
 - To segregate business and personal property ownership;
 - To maintain separate financial accounting;
 - To enter into contracts;
 - To receive business loans and public aid;
 - To achieve legitimacy and recognition from stakeholders;
 - To apply tax regulations to one's best advantage.
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Most but not all types of legal forms are provided for under national laws that govern corporate business companies. Legal frameworks also regulate municipal involvement in the production and ownership of energy utilities. A legal business entity is formed and administered as per corporate law in order to engage in business activities. Most

often, business entities are formed to sell a product or a service. There are many types of business entities defined in the legal systems of various countries. These include corporations, co-operatives, and partnerships, one-person-businesses, Limited Liability Companies and other specifically permitted and labelled types of entities.

Legal forms of heat entrepreneurship

Today, heat entrepreneurship may take several juridical forms. Most, but not all, organizational types are provided under national law. Facilities are run as a joint-stock company, partnership, a co-operative or as a one-person business – that is, sole proprietorships, in equal shares.

A joint-stock company is a business entity where each shareholder owns company stock in proportion, evidenced by their shares. That allows for the unequal ownership of a business with some shareholders owning more of a company than others. Shareholders are able to transfer their shares to others without any effect on the continued existence of the company. Shareholders' liabilities for the company's debts are limited to their investments in the company.

Partnerships may rest on the legal forms of General Partnership or Limited Partnership. A general partnership is the basic form of partnership under common law in most countries. A general partnership is an association of two or more individuals, in which partners share equally and personally all responsibilities and liabilities of the company. In a Limited Partnership there are general partners with unlimited liability and limited partners, whose liability is restricted to their fixed contributions to the partnership.

A special legal form of partnership in renewable energy production, which is very popular in Germany (GmbH & Co. KG), is a limited partnership with, typically, the sole general partner being a limited liability company. It can, thus, combine the advantages of a partnership with those of the limited liability of a corporation. In Finland, partnerships are no popular legal forms of heat entrepreneurship.

Sole Proprietorship is a legal form for a business run by one individual for his or her own benefit. Proprietorships have no existence apart from the owners. The liabilities associated with the business are the personal liabilities of the owner. Although sole proprietorship is not a separate legal entity from its owner, it is a separate entity for accounting purposes.

A co-operative is a legal entity owned and democratically controlled by its members. Co-operatives are established and operated for the benefit of their members. Members often have a close association with the enterprise, being either producers or consumers of its products or services, or its employees. There are specific forms of incorporation for co-operatives in some countries such as Finland. A co-operative may take the form of a company limited by shares or by guarantee, or a partnership or an unincorporated association.

Heat entrepreneurship may take several juridical forms, depending on national law.

In Finland, small heat enterprises are run as a joint-stock company, a partnership, a co-operative or as a one-person business in equal shares.

Co-operative member ownership, control and residual rights

The basic ownership structure of a co-operative firm is rather simple: its patrons are the owners of the co-operative firm. Owners are those stakeholders that have provided the majority of the equity capital of the co-operative firm either as upfront contribution, when establishing the co-operative, or as retained earnings at the end of each year, and therefore hold the residual control rights and residual income rights.

In practice, there exist numerous equity capital ownership models. In some countries, for example, equity capital is collectively held, with no individual claims to parts of equity capital, in other countries, member contributions to equity capital are redeemed after a number of years or at the termination of membership.

Most business corporations are controlled based on the number of equity shares owned, and distribute profits based on financial investment. Co-operatives, in contrast, operate based on the democratic

principle of one member one vote, and return a dividend based on patronage.

Remuneration to the members of a co-operative firm is typically tied to their transactions with the co-operative, and not the capital lent to the firm, as in investor-owned firms, and consists of a prefixed price to be paid for goods and services delivered as a first installment, and a pro rata bonus, which is a supplementary payment paid out or refunded to patrons from the co-operative's surplus.

In addition, there is an interest paid on the price of the share paid-up by patrons on joining the co-operative. The bonus and interest paid to patrons make up the called patronage dividend. In case, the co-operative is organized as limited company, patrons instead of members are shareholders of the company. As shareholders, patrons get remunerated for the company's stock certificates they purchased by a dividend paid as a share of the corporation's net profits.

The current Finnish Act on Co-operatives entered into force in 2002, nearly 100 years after the first regulations were enacted.

In nearly all European countries, there is a co-operative legislative. Despite their differences, national cooperatives share common values and principles.

The EU adopted the statutes for a legal form of a European co-operative in 2003.

Investment attractiveness under equity funding policies

Through the purchase of their shares of stock from the co-operative, members provide the equity capital that the co-operative enterprise needs to launch and expand their activities. Co-operatives will all have at least one class of member stock, referred to as voting stock. Ownership of voting stock is limited to one share per person and confers membership and voting rights to the holder. Voting stock rarely

pays a dividend or financial return – its value consists of the control rights it confers.

The ownership and governing rights of traditional co-operative societies are limited to active members. There is no individual ownership to the co-operative's equity and therefore no market for members to trade their shares at a price that reflects true co-operative value. Due to collective ownership,

members are not entitled to get paid for the appreciation in the company's stock or to benefit from a share price increase on leaving the co-operative. Voting stock is generally redeemed at par value, when a member resigns from active membership, for instance, due to retirement. Therefore a traditional co-operative with their capital stock confined to voting stock may not attract investors aiming at

a return to their investment. This may be a hindrance to start-up capitalization or an additional increase of equity capital. Co-operatives, in such cases, may want to issue other nonvoting classes of stock with different par values and different redemption policies in exchange for these additional equity payments. These classes of stock may or may not pay dividends.

A co-operative partnership as a way to avoid conflicts of interest

A business firm is faced with the question not only how to minimize the costs of production, but also how to minimize the costs of contracting. Contracting costs may be significantly different, whether the exchange is conducted between trading parties that are autonomous business units, or whether it occurs between trading parties merged by ownership.

Contracting on arms' length in a market described by market failure may be costly to the transacting parties. Costs of market contracting may be caused by exploitative price setting due to limited competition. Further, without any option of a costless exit, a business firm may become vulnerable to price exploitation by the buyer of its products, when it has to make a transaction-specific investment after entering the transactional relationship. This situation may apply in the same way to a seller of a product as well. Especially small local markets may be non-competitive due to size restrictions.

Ownership mediates the conflict of interest between contracting parties and

thereby eliminates or alleviates the costs of market exchange to be paid by one or the other contracting party, depending on their bargaining power. Basically, a conflict of interest emerges out of the behaviour of profit maximizing of self-interested economic agents.

A wood heat co-operative is characterized as a processing co-operative. In the most general case, producers, by taking the ownership of a processing entity, decide to vertically integrate their production downstream in order to bypass the proprietary processor and thereby to prevent monopsony pricing. An energy generating utility, as buyer and processor of fuels, may take advantage of monopsony power when negotiating about the terms of contract it makes with its local wood fuel suppliers. Costs of market contracting may arise also from the monopoly power of sellers. Local forest owners as sellers of wood fuels, for instance, may have monopoly power in negotiating with a local utility as their customer.

Contracting on arms' length in the case of market failure may come with a cost to the transacting parties.

Ownership mediates the conflict of interest between contracting parties and thus alleviates the costs of market failure eventually paid.

Costs of collective ownership and decision making

Though market contracting can be costly, ownership does not come without a cost, either. Concerning the costs of exercising ownership, when ownership is shared, two aspects are important: first, the costs of collective decision making, and, second, the principals' cost of control over the agents authorized to manage the firm on their behalf.

The costs of decision making can be high in the face of heterogeneous interests. For example, if there is a strong incentive for individual owners to form coalitions, in order to shift benefits in their direction. Efforts to form and break such coalitions may call for substantial effort. The costs of collective decision making are influenced by the extent to which the owners have divergent interests concerning the firm's affairs.

As to the relationship between a firm's owners and managers, efficiency costs may be

incurred by managerial opportunism. Purely self-interested behaviour assumed, managers seek to maximize their own utility at the expense of corporate shareholders, rather than in the best interest of the firm's owners. Additional costs are caused, when monitoring and financial incentives are necessary to encourage managers to act in the best interest of the business owners.

As far as management behaviour is concerned, managerial opportunism reduces the efficiency of decision making, causing costs in terms of shareholder value foregone. These efficiency costs that may arise from decision making deficiencies, may even totally absorb the potential benefits of collaboration, and thereby make owners worse off than if they would participate in the market individually by market contracting.

Group cohesion safeguarding continuity of a co-operative venture

The co-operative firm is facing an increasing risk of breaking up when the initial enthusiasm vanishes. Membership turnover may go along with a decline of members' similarity. Financial motives, prevailing among joining members, may give rise to free riding. This may deteriorate social behaviour. The leaving of high ability members, as a consequence, may further weaken the co-operative's performance, which weakens further motivation and performance as a reinforcing cycle. Strengthening group cohesion, getting visible as a strong experience of togetherness, counteracts behaviour motivated by egoism or selfishness, and thereby contributes to safeguarding continuity.

Cohesion among group members may arise from a mix of underlying phenomena such as interpersonal attraction, group identity, a sense of interdependence and responsibility. There is a number of factors, such as members' similarity, group size, and membership

turnover, which, being easily observed and measured, offer means for conscious cohesion building. These factors should be reflected, for instance, in a co-operative's member recruitment policy, the rules of membership admission, and voting rights.

Preclusive measures in the forefront of group formation should tackle the main factors impacting group cohesiveness, mainly members' similarity and group size. Small group size, for instance, is more susceptible to social pressure and makes complicated incentive and monitoring schemes dispensable. Preventive mechanisms, such as exclusion, offer means to enforce co-operative behaviour after the organization has been set up. Often, the factors underlying cohesion work through enhancing the identification of individual members with the group they belong to, as well as their beliefs of how the group can fulfill their personal needs.

Group cohesion means, that there is a tendency for a group to be in unity while working towards a goal and to satisfy the emotional needs of its members.

Cohesion among group members motivates to defy self-interest and reduces the propensity to free ride.

Good practice example – Eno wood heat co-operative enterprise

The Eno energy co-operative has been established in 1999. Today, it is one of about 300 local wood heat enterprises in Finland, of which the first ones have been established already in 1992. The co-operative is located in the Eno municipality, in the Finnish province of North Karelia. The co-operative was launched, after the first boiler station was financed and put into operation under the authority of the local administration. The co-operative expanded heating production successively, investing in a second and third boiler station during the following years. Total annual capacity in 2004 amounted to 9.5 MW.

The co-operative, as co-operative governance models in general, is a coalition of independent and self-interested participants. As a horizontal and vertical alliance of individual forest owners and supply chain contractors, the intention of the joint venture is to capitalize on collaboration as a source of competitive advantage. Founded by twelve forest landowners, the co-operative comprises private forest holdings and wood chip contractors as their members. There is no professional management hired, instead, management is being assigned to member representatives.



Yläkylä Heating plant. Operator: Eno Energy Co-operative Owner: municipality of Eno North Carelia, Finland Size: 0.8 MW Output: 2,800 MWh (2015), Forest chips: 6,200 loose m³ (2015). Photo: Eno Energy Co-operative. Annual Report 2016



The Eno Energy Co-op's wood fuel supply is contracted to Forest Service Turunen Inc. The total annual volume delivered to clients add up to 55,000 loose cubic meters. Photo: Natural Resources Institute Finland, media archive.

The co-operative owns and operates the heat boiler stations. The co-operative holds heating delivery contracts with public authorities, local industries and private housing owners. The co-operative manages and supervises the whole supply chain from the forest site downstream to the point of consumption, including heat transfer to the customer's heating site. The co-operative buys the fuels for heat generation from independent contract agents, which are either private forest holdings or chipping entrepreneurs.

The co-operative entrusts harvesting, chipping and transport operations to autonomous contracting service vendors. Annual wood chip deliveries amount to 30,000 loose cubic meters. Forest owners may also do themselves the on-site fellings, and the collecting, processing and roadside delivery of wood fuel. A chipping contractor usually provides machine services but may also

execute purchasing functions. In this case the chipping contractor is authorized to buy wood fuel for the account of the co-operative.

The co-operative aims at providing affordable heating for the local community based on local energy sources. As to the self-interest motive of participation, operations are to be organized cost efficiently, so that the co-operative's revenues cover all its liabilities and members earn a profit. Locality is crucial for the co-operative's business operations not only in terms of membership but also in terms of sourcing local fuel and production services.

The co-operative provides an additional source of income and employment for local forest owners and the local economy and supports environmental goals by substituting non-renewable by local renewable energy sources. Its activities contribute to the viability of the local community by providing opportunities and future perspectives for young people.



After thorough considerations local authorities and forest owners decided to go for wood chips heating. Photo: <http://enonenergia.fi/>



Using local wood chips curbs fuel oil carbon dioxide emissions by 5,000 tons each year. Eno Co-op activists are pleased of being recognized with the 'Hinku' - environmental award for their supporting a carbon neutral community. Photo: <http://www.pielisjokiseutu.fi/>

The co-operative is an initiative of local people. It contributes to the viability of the local community by providing opportunities and future perspectives for young people.

The question of stakeholder legitimacy

The property of legitimacy of an organizational model is an important one in the context of co-operatives. Thinking about the success factors of co-operatives, one has to reach beyond pure economics and give due consideration to norms, beliefs and culture as a background setting as well. In Finland, co-operatives are perceived as a legitimate ownership and governance model and thereby a socially accepted structure of behaviour among groups of stakeholders including employees,

customers, suppliers, investors, communities, governmental bodies, and political groups.

Most people probably have a positive opinion of co-operatives, if not for its potential as an alternative to the classical for-profit firm, then at least due to its democratic governance and its community involvement. Nonetheless, legitimacy has been a problem in some parts of Europe, where co-operatives are perceived as socialist-minded models inherited from the past.

In Finland, a co-operative is a legitimate governance model and an approved structure of social behaviour.

Co-operative as an option for young people to enter the job market

In Finland, due to the model's deep historic roots and long cultural heritage, legitimacy has been less a challenge than a supportive element for the model to spread across new

fields. There is a growing number of new worker co-operatives arising, attracting young people particularly in creative industries. These include media, art and culture related services.

Modern co-operatives in Finland

- Korpipaja, a video producer:- <http://korpipaja.fi/>
 - Impactor, a social impact business idea developer: <https://www.impactor.fi/>
 - Armentum, a business management consultant: <http://www.armentum.fi>
 - Mekkala, a concert producer: <http://www.mekkala.org/>
 - Kinetic Orchestra, a dance-choreography producer: <http://www.kineticorchestra.fi/>
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A co-operative – an easy way to organize a business for local people

Formation

- There is no legal minimum capital required.
- A co-op can be Incorporated by at least three persons.
- Natural or legal persons are eligible for membership; there is only a single legal representative required.

Decision-making

- Decision-making is simply composed of CEO, board of directors and general meeting.
- Each member has equal ownership rights regardless of capital contribution; as well equal voting rights in matters put to the vote in at the general meeting.

Resignation

- Members are entitled to resign on notice of resignation.

Liabilities

- Members' financial responsibility is limited to their shares; they are not personally liable for the co-operative's debts.
- Members are not liable beyond the share price paid in case of capital loss, liquidation or bankruptcy.

Capital contribution

- The price of share capital is payable in cash or in kind.
- There is an option to subscribe additional share capital.

Capital refunding

- Capital contribution is repaid in case of dissolution and on resignation.
- Surplus is paid to members in proportion to their use of co-operative services.

Taxation

- Income is taxed due to a special tax framework.
- Co-op and members are separately liable as taxpayers.

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