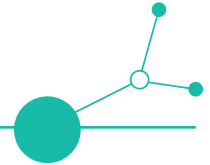


SHORT FOOD SUPPLY CHAINS CHARACTERISTICS AND NEEDS IN POLAND

Short report summary





Food4CE

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1. Executive summary

The report presents issues related to the functioning of Short Food Supply Chains in Poland in the context of Alternative Food Networks. AFNs in Poland are developing dynamically, responding to changing consumer preferences as more and more consumers pay attention to the local origin and ecology of the products they buy. Although short food chains are not yet a widely promoted initiative and operate only at the local level, these networks include a variety of forms, such as local markets, grocery shops that bring together local producers, and social initiatives that promote conscious consumption.

AFNs in Poland therefore play a key role in the transformation of the food sector: their economic, social and ecological importance is transforming traditional approaches to food production and consumption. However, although government policies aim to shorten food supply chains and promote AFNs, there is still no structured programme to support producers in promoting them. Furthermore, the rate of computerisation and automation of AFNs in the context of logistics management is low. Poland is therefore a country, where the potential for developing AFNs initiatives is evident.

About the Food4CE project:

Food4CE is a European project funded by the INTERREG Central Europe Programme, aimed at supporting Alternative Food Networks (AFNs) in their efforts to create sustainable and resilient food supply systems. Within Food4CE 5 local and 1 Transnational Innovation Hub (IH) will be established and will focus on advancing AFNs logistics efficiency through the development of innovative tools and solutions.

Two innovative tools, the Knowledge Transfer Platform and the Matchmaking Platform will be developed within the project. The former is intended for sharing logistics best practices and solutions, while the latter is intended for creating new B2B logistics solutions and services. The aim is to facilitate knowledge transfer and exchange between different regions and actors, and to create a unique mutual support network for AFNs in Central Europe.

Food4CE will also provide jointly developed regional action plans for each participating region and transnational (CE) policy guidelines for AFN support. The project aims to establish a sustainable and lasting AFN support mechanism, which will continue working even after the project end.

By establishing local and transnational Innovation Hubs and developing innovative tools and solutions, Food4CE project aims to facilitate knowledge exchange and cooperation between different actors and regions, leading to a sustainable and lasting AFN support mechanism.



2. Short Food Supply Chains (SFSC) characteristics and needs in Poland

Short food supply chains (AFNs) in Poland have significant development potential, which results from the growing interest of consumers and the willingness of producers to cooperate. However, the functioning of AFNs faces a number of challenges, mainly related to logistics, including transport and packaging.

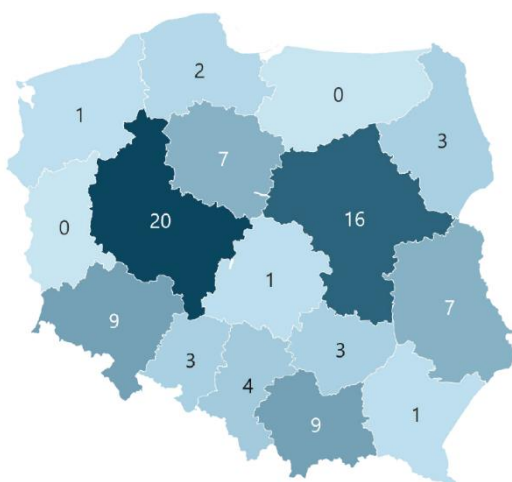
Most AFNs process orders electronically, but manual handling is also required, which can limit efficiency. The complexity of transport often forces AFNs to outsource transport services, which affects the variety of delivery methods, including the use of bicycles in urban areas. Cold storage management, lack of automation and limited use of IT tools are additional problems that need to be solved to improve efficiency. Despite the limitations, AFNs try to use recyclable packaging and put a lot of emphasis on cooperation with trusted partners and consumer education.

The growth of consumer awareness and their preferences for organic and regional food are conducive to the development of AFNs, but there is a need for increased investment in marketing strategies to raise public awareness of these initiatives. Key factors for the further development of AFNs in Poland are **education and cooperation between producers and consumers, which can contribute to building a more resilient and sustainable food system**. In the face of challenges such as the COVID-19 pandemic and the growing emphasis on environmental protection goals, AFNs have the opportunity to develop and strengthen their position in the market, which can bring benefits to both producers and consumers.

2.1. Research overview

The study identified **93 AFNs** in Poland. Geographically, the majority of identified AFNs are located in the **voivodeships (regions) of Wielkopolska (22%), followed by Mazowieckie (17%), Małopolskie (10%) and Silesian (10%)**. 37 AFNs were identified as direct, as well as advanced, while 19 classified as intermediaries.

Geographical location



Level of complexity



The functioning of SFSC within alternative food networks is characterized by a special specificity, which, on the one hand, results from the focus on direct relations between the producer and the customer. In particular, one can point out the smaller scale of operation in comparison to large crops, but above all, taking care of local food quality, natural or ecological crops. This in turn requires the creation of appropriate



conditions for the flow of goods - "from farm to fork". At the same time, recipients have their own specific expectations.

Analyses related to the functioning of short food supply chains in Poland were carried out taking into account a wide range of logistics aspects, including order processing, warehousing, transport, digital competence, business practices and challenges and opportunities.

The analyses are presented in the continuation.

2.2. An analysis of SFSC logistics characteristics and needs

Analyses of the functioning of Short Food Supply Chains (SFSCs) in Poland draw on 12 surveys conducted with Alternative Food Networks (AFNs). These surveys explored the detailed logistics processes involved, along with the specific challenges and expectations faced by entities operating within SFSCs.

2.2.1. Order processing

AFNs in Poland use a variety of ordering methods. Quite often, customers can choose from several options on how to place an order. Most often, **orders are placed via e-mail** (70%), **by phone** and **in-store** (60% each), via **social media**, via **a website or online platform** (20% each) and 10% via **instant messaging** (e.g. Messenger, WhatsApp, Telegram).



It is also worth mentioning the intensity of placing orders. Most often (40%) orders are accepted on a **daily** basis. In addition, 30% indicated a **few times a week**. Weekly was indicated by 20% of AFNs and **several times a month** by 10%.



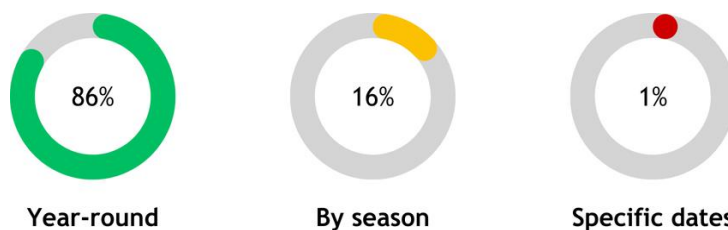
Consumer ordering behavior indicates a high level of activity in using alternative food chains. 40% of AFNs order products daily, suggesting that AFNs are gaining popularity as a regular source of food supply. In addition to daily orders, a significant percentage (30%) use AFNs several times a week, and 20% do so once a week. This indicates a variety of consumer needs and preferences, which may suggest the need to adapt the offer and marketing strategy to different user groups.

On average, the analyzed AFNs receive **106 orders per week**. The high percentage (**86%**) of **products available year-round** indicates a strong operational base for AFNs. Consistent product availability can attract customers who prefer regular purchases and stability in the offering. Although only **16% of AFNs offer seasonal products**, this may indicate the potential for developing an offering based on seasonality. Such products can appeal to consumers looking for fresh, local, and seasonal items. **The minimal**



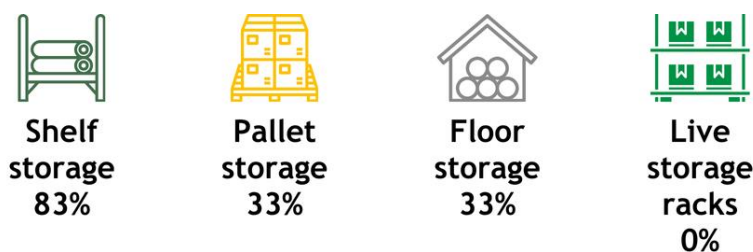
percentage of products available only on specific days or periods (1%) suggests that AFNs are focused on year-round availability, which can be beneficial to customers. However, the absence of products with limited availability may indicate that this area remains underserved. Given the growing interest in sustainable, local food, and seasonal products, AFNs may consider introducing a more diverse offering that would meet changing consumer needs and preferences.

To sum up, the alternative food chains in the analysis are characterized by stable demand and a strong offer of products available all year round, which can be an ally in further development and increasing attractiveness to customers.



2.2.2. Warehousing

Analyzing the approach to warehousing, it is essential to recognize the different types of storage solutions they utilize. Shelf storage stands out as the most commonly used method, favored by 83% of AFNs. Pallet storage is employed by 33%. Floor storage, also preferred by 33%, is selected based on the specific characteristics of the items being stored. Notably, live storage racks were not utilized by any of the AFNs that were analyzed.



Shelf storage is the predominant method used by AFNs, which indicates its efficiency and suitability for organizing various products effectively. Both pallet and floor storage are utilized by 33% of AFNs, highlighting the flexibility in storage methods based on the specific needs and characteristics of the items. This variety allows AFNs to optimize their warehousing practices.

It should be noted that AFNs utilize diverse warehouse operations. Forklifts are the most frequently used solution (33%), followed by carts and lifting devices (25% each). Moreover, 8% of AFNs use conveyor systems. The variety of warehouse equipment utilized by AFNs illustrates the diverse approaches they take in their warehousing operations, accommodating different types of products and logistical needs. Forklifts are the most commonly used equipment among AFNs. This indicates their importance in efficiently handling and moving heavy items within storage facilities. Carts and lifting devices are also popular. Their usage suggests a focus on mobility and accessibility in the warehousing process. The fact that only 8% of AFNs utilize conveyor systems highlights their less frequent application in these networks, possibly due to the nature of goods handled or the size of operations.

Conventional storage (without specialized temperature control) is the most commonly used option (83%) among the analyzed AFNs. Additionally, majority of AFNs may focus on non-perishable goods or products that do not require specific temperature conditions. Cold storage is also frequently utilized by 50% of AFNs, highlighting its importance for perishable items that need to be kept at low temperatures. This reflects a



growing awareness of the need to preserve food quality and safety. Conversely, **frozen storage** is not employed.



83%



50%



0%

The predominance of conventional storage usage suggests that a significant portion of AFNs deals with **non-perishable goods or items not requiring strict temperature regulation**. However, the substantial use of cold storage by half of the respondents indicates a strong focus on maintaining the quality and safety of perishable goods. This trend demonstrates an increasing awareness and prioritization of preserving food quality in the logistics and storage sectors. On the other hand, the absence of frozen storage usage highlights that products requiring such conditions may not be central to the current operations of these respondents. This could suggest opportunities for growth and investment in frozen storage capabilities if the demand for storage of highly temperature-sensitive goods increases.

2.2.3. Transport processing

Transport is one of the most problematic aspects of logistics for AFN, as half of the AFNs declare that they do not provide transport services for deliveries. The other half, however, provide transport services for their goods by delivering them to the customer with their own transport or, in addition, by allowing customers to collect their goods at the company's premises.

Regarding delivery management practices, **all AFNs manage deliveries internally** (100%), utilizing their own resources, personnel, and infrastructure. This approach likely allows for greater control over the delivery process and ensures that products maintain their quality during transportation. **Customer self-pickup** is a less frequent practice, reported by only 17% of AFNs, which may be due to the specific nature of the products or the preferences of customers. This low percentage may indicate that the nature of the products offered or customer preferences do not support this option, suggesting a potential area for further exploration. The reliance on internal delivery systems highlights a commitment to providing personalized service, which may enhance customer satisfaction and foster loyalty among AFN users.

Internally



100%

Externally



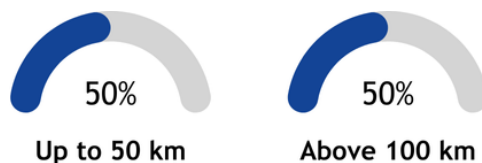
0%

Personal collection



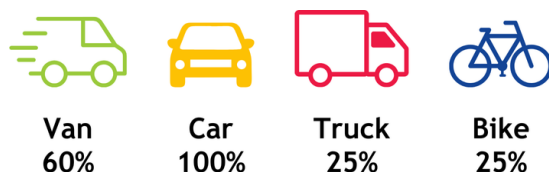
17%

Half of the AFNs serve customers within a 50 km radius, indicating a focus on local distribution and community engagement. Simultaneously, 50% of respondents have a catchment area that extends beyond 100 km. This suggests that many AFNs are capable of reaching a broader audience, potentially increasing their market presence and customer base. **The combination of both local and extended service areas reflects a strategic approach to distribution, allowing AFNs to cater to both nearby customers and those further afield, which may enhance overall business sustainability.**



In Poland, **the average number of deliveries per week is 45**, which suggests that Polish AFNs have a limited operational scale in terms of deliveries, which may be due to a smaller number of customers, the scale of operations or the specifics of the local market. **The number of delivery points per delivery in Poland is on average 17**. This may indicate differences in the way customers are served and the organization of delivery logistics in different countries. The Polish AFN market is characterized by a relatively low number of deliveries, which may be due to limitations in operational scale. With an average number of 17 delivery points per delivery, Polish AFNs may have a model that promotes efficiency; however, the small number of deliveries may limit their ability to serve a wider customer base.

Cars are most often used transport methods among AFNs, with 100% using them, followed by **vans** (60%). **Bicycles and trucks** are both used by 25% of AFNs. **AFNs typically utilize a mix of delivery methods**, such as vans and cars or vans and trucks, based on the sales volume and the sensitivity of the products.



Moreover, the fact that **67% of respondents maintain cold chain continuity** indicates a strong commitment to preserving the quality and safety of perishable products throughout the supply chain. In contrast, the **33% of AFNs that do not adhere to cold chain standards** may face challenges related to product quality and safety, potentially impacting customer satisfaction and trust. The existence of non-compliance highlights an area for improvement within these networks. Addressing cold chain issues could enhance overall operational efficiency and product integrity.

2.2.4. Digital competence

Analysing the IT tools with which Polish AFNs support themselves, one can notice a negligible indication on the used tools. Surveyed AFNs rarely use IT solutions for ordering process. Given that the majority of operators indicated in the order handling category that picking is done analogue, while orders are collected by e-mail or other electronic means (mostly), it is e-mail or ordering platforms that should be attributed the largest share of computerisation of supply chain elements. Surveyed AFNs also indicated that they rarely use tools supporting forecasting and demand planning and transportation management in case of route optimisation. The survey results indicate a negligible share of IT use in the AFN supply chain.

Overall, the survey results indicate a low level of IT integration in the AFN supply chain in Poland. Therefore, digitalization and implementation of IT solutions is a challenge, and the effects of implementation can contribute to improving the efficiency of operation.



2.2.5. Business practices



Concentration of demand and supply in one place. An important problem for the organic food producer is reaching the customer. An interesting solution is to create a cyclical market (e.g. once a week) managed by farmers in large urban centres. This allows farmers to shorten the distribution channel, preserve margins, minimise customer service time and concentrate customer purchases for a few hours per week, giving valuable time to deal with agricultural production. With access to a wide range of organic products directly from the producer, customers become accustomed to a fixed buying period quite easily.



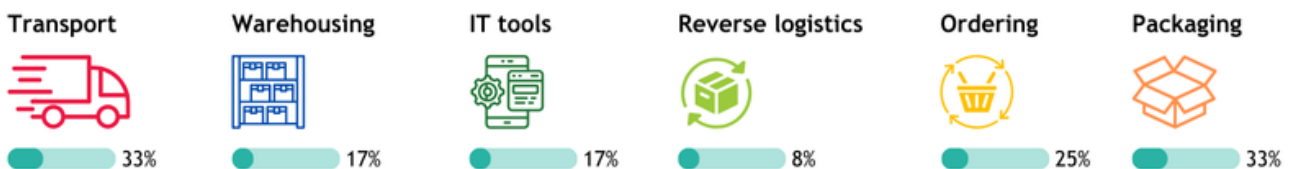
Consolidation of the orders. A third-party purchasing platform bringing together different manufacturers allows online orders to be placed with different suppliers, which are fulfilled by couriers the next day. Consolidating the collection of orders from suppliers makes it possible to reduce the length of couriers' routes and thus reduce carbon footprint by picking orders from different suppliers.



Online shopping multi-producer platform. The ordering process can be digitalised for everyone by using one purchasing platform. Customers can place an order with multiple suppliers and make one aggregated online payment. The order is consolidated and delivered to the customer's door according to the manufacturer's delivery terms. A particular advantage of the joint purchasing platform is the variety and detailed description of the products, including their origin and possible certifications.

2.2.6. Challenging areas for AFNs

The conclusions regarding the challenges faced by AFNs in Poland indicate that **transportation and packaging processes are the most problematic**, receiving 33% of responses from AFNs. It is worth noting that these are key areas that have a direct impact on operational efficiency and customer satisfaction. 25% of AFNs indicated areas **related to the order process**, which suggests that order management also requires attention and optimization. **Warehousing and IT tools** were indicated by 17% of AFNs, which may suggest the need for investment in technology and better warehouse space management. Finally, **reverse logistics processes** were rarely mentioned (8%), which may indicate their lower importance in the current activities of AFNs. Overall, the results indicate the need to focus on improving the areas of transportation and packaging, as well as more effective order management, to improve the functioning of AFNs in Poland.



2.3. Challenges and opportunities for SFSC

The research conducted among AFNs in Poland revealed several insights into their logistical processes, challenges, and practices.

In terms of logistical challenges, **the greatest logistical challenges for AFNs are related to transport and packaging processes**, with transport being notably problematic. Order handling also presents difficulties, but to a lesser extent, and the return process is the least problematic.

Regarding order management it can be concluded that a significant majority (91%) of companies receive orders mainly through electronic means, with 70 % via email and 20 % through online platforms or social



media. Orders are frequent, with two-fifths receiving orders daily and 90% at least once a week, typically involving small quantities.

Warehousing wise the most common storage method is shelving, with pallets and various other methods like smokehouses and cold storage also mentioned. A third of respondents do not use any equipment for warehouse work, highlighting a reliance on manual handling.

Transport is a challenging area, with half of the AFNs not providing transport services for deliveries. The other half who does provide such services mainly operate within a local range or beyond 100 km, utilizing cars and, to a lesser extent, bicycles and vans for urban deliveries.

In terms of reverse logistics, the survey indicated that reverse logistics, particularly the return of product packaging, is not a significant concern for Polish AFNs due to the low volume of returns.

For packaging, recyclable packaging is commonly used, while disposable and reusable packaging is used to a lesser extent. Packaging with a deposit system is extremely rare.

Regarding IT tools and technologies, it can be concluded that **there is a negligible use of IT tools in the supply chain**, with e-mail and ordering platforms being the primary form of computerization. Other IT solutions for forecasting, demand planning, and transportation management are rarely used.

Threats, weaknesses, and opportunities wise it can be noted that **working with trusted partners is crucial for ensuring transparency and traceability in the supply chain**. Measures to reduce the distance between producers and consumers focus on local sourcing and direct procurement. Quality and freshness are ensured through stringent supplier selection, proper storage, and transparency in expiry dates.

Lastly, development levers showed that the development and strengthening of short food supply chains are seen as being significantly influenced by local producers, consumer awareness, and consumers themselves, with less emphasis on research and development in supply chain logistics.

Overall, the survey highlights the logistical challenges faced by AFNs, particularly in transport and packaging, and emphasizes **the importance of trust, local sourcing, and sustainable practices in their operations**.

In Poland, more and more consumers are paying attention to the local origin and ecology of the products they buy. People living in larger cities are looking to buy products from farmers and those they can trace, even if this involves additional costs or efforts to organise collection. Still, short food supply chains are not a widely promoted initiative and operate locally, and it is often difficult to find out about and even get access to existing co-operatives or organisations that connect producers with consumers.

Government policy is indeed aimed at shortening food supply chains and promoting AFNs, although there is no structured programme to support producers in promoting such initiatives. It is possible to encounter rare information programmes, or initiatives by local agricultural support centres to promote the creation of AFNs in growth, but these are niche activities.

There is an apparent willingness on the part of manufacturers to enter into such initiatives and create AFNs, if the commitment to organise processes is not too absorbing. Producers are keen to take advantage of grassroots customer initiatives and often create direct sales opportunities themselves, for example by distributing their products to consumers once a week and announcing sales on social media.

However, these are still insufficient. The rate of computerisation and automation of AFN in the context of logistics handling is low. Companies largely operate analogue, focusing on production and minimising technological involvement in tools supporting the procurement or transport process. At the same time, they indicate that automation, or improvements in the ordering process and extending the reach to customers, are in their area of interest.

Poland is therefore a country where the potential for developing AFN initiatives is evident, all the more so as there is a demand on the part of consumers and a willingness on the part of producers.