

GREISSLER.PLUS: Towards a Modern Distribution of Regional Goods in Rural Areas in the Digital Era

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Abstract: The supply with daily consumer goods is a basic need for all people. Especially in rural areas, the supply with groceries and goods of daily use has become increasingly difficult. The project GREISSLER.PLUS tried to overcome this difficulty by designing individual operating models and providing an ICT platform. Therefore, we carried out specific surveys as well as workshops to analyze the needs of the target groups in the pilot region Schneebergland in Austria. After defining the requirements and developing five possible operating models, we executed a pilot phase for testing purposes as well as for enhancing the functionalities. At final stage of the project, we transferred the ICT platform as well as a specific business plan to a new owner who will ensure an economically sustainable operation.

1 INTRODUCTION

In rural and peripheral areas, it is progressively becoming more difficult to secure the supply of goods for daily use, because the trend is heading towards larger grocery stores which are mostly located in areas of larger communities. Such branches regularly provide a wider range of goods. They have a higher budget for advertising and they can offer similar products with lower prices compared to small local suppliers. As a consequence, small local suppliers are being pushed out of the market by branches of large supermarket chains, which are more frequented. This development leads to a shrinking range of supply facilities within walking distance and to rising challenges for elder and less mobile people in handling an independent style of living (Rohatsch, 2018).

The former research project “Active Ageing” has been carried out to analyze the structural change alongside decline and ageing of the population. One of the findings of this project were local difficulties concerning the accessibility of supermarkets in the region Schneebergland (Derkits et al, 2014).

The cooperative research and development project GREISSLER.PLUS has been initiated to develop modern IT-supported solutions to meet the challenge of accessing regional products considering current demographic and regional conditions (Wahl et al, 2018).

This paper briefly introduces related works as well as our used methods and goals in the project GREISSLER.PLUS, it gives an overview of selected results and potential operation models. Moreover this paper gives insight in the conducted testing phase and in the structure of the ICT-platform.

2 RELATED WORKS

A similar approach has been made with the development of an online platform for local supply which is operated in Mattighofen in Upper Austria, (Land Oberösterreich). According to zukunftsraumland.at, Mattighofen has a differentiated, naturally grown and quality-oriented business structure (KAUFMANNSCHAFT MATTIGHOFEN, 2014). Above all it is advertised with the fact that the broad branch mix, as well as

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the quality in consultation and service differs from so-called “mass shopping” and thus serves as a role model for an exemplary local supplier structure. In the project “Mattighofen Nahversorger Web 2.0”, the aim was to secure the future of this location of local supply. Tangible actions were the involvement of local suppliers and target groups in the development and implementation of the website for the promotion of business and tourism, as well as training programmes for employees of these companies. In addition, the population was actively involved in the design of events and documentation. An additional action was to offer daily updated menus at twelve restaurants. These actions led to an increase in the population’s identification with their home town. Both businesses and restaurants as well as leisure facilities have gained in popularity as a result (Land Oberösterreich) (KAUFMANNSCHAFT MATTIGHOFEN, 2014).

3 METHODOLOGY

After a basic research and the determination of relevant suppliers and companies in the pilot region called “Schneebergland”, we carried out a survey and conducted four workshops to collect and understand the needs of suppliers and customers.

The survey has been distributed via different channels of the project partners to reach residents of the region Schneebergland. It has been sent out paper-based as well as an online questionnaire and consisted of 33 questions about the resident’s shopping behaviour. The exploratory character of the basic research and the survey aimed to identify possible operating models.

The first workshop focused on discovering the needs of local producers of the region. Several producers and local suppliers followed the invitation to deal with the maintenance of regional products along the current trend concerning large supermarket chains and possible new ways to reach customers. The second workshop was carried out with residents and consumers to determine their needs in terms of grocery shopping (Wahl et al, 2018).

The third workshop was held after the evaluation and interpretation of the survey to present and discuss five different operating models with the attending producers and local suppliers as well as to select one of them to be tested. The fourth workshop was used to present the evaluation of the survey to the residents as well as to inform about the testing operation.

4 RESULTS

The survey only reached a limited number of residents of the pilot region and the results only fit to those who were interested in the development of their region. The results are not representative for the entire region Schneebergland.

The workshops showed that local producers stand for local production and high Austrian quality. They are used to link their person and face to their regional products to create trust and loyalty to their customers. They stated that their customers want to know the ingredients of their products in detail and represent the opinion that this information can only be provided honestly and reliably by regional products.

Similar to the producers and local suppliers, the consumers in the second workshop also became aware of the importance of regional products and Austrian quality while the availability and accessibility of these products was perceived as too low. They stated, that they have to visit several producers and shops at varying business hours to purchase regional products. We found out, that only a few people are willing to consider this effort and respective long travel times. This led to discussions in which we found out that consumers want to get all desired products in one place. The attending residents also whished for a common approach and better information about local producers in the region and where to reach their products (Wahl et al, 2018).

4.1 Survey

227 responses could be obtained through distributing the survey and reaching people coming from 15 out of 18 villages and municipalities which are part of the region Schneebergland. In the survey we considered to ask for the demographic information like their ages and the number of people who live in their households. The average age was 38.12 years while 50 percent of the respondents were between 34 and 42 years old. The average number of people per household was 4.11.

Figure 1 illustrates the share of used transport modes of the respondents for buying groceries. For this question, the surveyed were able to respond with multiple answers. However, 200 out of 227 people mentioned the car (among others) as one of their mainly used means of transport.

As shown in Figure 2, 217 people indicated to mainly visit big supermarket chains to buy groceries.

For this question it was also possible to respond with multiple answers.

Figure 3 illustrates the responses to the question on how many stores are visited by the surveyed per week in the course of shopping groceries. The figure clearly shows that nearly three quarters visit 2 to 3 stores per week. Only 35 of 227 stated to visit only one store.

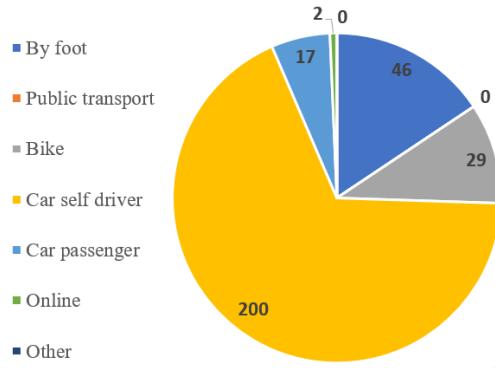


Figure 1: Which means of transport do you use mainly for buying groceries? (multiple answer possible).

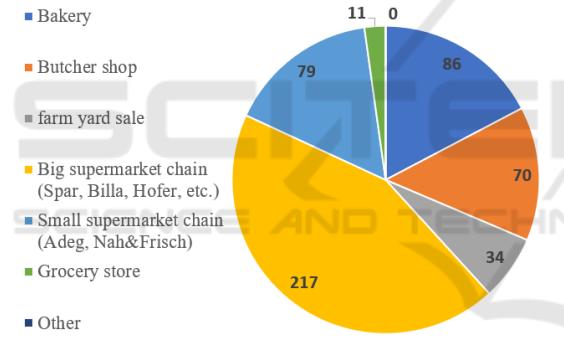


Figure 2: Visited stores (multiple answer possible).

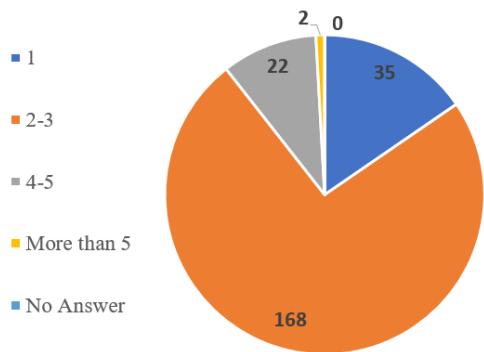


Figure 3: Number of grocery stores to visit per week.

The survey also revealed that more than 75 percent of the respondents would consider to buy groceries via online services. The majority of 40 percent would buy all groceries online and 35

percent stated that they would buy only certain products online. The mentioned products included products like cereals, bread, noodles, honey, milk and flour as well as vegetables, fruit, eggs and meat (Wahl et al, 2018).

4.2 Model Design

The evaluation of the survey as well as the findings in the first and second workshop were used to develop five different operating models to become candidates to be implemented in our testing phase.

These models have the usage of an online platform in common but differ in their particular process steps in distributing the ordered products.

4.2.1 Model 1: Delivery Service Home

In Model 1, customers can place their orders online at a central office which bundles and forwards them to the respective producers. This ensures that producers receive those orders which are relevant to them. Each producer provides a separate package of ordered goods per customer. In the next step all packages are collected by the central station to be merged for each customer and put into bags. Finally each bag will be delivered to the respective customer. The process of Model 1 is illustrated in Figure 4 and Figure 5.

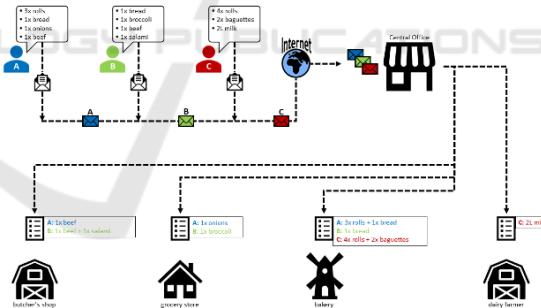


Figure 4: Model 1: Ordering process.

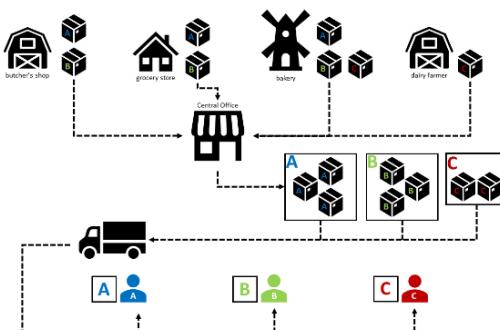


Figure 5: Model 1: Delivery process.

4.2.2 Model 2: Company as Pick-up Location

Model 2 is characterized by the possibility to choose a Pick-Up Station in the process of ordering online (cf. Figure 6). The ordered goods will be delivered to the chosen companies which act as Pick-Up Stations by the producers and can be picked up by the customers during the opening hours of the company. The delivery process of Model 2 is shown in Figure 7.

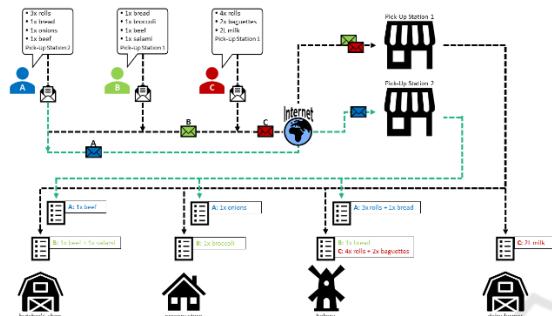


Figure 6: Model 2: Ordering process.

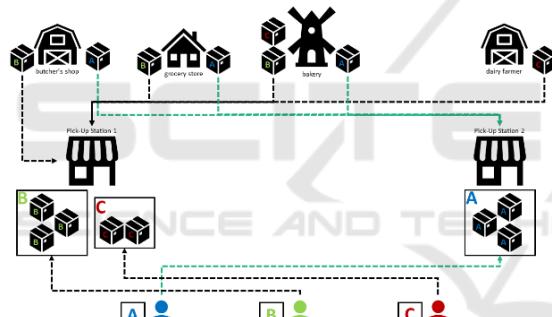


Figure 7: Model 2: Delivery process.

4.2.3 Model 3: Pure Platform Model

For Model 3 we developed two variants. In both of them, every process step is handled by the online platform automatically (cf. Figure 8).

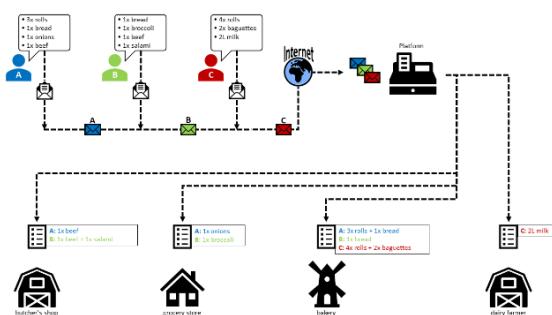


Figure 8: Model 3: Ordering process.

The delivery process in variant 1 is organized and carried out by the producers (cf. Figure 9) and in variant 2 a delivery service is organized for distribution of the ordered products which is illustrated in Figure 10.

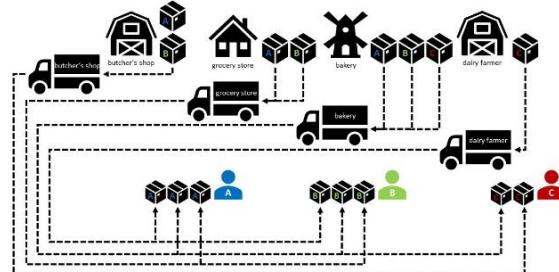


Figure 9: Model 3: Delivery process variant 1.

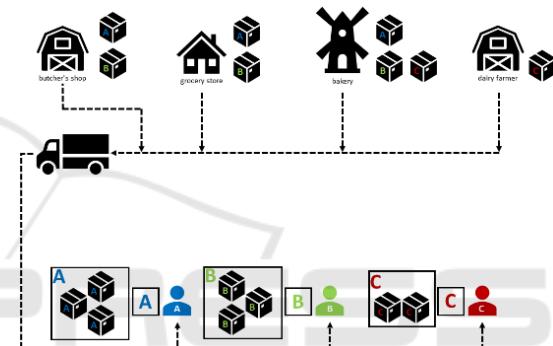


Figure 10: Model 3: Delivery process variant 2.

4.2.4 Model 4: Food Coops

Model 4 was designed to use so-called “food-coop stations” to which the ordered products are delivered. After the delivery the customers are informed via E-Mail about it. These stations are locked and only registered customers have access to them for picking up their ordered products. On the one hand this model strongly relies on trusting other customers to only take their specific packages and

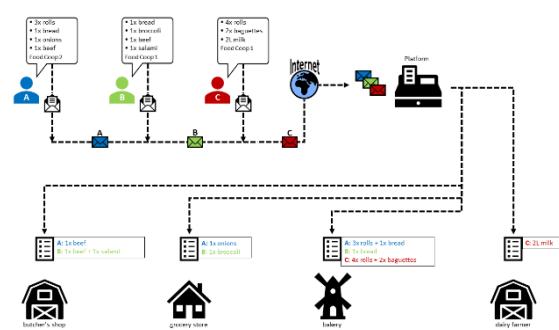


Figure 11: Model 4: Ordering process.

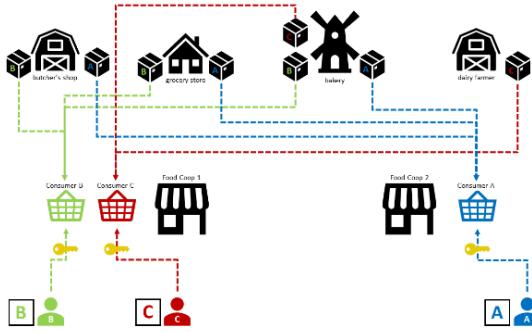


Figure 12: Model 4: Delivery process.

products. On the other hand these stations are independent of any opening hours. The process of ordering in Model 4 can be viewed in Figure 11 and the process of delivery is illustrated in Figure 12.

4.2.5 Model 5: Rolling Greissler

The Rolling-Greissler model describes a travelling supplier which uses fixed locations to be visited in certain timeframes. During this periods, customers can get their ordered products as well as shop without ordering. In this model the travelling supplier handles the incoming orders and takes them on his journey through the region to provide the products for the customers in the predefined timeframes at the respective locations. The operating model for the Rolling Greissler is shown in Figure 13 (Rohatsch, 2018).

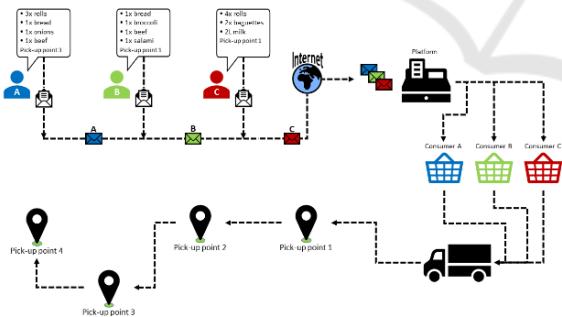


Figure 13: Model 5: Complete Process.

4.3 Operating Model

After evaluating the survey and based on the first two workshops with our target groups the potential operating models and business concepts have been discussed in the third workshop by the attending producers and the project members. Considering the wish of the customers to have the option to collect their orders at one specific location, the producers focused on discussing on Model 2 and how to adapt

it. Refinements included the constraint of having Friday and Saturday as Pick-Up-Days for the customers each week and that orders had to be placed until Wednesday midnight of the same week. Thursdays were considered to process the orders and to prepare the products (Rohatsch, 2018).

4.4 ICT Platform

Based on the requirements for an online platform and during the development of the five different models, we put effort in researching suitable software with extendable components.

The content management system Joomla! turned out to be the most suitable candidate to develop a Web-based prototype for our purposes. As a result, potential eShop enhancements for Joomla! were identified and tested for functionality and ease of use. The extensions Sellacious, Easy Shop, VirtueMart and J2Store were considered particularly intensively. Subsequently, the decision was made to use the J2Store extension. The essential factors were the user-friendliness, the clear structure in the backend and a comparatively large range of additional, compatible plug-ins. To develop the platform, a test version was set up on a server of the UAS Technikum Wien and filled with test products of different categories and producers. In order to simulate realistic orders, artificial customers were created as well. This test version has also been used to test new plugins and software-extensions before installing them in the live system which has been created for the testing phase. Furthermore we developed special extensions for producers and operators of Pick-Up Stations. These extensions are designed to provide access to the orders and inventory settings for the respective producers and operators of Pick-Up Stations (Rohatsch, 2018).

During the research project the main menu of the platform's frontend contained the following entries:

- Home
- Product Categories
- Producers
- Pick-Up Stations
- For Consumers
- Contact

The entry "Product Categories" led to an overview of all products which could be filtered by price and by category (bread & pastries, meat, venison, spices, honey and jam products, etc.).

A click on the entry “Producers” revealed a submenu with a link to a list of all producers with public access as well links to the producer specific order overview and the respective producer’s inventory settings with restricted access.

The entry “Pick-Up Stations” also contained a submenu with a link to a list of all Pick-Up Stations as well as a specific order overview for their operators with restricted access.

A click on the entry “For Consumers” displayed a submenu as well containing entries like “Login”, “Sign Up” and “Terms of Use” with public access and entries like “My Profile” and “User Settings” with restricted access while the entry “Contact” led to a contact form, the imprint and the privacy policy.

4.5 Testing Phase

The preparations for the testing phase included the acquisition of producers and operators of potential Pick-Up Stations, as well as the creation of product photos and short videos about the companies involved. Our range of producers and regional food suppliers in the testing phase contained for example a bakery, a butcher, a beekeeper for honey products, several organic farms, a hunter providing venison as well as a jam producer and one garlic farmer. In total we managed to convince 19 regional producers and grocery suppliers to take part in our research project. The operators of a small grocery store, two cafés and a bookstore decided to contribute by serving as Pick-Up Stations.

During the testing phase, only those products were released online for ordering which were available in the standard product ranges of the respective companies from March to December 2018. Orders could be placed until Wednesday to be ready for pick-up on the following Friday or Saturday. To successfully submit an order a customer had to pay online via PayPal or EPS direct transfer. Via our specific interface of the Web shop, producers and operators of Pick-Up Stations had access to those orders which were relevant for them. In addition, they received weekly summarized information about the orders which had been placed until Wednesday via e-mail every Thursday at 3 am in the morning. This way we secured that no order was missed, the producers were able to process the orders and had time to prepare the ordered products until Friday or Saturday depending what the customer stated in the ordering process. During our testing phase producers delivered the ordered products to the respective Pick-Up Station until 10

am of the day the customer wanted to pick them up (Rohatsch et al, 2018).

Throughout the testing phase, the project team constantly received suggestions for improving the platform, which were gradually incorporated.

The testing phase was started on March 1st and lasted several months. Final improvements based on the findings of the testing phase were implemented to ensure stakeholder satisfaction.

5 DISCUSSION

The operator of an organic farm has agreed that his products can be sold via the platform during the testing phase. The managing director of a local supplier, which was suitable as a potential pick-up station, also sells meat and sausage products from the operator of the organic farm in her shop. For economic reasons, these goods are resold by the company at a higher price. This would have meant that the same products would have existed in one place at different prices. It would therefore be cheaper to purchase the goods via the platform and the local supplier would have suffered losses in sales. This conflict prevented the cooperation with this supplier during the testing phase.

Some of the potential consumers did not want to make online payments and would have preferred to pay for the products when they were picked up at the pick-up station. However, this entailed the risk that orders would neither be collected nor paid. This would have led to economic losses for producers, especially in the case of perishable groceries and fresh goods such as bread and pastries. For this reason, the project team was unable to find a way to avoid online payments in advance during the testing phase.

6 OUTLOOK

The aim of the project was to sustainably implement the ICT platform in the pilot region Schneebergland. This goal was achieved by handing over the platform to a future operator in January 2019, who will continue to operate it. The new owner’s plan is to adapt the operating model and to add the possibility of delivering the orders to the customers homes by using services of the Austrian Post.

To transfer the platform and the operating model into other regions, comprehensive basic analysis will be necessary. Moreover, the need of such a platform

in the respective region has to be evaluated. Further steps would be the selection of certain range of products, the creation of product pictures and short video clips as well as the representation on the platform.

ACKNOWLEDGEMENTS

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