Naaber Case Study

Project Name: Naaber
FIWARE Accelerator: FInish
Grant Funding: March 2015 – March 2016
Level of Grant funding secured: €150,000
Target Sector: AgriFood

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Vision and Market Need

Naaber is a food industry smart supply chain solution for farmers, producers, manufacturers, warehouses and transportation carriers. Consumers and institutional buyers enjoy access to an online grocery marketplace for local and (mostly) organic produce, with fair prices and local pick-up and delivery options. SMEs enjoy a Software as a Service (SaaS) based logistics and business management platform (including logistics, manufacturing and bookkeeping functionality). Business partners can exchange stock and route information, and use one another's warehousing and transportation infrastructure. Farmers and producers enjoy access to larger local markets, higher margins and simple, flexible logistical options on demand.

While consumers are increasingly interested in eating local and organic food, access to local food is currently limited to farmer markets and a limited selection in retail shops. Naaber aims to address this need by providing access to local produce through an online grocery marketplace and supporting cooperation in local food logistics and distribution.[1][2][3]

The market need was identified based on existing market research and supplemented by Naaber interaction with 20 farmers and almost 100 consumers outside major cities in Estonia in early 2015.

Target Market and Revenue Streams

Naaber is involved in organic grocery sales and online grocery shopping. Initially targeted Estonia, end user communities include local farmers, consumers, institutional buyers, transportation carriers, warehouses, local cafes and other small businesses.

The online grocery shopping market is growing by 30% per year[4]. The organic grocery market has grown by at least 10% annually for the last decade[5], and is estimated at $72 billion[6].

Primary markets for Naaber solutions include Germany, France, the UK and US. Almost 10% of people living in Berlin and Hamburg for example are buying groceries online, while

[1] *The Economics of Local Food Systems: A Literature Review of the Production, Distribution and Consumption of Local Food, September 2014 by Ariel Pinchot*
[2] Report from the European Commission to the European Parliament and the Council on the Case for a Local Farming and Direct Sales Labelling Scheme (2013)
[3] Eating from the Farm: the social, environmental, and economic benefits of local food systems by Friends of Earth Europe (2015)
[4] The Multichannel Movement (Dunnhumby, 2015)
[5] State Of The Industry, Organic Trade Association, 2015
[6] Global Organic Market At 72 Billion Us Dollars With 43 Million Hectares Of Organic Agricultural Land Worldwide

in London and Birmingham, the percentages are 15 – 20%. Between these four cities alone, almost 2.5 million people are shopping online.[7]

Primary revenue streams are based on a transaction fee model: up to 5% for services sold through the Naaber App; and up to 10% for consumer or institutional buyers using the online marketplace. Secondary revenue streams include advertising, subscriptions and listing fees.

Competitive Positioning

Direct competitors include Goodeggs.com (US), Farmigo.com (US), Farmdrop.co.uk (UK) and Thefoodassembly.org (FR).

Most direct competitors buy from producers and distribute themselves. They are premium services and prices are quite high. The advantages are convenience, large selection of local produce and fast delivery. In contrast The Food Assembly organizes pop-up farmers markets, where food is already pre-purchased on the The Food Assembly's web page. The advantages include fair pricing and as local as possible for consumers, while the disadvantages include inconvenience for the larger population.

Diagram 1 below outlined Naaber's competitive positioning:

Diagram 1: Naaber competitive positioning

Indirect competitors include large retailers with online shopping options (e.g. ASDA, Tesco, Ocado, Whole Foods), online giants like Amazon Fresh and Google Express and comfort services such as Hello Fresh, Blue Apron and Plated.

Most large retailers sell a wide selection of industrial quality food at a cheap price. They are multi-channel, easy to use and widely adopted. Disadvantages include that most of them do not distribute local and organic products produced by small producers.

[7] THE STATE OF ONLINE GROCERY RETAIL IN EUROPE, Syndy, 2015

Most of these competitors are intermediaries with their own logistics resources. They have high operating costs, which requires higher margins for the products they sell. They are always interested in raising prices for consumers and negotiating lower prices from producers and farmers. Most competitors focus only to certain type of delivery, either a pickup point, door delivery or a farmers market meeting. The Naaber platform enables all of these options.

The Naaber Unique Selling Proposition is fail pricing, transparent and open supply chains, large selection and convenient delivery options.

Naaber has developed three product offerings:

- Naaber Market (https://naaber.market) – a marketplace to purchase local produce. Its users are consumers and institutional buyers.
- Naaber App (https://naaber.io) – a SaaS platform to manage logistics, manufacturing, warehousing and sales. Users can connect to other users and easily sell services. Products are sold through Naaber Market.
- Naaber e-Grocery machine – Like a parcel machine, but for food. An IoT device that can be used to both dispatch and receive food products.

Naaber products support buying and selling of local food and demand logistic services as well as a full SaaS business software suite. The value proposition for consumers and institutional buyers is the ability to order local produce at a fair price directly from producers, for farmers/producers the ability to sell their products and for logistic service providers a new market opportunity and API access to the SaaS platform.

Enabling Technology

Access to the FIWARE community, resources, workshops and a developer's week inspired and supported Bo Technologies to grow from being a software company to hardware and IoT company. Access to FIWARE Enablers supported quicker prototype development. Naaber uses the following FIWARE Enablers:

- Orion Context Broker to track data related to the food vending machines (temperature, power consumption, free space)
- Cygnus is used to subscribe to the Orion Context Broker data change to prepare data for use by Cosmos
- Cosmos to support data analysis.

Prior to the commencement of the Naaber project Bo Technologies developed a technology called Bo Blocks. This is a user interface abstraction layer which basically helps us write code one time. This software can be used both by humans with a screen, keyboard and mouse as well as by servers and services at the same time. Abstraction layers facilitate that it is developed one with very little optimization is needed per case. This is also beneficial as it is highly extendable and the graphical user interfaces are highly customizable. This has enabled us to develop a lot of software in an extremely short amount of time. Bo Technologies has considered making this technology available as a Generic Enablers, but currently there are not sufficient resources available to develop this idea.

Naaber App, Naaber Market, and Naaber Vending Machine App were developed in PHP using the Symfony framework. Naaber Vending Machine also uses a hardware driver written by Bo Technologies in Java. PostgreSQL is used as the primary database with some data stored in the vending machines using Sqlite. Hadoop is used to persist big data. RabbitMQ is used for message queue between food machines. Regarding hardware a mix of Rasberry Pi and standard electronic components are used.

Diagrams 1 - 3 below provide insights into some of the functionality. Diagram 1 illustrates the Trip Template Wizard in the Naaber App which is used to estimate trip time and distance and calculate costs for services rendered to partners in the supply chain.

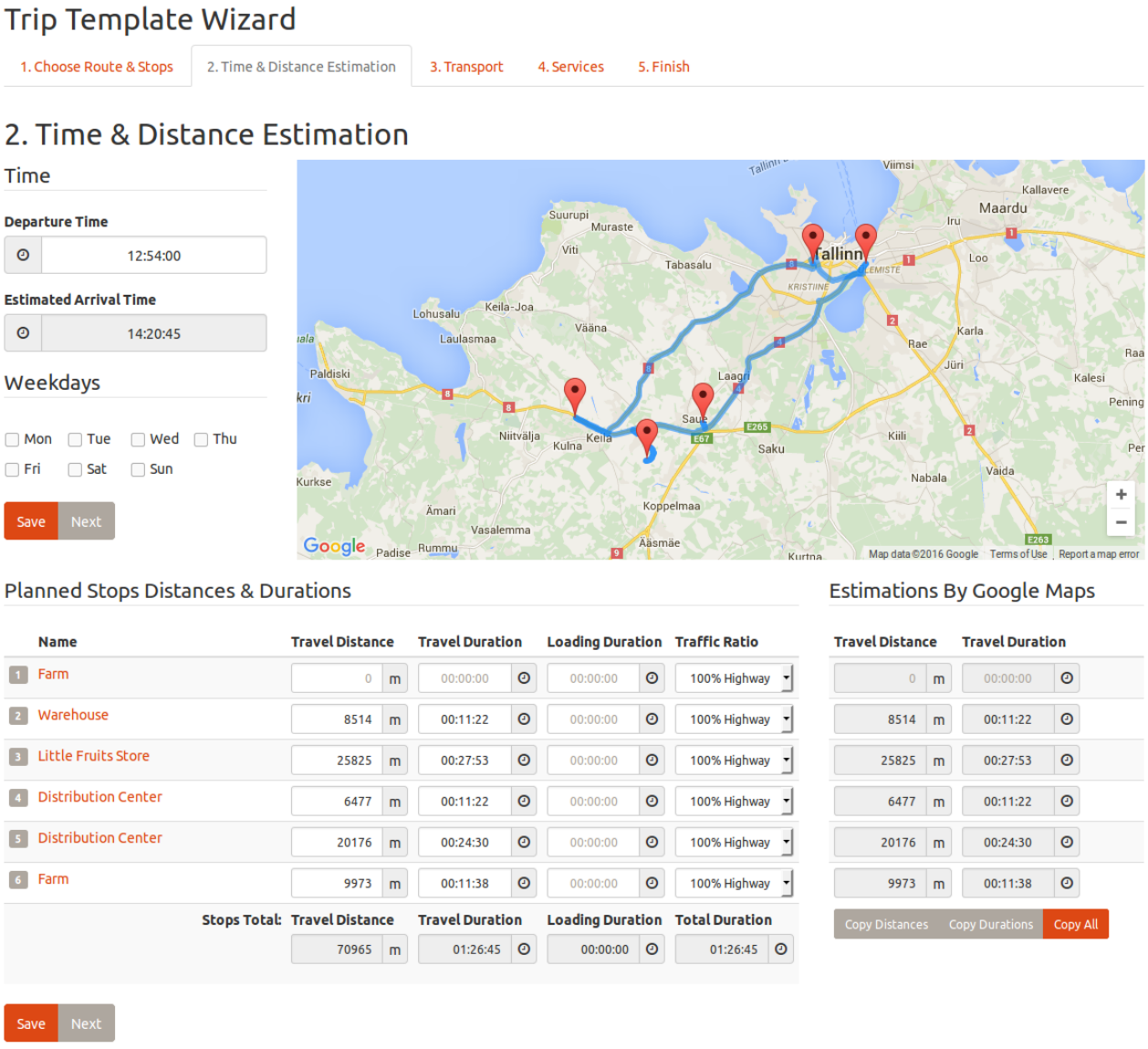

Diagram 1: Naaber App - Trip Template Wizard

Diagram 2 below outlines how consumers select the closest pick up location when ordering products.

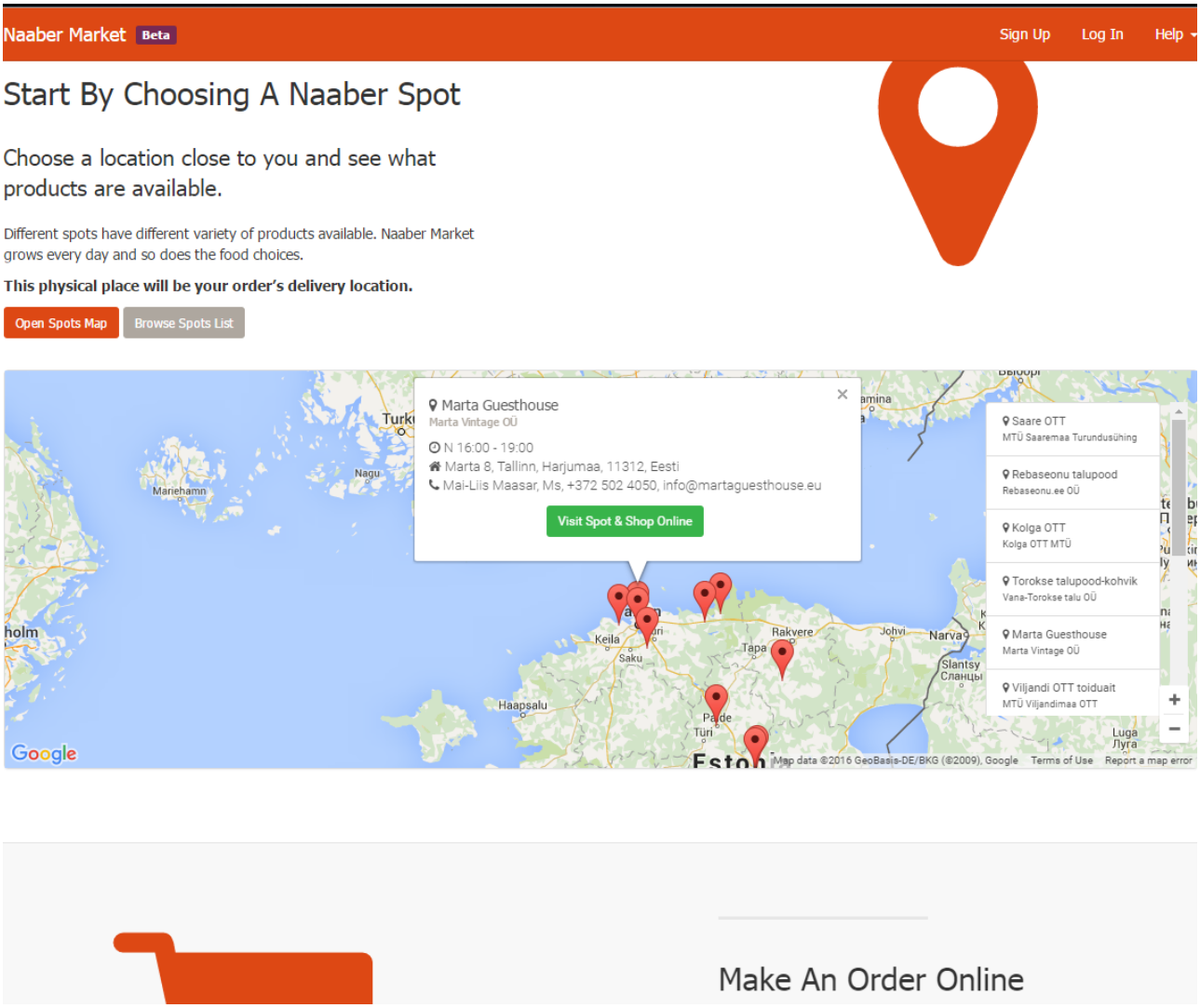

Diagram 2: Naaber App - Choose a pick up location for orders

Naaber can be accessed on all devices as outlined in Diagram 3 below.

Progress to date

Bo Technologies started working on related logical activities that evolved into Naaber from late 2014. They started working on the Naaber products from March 2015, having secured a FIWARE Grant for Naaber under the FInish Accelerator as part of the FI-PPP Phase 3 Programme to develop the application and undertake market analysis.

Over the past 12 months, three initial product offerings (Naaber Market, Naaber App and Naaber e-Grocery machine) have been developed and tested. To date over 100 users and 80 farmers are using the Naaber Market and App in Estonia. The Market currently facilitates customers to select their pickup location via the website, add items to the shopping cart and pay for purchases. The first version of the Naaber App allowed farmers to manage their stock, business information, users, collection points (called Naaber Spots) and connected routes, service manager, pricing policies, customers, invoices, orders, trips, delivery orders, cooperation tools. It also provides functionality for logistic businesses including fleet management and driver tools. The Naaber e-Grocery Machine is undergoing testing.

Milestones achieved to date include a soft launch, initial customer acquisition, recurring revenue and a minimum viable product feature set. Based on initial user testing priorities for future functionality and enhancements have been identified.

Naaber was selected by FInish to present during ECFI 2015 and to participate in the Lean Start up Conference in San Francisco which took place in November 2015.