

How to capture maximum value through using network externalities for a digital E-healthcare platform

Author: Martijn Wolters
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

ABSTRACT,

The Netherlands is confronted with the pressing challenge of an aging population and the subsequent increase in demand for healthcare services. While numerous healthcare platforms exist, most of them primarily focus on treatment rather than preventive measures. This thesis explores the significance of the SamenKwiek platform, which stands as one of the first of its kind in the market, aiming to connect service providers and customers in the field of preventive healthcare. The objective of this research is to investigate the methods for capturing maximum value through network externalities in the design and development of the SamenKwiek platform. By examining the critical element of network externalities and their role in fostering the growth of the user and provider base, this study seeks to offer practical implications for the platform's development and success. Through an extensive literature review, this thesis establishes a theoretical framework drawing upon platform business models, network externalities, and value capture. The research methodology includes interviews with potential service providers and consumers aligned with the target areas of the SamenKwiek platform. The findings of this study lead to the identification of platform strategies for providers and consumers. Strategies for asset providers encompass independent and partner-based marketing, incentives for participation, and emotional bonding. On the other hand, strategies for asset consumers focus on independent and partner-based marketing, incentives for participation, and technical bonding. Furthermore, derived values were determined for each strategy. These derived values play a pivotal role in attracting and retaining users and providers on the platform, fostering a virtuous cycle of network effects. By implementing the identified strategies and continuously refining the platform based on user feedback, SamenKwiek can establish a positive feedback loop that drives the growth of the user and provider base. This growth reinforces the platform's value proposition, attracting more users and providers, and strengthening positive network externalities.

Graduation Committee members:
Ariane van Raesfeld Meijer
Yasin Sahhar

Keywords

E-healthcare, Platform, Network effects, Network externalities, Preventive healthcare, Value capture.

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.



1. INTRODUCTION

The Netherlands is facing a challenge with the increasing demand for healthcare services due to its aging population. While there are various healthcare platforms focused on treatment, there are only a few platforms aimed at preventive healthcare. SamenKwiek is a platform that connects service providers and customers in the field of preventive healthcare, and it is one of the first of its kind in the market.

The SamenKwiek platform is in its early stages of development, and it is part of the dRural Service Marketplace, which aims to deliver a broad spectrum of services while boosting economic growth and improving citizens' quality of life in rural areas. To ensure the platform captures the highest value possible, this project will investigate the methods to capture the platform's value. This research will focus on examining the critical element of network externalities and how it can be leveraged to encourage the growth of the user and provider base and maximize the platform's value.

The objective is to provide insights on how to design and develop a platform that captures maximum value through network externalities, with practical implications for the development of the SamenKwiek platform. The theoretical framework and literature review will draw upon prior research on platform business models, network externalities, and value capture to guide the research design and analysis.

The practical relevance of this research lies in addressing the increasing demand for healthcare services in the Netherlands due to its aging population. By focusing on preventive healthcare, the SamenKwiek platform offers a unique approach to meet this challenge. However, to ensure the platform's success, it is crucial to understand how to capture maximum value through network externalities. The research aims to provide insights into the design and development of the SamenKwiek platform, helping to shape its strategies for user and provider base growth. By examining network externalities and value capture mechanisms, the study offers practical implications for platform managers and policymakers in the healthcare sector, especially those of SamenKwiek.

The theoretical relevance of this thesis lies in the examination of network externalities and their impact on the value capture of a healthcare platform, specifically the SamenKwiek platform. The thesis draws on seminal works such as Shapiro and Varian's "Information Rules: A Strategic Guide to the Network Economy" (1999) to establish the fundamentals of network externalities (in platforms).

The research also draws upon the NfX construction guide, an article authored by Nedo Bartels and Anna Schmitt, titled "Developing Network Effects for Digital Platforms in Two-Sided Markets - The NfX Construction Guide" (2022). The NfX construction guide offers a systematic approach to understanding and leveraging network effects in the design and development of

digital platforms in a two-sided market. By applying the guidelines presented in the article, this research aims to provide insights into how the SamenKwiek platform can capture maximum value through network externalities. These insights include the development of platform strategies which lead to positive network externalities. Which leads to the following research question:

What platform strategies create value, forming positive network externalities in a preventive two-sided e- healthcare platform?

2. THEORETICAL FRAMEWORK

2.1 Network externalities

The original idea of network externalities was referred to as the concept of positive effects that arise from more users using a certain product or service. (Katz and Shapiro, 1985). In this research, network externalities and network effects can be used interchangeably and have the same meaning. The same Katz and Shapiro state the existence of two different types of positive network externalities: direct and indirect network effects:

Direct network effects explain the value generated by the direct impact of the number of other participants on the service's quality (e.g., a phone only being useful when others use phones). Parker, Van Alstyne, and Choudary (2016) illustrate this example regarding phones: The first telephone would have been useless, since there was only one user/node. However, 2 nodes give 1 connection, 4 nodes give 6 connections and 8 nodes already give 28 connections.

Indirect network effects refer to more value creation of compatible complementary products, because of the number of users. (e.g., An app store for a phone will have more apps if there are more users, which will make it more valuable.)

One of the first classics in the field of knowledge about network externalities is a book of Shapiro C. & Varian H. R. (1999): *Information rules: a strategic guide to the network economy*. Which stated the following definition of the term network externalities: "The value of connecting to a network depends on the number of other people already connected to it." It consecutively states an important fact for this research: "This fundamental value proposition goes under many names: network effects, network externalities, and demand-side economies of scale."

Shapiro and Varian (1999) also state that network externalities are not only related to positive feedback loops, but also negative ones. In a market "the strong get stronger" but they state that the inevitable flip side is that "the weak get weaker." They even go as far to say: "When two or more firms compete for a market where there is strong positive feedback, only one may emerge as the winner". Showing how powerful this feedback loop can be in a positive and negative manner. This can not be directly translated from a pure business context to a healthcare context. But it shows the importance of the correct use of network externalities for a positive outcome.

According to Parker, Van Alstyne, and Choudary (2016), in a platform that works like SamenKwiek there would be two-sided network externalities. An example used is Uber, drivers attract drivers and drivers attract riders. This is the same with

SamenKwiek, more demand will attract more supply and vice versa.

2.2 Value capture with network externalities

A definition of the concept of value capturing is needed. Fehrer et al (2018) refers to it as the ability of a platform owner to appropriate a portion of the value that is created within the ecosystem (Fehrer et al, 2018).

Massa, Tucci, & Afuah, (2017) state in their paper "A critical assessment of business model research" that "there is general agreement that business models—as attributes of real firms—involve performing value-adding activities to create and/or capture value." This notion of value capture is relevant in our context of platforms, value capture in platform-based business models is closely tied to network externalities. As the user base of a platform grows, it attracts more participants and generates a virtuous cycle of increasing value.

Fehrer et al (2018) explains the "Logic for systemic value capture in platform business models." He gives three critical elements of the platform business model: network externalities, network complementarities, and transaction costs. The focus of this research is on one of the three elements: network externalities.

According to Fehrer et al (2018), when network externalities are positive, they create incentives to "herd" with others (e.g. taxi firms join the Uber network) which, in turn, can lead to one single platform ecosystem (or natural monopoly) dominating an industry (Amit and Zott, 2015).

2.3 Network externalities in platforms (platform design)

Anderson, Lopez, and Parker (2022) wrote a paper titled "Leveraging Value Creation to Drive the Growth of B2B Platforms". This paper offers valuable perspectives on value creation and network externalities that can inform the development of SamenKwiek.

Anderson et al. (2022) present a value creation framework that breaks down the total value for users on a platform into three components: standalone value, same-side value, and cross-side value.

Standalone value, as described by Anderson et al. (2022), refers to the inherent value of the platform that is independent of other participants. It is important to note that "none of this value depends on any other participants on the platform" (Anderson et al., 2022), indicating the self-contained benefits that customers can derive from using the platform.

According to Anderson et al. (2022), same-side value represents the value derived from interactions between participants on the same side of the platform. In the case of SamenKwiek, this dimension pertains to the connections and collaboration among customers who share similar health goals and interests. By fostering a sense of community and enabling peer support, the platform can enhance the overall value proposition for customers. Anderson et al. (2022) emphasize that "social networks such as Facebook create value to participants primarily by connecting them with other participants like themselves" (Anderson et al., 2022). This same-side value can contribute to user satisfaction and engagement, leading to increased platform usage. And ultimately, network externalities.

Cross-side value, as defined by Anderson et al. (2022), refers to the value derived from interactions of third-party participants on the platform. This is the most relevant for SamenKwiek since there is a lot of potential for cross-side value through partnerships with third-party providers. These providers would be the preventive healthcare providers. By integrating their services into the platform, the range of offerings can be expanded, providing additional value to customers. Anderson et al. (2022) emphasize the importance of third-party providers with the example of a smartphone, stating that "smartphone owners derive much of their value from the 3rd-party providers of applications (apps)" (Anderson et al., 2022). This cross-side value can further enhance the overall customer experience and drive platform adoption. This closely relates to the aforementioned example in 2.1 about indirect network effects. It shows how the creation of cross-side value can be the base of network externalities. When there are many 3rd party apps available, platform adoption will be easier, and subsequently more 3rd party apps will be created.

This leads us back to the question; how this cross-side value will be created and in what way can it create positive network externalities.

To answer this question in a systematic way, a paper was used which creates a framework:

Nedo Bartels and Anna Schmitt created a set of guidelines in their paper "Developing network effects for digital platforms in two-sided markets – The NfX construction guide" (2022). This paper shows a series of steps which can be executed to create an overview of the strategies of a platform and how they can result in certain values which create specific network externalities. Using this guideline will give a clear overview of which network externalities can be used and how they affect each other. The guideline looks as follows:

Step 1: Answering the three starter questions

The first step consists of answering three core questions about the platform:

- What type of asset does the digital ecosystem service focus on?
- Who are the asset providers of the digital platform?
- Who are the asset consumers of the digital platform?

These questions are answered, to gain a better understanding of the platform's key elements and the stakeholders involved.

Step 2: Determining marketing, onboarding, and retention strategies

To design effective virtuous cycles of network effects for the platform, strategies to target, attract, onboard, and retain both asset providers and asset consumers are established in this step. Utilizing the NfX-Box (a set of literature-backed strategies to create value) and other relevant frameworks to guide the development of strategies for each level, considering the following questions:

Level 1 – Target Group:

Which specific asset providers and asset consumers should be the primary focus of the platform?

Level 2 – Awareness:

How can the platform attract the attention of asset providers and asset consumers to the platform?

Level 3 – Onboarding:

How can the platform convince asset providers and asset consumers to actively participate in the platform?

Level 4 – Retention:

How can the platform ensure long-term retention of asset providers and asset consumers on the platform?

This part consists of selecting appropriate strategies from the NfX-Box or developing own strategies that align with the goals of the SamenKwiek platform, and the needs of potential users and providers while considering their practical implementation.

Step 3: Deriving core values for both market sides

Building on the strategies outlined in Step 2, step 3 consists of deriving the core values that will drive the network effects between asset providers and asset consumers on the platform. The goal is to identify the key benefits and value propositions that will attract and retain participants on both sides. It is important that these values align with the platform's objectives and form to the needs and preferences of the target market.

Step 4: Developing network effects based on identified values

In the final step, the focus will be on designing the virtuous cycles of network effects by leveraging the core values identified in Step 3. It consists of; 1. developing interactions that reinforce positive feedback loops between asset providers and consumers on the platform. And 2. Exploring how the actions of one side can lead to increased participation and benefits of the other side, which will ultimately create a self-reinforcing cycle of growth and network effects.

2.4 Network externalities in healthcare

According to Zhang, Chu, and Manchanda (2021), "Understanding the interplay between network effects and bargaining outcomes is crucial for online healthcare platforms seeking growth and profitability." Their study gives valuable insights into the factors affecting the growth and profitability of online healthcare platforms, especially in the context of bargaining processes and network effects. Although their research focuses on Chinese healthcare platforms, its theoretical contributions can be of contextual importance.

For SamenKwiek, leveraging network externalities is important to encourage user base growth and capture maximum value. According to Zhang et al. (2021), "Cross-network effects, which refer to the ability to induce more users on the other side of the platform to join, are a key determinant of bargaining power and contract terms." These cross-network effects (say something about cross value)

Zhang et al. (2021) suggest that platforms should plan to create a positive flywheel effect, where the growth of the user base on one side of the platform causes growth on the other side. According to the authors, "A positive flywheel effect can be achieved by offering compelling incentives for both healthcare providers and customers to join and actively participate in the platform."

Moreover, the platform should focus on continuous engagement and value creation for both healthcare providers and customers. According to Zhang et al. (2021), platforms should provide a seamless and user-friendly experience, personalized services, and relevant health information to foster stronger network effects and enhance user loyalty.

In The Netherlands, everyone is required by law to have a basic health insurance (Basisverzekering). This insurance covers essential medical services (Zorginstituut Nederland, 2023). These services also include things like physiotherapy and podiatry, which will be included in the first 20 service providers participating in the testing and improving of SamenKwiek. The fact that these services are covered by the basic health insurance, will lower the barrier for people to make use of them.

Nonetheless, some other activities available of SamenKwiek related to preventive healthcare, are not included in the basic health insurance. These are things like hiking groups, sports or coffee meetup mornings.

3. METHODOLOGY

3.1 Data collection

To collect data for the study, I conducted interviews with potential service providers who fit into the six categories of the first 20 service providers on the SamenKwiek platform. The selection of interviewees was based on their professional backgrounds and expertise related to the platform's target areas. The interviewees included two physiotherapists, one lifestyle coach, one board member of a football club, an employee of a company that helps people with disabilities integrate into society, and a chairperson of a foundation that organizes activities for the elderly. As for the consumer side, I conducted interviews with 5 elderly and a person with diabetes.

The process of reaching these individuals involved several steps. First, I conducted research to identify professionals and organizations within each category who had experience and knowledge relevant to the services offered on the SamenKwiek platform. I also got the contact details of some friends of my grandmother who would possibly be interested in being interviewed. I reached out to them through various means such as email, phone calls, and professional networking platforms. I explained the purpose of the study, the relevance of their expertise, and requested their participation in an interview.

The questions asked to the providers were the following:

- How would you generate the most interest in the platform? This question aimed to understand the potential strategies and incentives that could attract service providers to the platform. By exploring different methods of generating interest, the goal was to identify effective approaches that would resonate with the interviewees and potentially other providers and consumers.
- What is the best way to persuade you to actually become a provider on the platform? This question sought to uncover the key factors that would motivate service providers and consumers to actively participate in the platform. By identifying the elements that would expedite their decision-making process, the study aimed to find ways to onboard providers efficiently.
- What would make you continue to use the platform in the long term? In addition to good functionality and short-term results, also consider things such as special treatment due to early participation in the platform. This question focused on understanding the aspects that would contribute to long-term engagement and retention of service providers and consumers. By exploring factors beyond basic functionality and short-term benefits, the goal was to identify strategies that could foster ongoing commitment and satisfaction.
- Would you possibly enter into a long-term contract if the conditions are right? This question aimed to gauge the interviewees' willingness to enter into a long-term contractual agreement with the platform. Understanding their openness to such arrangements would provide insights into the potential feasibility and desirability of contractual relationships between the platform and service providers.

The questions asked to the consumers were the following:

- How would you generate the most interest in the platform?
- What is the best way to persuade you to actually become a consumer on the platform?
- What would make you continue to use the platform in the long term?
- Can you think of any more features the platform should have which would be of additional value for you?

3.2 Data analysis

The data from the interviews will be transcribed and manually analysed by use of finding common themes and marking them with different colors. This was done manually since the format of the interviews tended to be very different each time because it was often a flowing conversation. This way it was easier and more effective with this number of interviews.

The NfX construction guide was used with the acquired data from the interviews to create a fitting strategy for SamenKwiek which will enhance the chances of positive feedback loops in the form of network externalities. The NfX construction guide will also help create clear overview of the different feedback loops working together. This will be part of a design methodology creating a graphical representation of the different network externalities and what causes them.

4. FINDINGS

4.1 Step 1 – The starter questions

Like explained before, the first step of the NfX construction guide relates to gaining a better understanding of the platform's key elements and the main stakeholders involved.

Step 1: Answering the three starter questions

1. What type of asset does the digital ecosystem service of SamenKwiek focus on?

The SamenKwiek platform focuses on the brokering of (preventive) healthcare services between asset providers and consumers.

2. Who are the asset providers of the SamenKwiek platform?

Asset providers on the SamenKwiek platform are healthcare and activity providers

3. Who are the asset consumers of the SamenKwiek platform?

Asset consumers on the SamenKwiek platform are clients who need or want healthcare and/or activities to stay healthy.

4.2 Step 2 - Level 1 – Target group

To design effective virtuous cycles of network effects for the SamenKwiek platform, 4 levels of strategies have been developed with use of the NfX-Box (refer to the appendix for the NfX-Box strategies), literature and the findings of the interviews. This is part of step 2 of the NfX construction guide. Since SamenKwiek is still in development, a representative of the platform stated in the interview that for most of these levels, strategies haven't been developed yet.

Following will be two tables which show all final chosen strategies for both sides of the platform. They have been labeled on basis of the fact if it's for the provider (P) or consumer (C) side, which level of this step they are from, and the number of the strategy. So, strategy 1 for level 1 of the provider side would be P1.1. This is just a graphical representation of all the strategies, further explanations will follow.

Asset Providers (P)
Targeting geographical providers (P1.1)
Independent marketing via cost-free extra-tools (P2.1)
Partner-based marketing via local promotion activities (P2.2)
Independent marketing via content (P2.3)
Showing societal urge (P3.1)
Incentive to participate via payment (P3.2)
Incentive to participate via support service (P3.3)
Emotional bond via caring (P4.1)
Emotional bond via networking events (P4.2)

Table 1: Overview of all chosen/recommended strategies for the provider side (refer to the rest of section 4 for further explanations)

Asset Consumers (C)
Targeting geographical consumers (C1.1)
Independent marketing via cost-free extra-tools (C2.1)
Partner-based marketing via local promotion activities (C2.2)
Independent marketing via content (C2.3)
Incentive to participate via free first activity (C3.1)
Incentive to participate via support service (C3.2)
Economic bond via discount programs (C4.1)
Technical bond via innovative featuring (C4.2)

Table 2: Overview of all chosen/recommended strategies for the consumer side (refer to the rest of section 4 for further explanations)

The focus of level one was to find out which specific asset providers and asset consumers should be the primary focus of SamenKwiek. This helped narrowing down the characteristics of these asset providers and consumers, to help further create strategies for raising awareness (level 2), onboarding (level 3) and retention (level 4).

Following will be explanations on how and why these strategies were chosen and what they could exist of. It will also explain the likely effects these strategies will have. An additional “tradeoffs” part was added to each section to discuss what other strategies would have been plausible and why they were not chosen.

4.2.1 Target group strategy for asset providers

Level 1 consists of choosing one strategy for targeting. This is to create a clear focus on who to target and what the characteristics are of this group.

The strategy recommended is called “**Targeting geographical providers**” (P1.1). Which is among the list of 47 strategies of the NfX-Box. This particular strategy’s main focus is to target possible providers in a geographically limited area.

Given that the testing phase of SamenKwiek will commence in the region of Midden Gelderland, the adoption of this strategy

aligns with the existing plan of SamenKwiek. Additionally, there are several reasons why this strategy stands out as the optimal choice.

This strategy will help narrow down the focus, by focusing on a specific geographical region, such as Midden-Gelderland, SamenKwiek can concentrate its efforts and resources on understanding the local market dynamics and meeting the needs of the asset providers in the region. This knowledge and experience can be used to expand the area in the long-term.

Furthermore, this strategy can help build a strong local presence. This localized approach allows for more efficient engagement and communication, which will lead to a better understanding of the specific needs and preferences of the asset providers. It also creates room for the formation of partnerships with local healthcare providers, which can contribute to cross-side network effects.

The sense of community is very important according to two psychiatrists, a podiatrist and the chair of an organization which organizes activities for elderly to stay active. In the conducted interviews these interviewees all tell us that local adoption often gives them more willingness in contributing to a project like this.

Tradeoffs:

The next best possible strategy would have been “Old hands”, which refers to the focus on providers with existing knowledge in your field, who require little explanation and have experience. This is a strategy SamenKwiek is already aiming to use, the “Old hands” strategy would have accelerated the speed and smoothness of onboarding providers due to their familiarity with the field.

While the “Old hands” strategy may offer the advantage of quicker onboarding due to existing knowledge, it lacks the strategic advantages provided by targeting geographical providers. Additionally, in the situation of SamenKwiek, it will be very important that they grow the platform without excluding new providers, which are often more willing to join a new platform or project like this. Since they have been settled less deeply in their current systems and ways of doing things.

The chosen strategy, enables a deep understanding of the local market, fosters community engagement, and facilitates partnerships with local healthcare providers, all of which contribute to long-term success and scalability. Overall, by targeting geographical providers, SamenKwiek can leverage the benefits of a localized approach, creating a strong foundation for growth and ensuring a better alignment with the unique needs and preferences of asset providers in rural areas like Midden-Gelderland.

4.2.2 Target group strategy for asset consumers.

For the consumer side, the same strategy will be used but for asset consumers: “**Targeting geographical consumers (C1.1).**” This makes sense because asset providers and consumers find each other based on needs but geographical distance is of high importance. SamenKwiek also already has an established target consumer group consisting of elderly, obese people and people who suffer from diabetes type II. Especially for elderly transportation can be more difficult and therefore activities and healthcare services should be accessible nearby. That’s why the geographical focus strategy is extra relevant. This is also backed by three elderly women and one man above the age of 75 who stated in the interview that decent accessibility of these the activities is necessary for them to be able to participate.

4.3 Step 2 - Level 2 – Awareness

Following the establishment of the target group in Level 1, the next objective in Level 2 was to identify up to three specific

strategies that would effectively attract the attention of asset providers, as well as up to three strategies aimed towards asset consumers. This critical phase aimed to develop targeted approaches to raise awareness towards the offerings and opportunities of SamenKwiek.

4.3.1 Awareness strategies for asset providers

The first chosen strategy for raising awareness for asset providers is called “**Independent marketing via cost-free extra-tools (P2.1)**”. This strategy consists of “drawing attention to the platform by offering free basic tools for it. These services will always be cost free and can be used by any asset provider.” (Bartels, 2022)

During the conducted interview, the chair within an organization dedicated to organizing activities for the elderly expressed a noteworthy sentiment. Specifically, he emphasized that the availability of a service from SamenKwiek that facilitates the listing and updating of their activities on the platform would significantly augment their initial level of interest in the platform. This could be one of these cost-free extra services.

Another service which could be provided relates to the administration and integration of existing data and software, which emerged as a recurring topic during the interviews conducted. When introduced to a platform like SamenKwiek, these providers harbor apprehensions regarding the perceived complexity of seamlessly incorporating the platform into their current software infrastructure and data repositories, particularly pertaining to activities and client information. To alleviate these concerns, SamenKwiek could offer a service that facilitates integration, such as the development of application programming interfaces (APIs), enabling the smooth connection between their existing technological systems and the platform. By offering this support, SamenKwiek can greatly simplify the integration process for asset providers.

The second chosen strategy for raising awareness among asset providers is “**Partner-based marketing via local promotion activities (P2.2)**” This strategy involves ‘leveraging suitable local advertising partners, such as regional radio stations or urban newspaper publishers, to draw attention to the platform.’ (Bartels, 2022)

By collaborating with local radio stations or newspaper publishers, SamenKwiek can benefit from targeted advertising campaigns that specifically reach the desired audience of asset providers.

Local promotion activities allow SamenKwiek to tap into the existing networks and channels of these advertising partners, leveraging their established reach and credibility. This credibility seems to be an important factor for the developers of SamenKwiek. In their working canvas of May 2023, they mention in the Stimuli section that they want to focus on trust, in other words credibility.

The strategy of local promotion activities also enables SamenKwiek to leverage the positive attributes and reputation of these advertising partners. By associating with trusted local entities, the platform gains even more credibility and increases its attractiveness to asset providers.

Additionally, this strategy allows for localized targeting and customization of promotional efforts. The advertising partners can tailor their messages to resonate with the specific needs and preferences of asset providers in the region.

The third chosen strategy for raising awareness among asset providers is “**Independent marketing via content. (P2.3)**” This strategy involves “creating useful and free content to draw attention to the platform.” (Bartels, 2022) By offering valuable

content, SamenKwiek can establish itself as a trusted source of information and expertise in the field, attracting asset providers to explore the platform further. The content would be mostly about preventive healthcare, collaboration of healthcare providers and its effects.

During the interview, the board member of a football club emphasized the importance of informative content: “Having access to some information related to sports and preventive healthcare platform would definitely catch the attention of us, especially if it means we can expand our members.”

By creating content that tackles the challenges and interests of asset providers, such as articles, blogs, videos, or tutorials, SamenKwiek can demonstrate its understanding of their needs and provide practical insights. Furthermore, by offering a subscription to a newsletter or regular updates, SamenKwiek can create an ongoing relationship with asset providers and keep them informed about platform updates, relevant industry trends, and success stories. The podiatrist interviewed mentioned that relevant updates about the platform would be very helpful, especially if it’s still in development. This strategy leverages the power of content marketing to attract and engage asset providers by providing them with important information and positioning SamenKwiek as a trusted platform in the industry.

Tradeoffs:

While the strategies chosen for raising awareness among asset providers (independent marketing via cost-free extra-tools, partner-based marketing via local promotion activities, and independent marketing via content) offer unique advantages, there were other strategies that were also relevant but not selected due to their lower relevance in the specific context of SamenKwiek. One such strategy is “Independent marketing via cross-selling,” which involves expanding the platform through its own complementary products/services. While this strategy can maximize the utilization of existing customer relationships and resources, it may divert focus and resources away from the core platform offering. Given the early stage of SamenKwiek and the need to establish a strong foundation, the chosen strategies that prioritize awareness-building and localized promotion were considered more suitable.

4.3.2 Awareness strategies for asset consumers

The first chosen strategy for raising awareness among asset consumers is the same as strategy P2.1: “**Independent marketing via cost-free extra-tools. (C2.1)**”. Like explained before, these tools are not directly related to the core service but provide added value to the consumers. However, the approach for the consumer side will be different.

During the interviews with the elderly participants and the individual with diabetes, the relevance and importance of user-friendly tools that cater to their specific needs became apparent. The importance of the user-friendly experience already became apparent in section 2.4 of this research. Additionally, one of the elderly participants expressed, “Sometimes it's hard for me to navigate through online platforms, so having some help that make it easier for me to access and engage with the services would be fantastic.”

So, one of cost-free extra tool that SamenKwiek could provide is a phone call service. Employers associated with SamenKwiek can reach out to individuals who have expressed interest in specific activities and inform them when those activities become available. This personalized approach ensures that those who may have difficulty using the internet or prefer direct communication are still informed and have the opportunity to participate, even when they are not in a situation where a healthcare professional can advise them certain activities. This

tool would be particularly helpful for the elderly who may not be comfortable using the internet regularly.

The second chosen strategy for raising awareness among asset consumers is "**Partner-based marketing via local promotion activities. (C2.2)**" Like stated in the provider section, this strategy involves collaborating with suitable local advertising partners to promote the platform and reach the target audience effectively. However, for the consumer side a different approach is necessary, and this will include different promotions in different places.

One of the elderly interviewees stated that: "I often rely on local newspapers or radio stations to learn about events or services in my area." By working together with local advertising partners, SamenKwiek can use their established reach and credibility within the community. This could involve sponsored segments in local newspapers, radio advertisements, and partnerships with relevant community organizations. These targeted promotion activities can focus specifically on reaching the elderly, individuals with diabetes, or those struggling with obesity. These partnerships and targeted approaches increase visibility and credibility. Consequently, ensuring that awareness strategies are customized to the specific needs and interests of the target audience. This would result in increased interest in the platform.

To target individuals with diabetes, SamenKwiek can collaborate with diabetes clinics, health centers or local support groups for diabetes patients. These partnerships can include placing advertisements or distributing educational materials about the platform's offerings for managing diabetes-related activities. In the case of targeting individuals struggling with obesity, SamenKwiek can partner with fitness centers, wellness clinics or weight management support groups. Through these partnerships, promotional materials can be displayed at the facilities, and informational sessions can be conducted to highlight how SamenKwiek can assist in promoting physical activities, healthy lifestyle choices, and support for weight management. These collaborations and targeted approaches allow SamenKwiek to effectively reach and engage specific segments of the population, ensuring that the platform's services are tailored to their needs and interests.

The third chosen strategy is "**Independent marketing via content. (C2.3)**" This makes sense since P2.3 is the same strategy. These two can be combined since the content creation already exists. Different sections of the content would be focused on different aspects relevant for either the providers or consumers. Potential customers who want to learn more about the platform can access this content and engage further by registering or subscribing to a newsletter. This content can cover a number of different topics, such as health and wellness, social activities etc. By offering information and practical advice, SamenKwiek can attract asset consumers educationally, positioning itself as a trusted resource within the community.

Tradeoffs:

Independent marketing via direct sales was also considered as a potential strategy for raising awareness among asset consumers. This strategy involves approaching consumers directly without intermediaries, thereby intensifying the relationship with them. Direct sales would involve representatives from SamenKwiek reaching out to potential asset consumers through various channels such as phone calls, home visits, or community events. These interactions would provide an opportunity to explain the platform's benefits, address any concerns or questions, and establish a personal connection. By directly engaging with potential consumers, SamenKwiek can build trust and establish a stronger rapport, leading to increased awareness and participation.

However, these activities have potential benefits but also some tradeoffs, it will be very time consuming and cost intensive. It may be very challenging to reach a large group of potential consumers. Moreover, some consumers may prefer a more independent and self-driven approach to exploring and joining the platform, making direct sales less effective for those individuals. Lastly, this activity does not contribute to credibility and trust in the community as much as the other strategies.

4.4 Step 2 - Level 3 – Onboarding

Level 3 of step 2 its focus is all about onboarding, in what way SamenKwiek can convince asset providers and asset consumers to participate in the platform.

4.4.1 Onboarding strategies for asset providers

The first chosen strategy for onboarding of asset providers is not one from the list of strategies in the NfX-box, however it was created because of its importance to the platform and societal issues. The strategy is called "**Showing societal urge (P3.1)**". This strategy consists of making the potential providers ware of the societal importance of the platform. Due to the problem of aging in the Netherlands the pressure on healthcare providers is increasing and many of them recognize this problem. However, there is not much action yet to fix the problem.

An interviewed physiotherapist stated: "I think it's about intrinsic motivation, we all (healthcare providers) have to realize we need to work together to solve this problem." If SamenKwiek can show the interested healthcare providers the importance of collaboration for the healthcare sector and society in general, a big step towards onboarding will be made. A way SamenKwiek can show this is by creating overviews of the predictions what is going to happen in the coming years and show how this can affect society but also their job. This way the intrinsic motivation is created, and onboarding will be a lot easier.

The second strategy is called "**Incentive to participate via payment (P3.2)**". This payment would be in the form of subsidies for early asset providers on the platform. This is in line with the already existing strategy of SamenKwiek and it is an effective way to convince asset providers to onboard in the early stages of the platform. This strategy is already an active strategy by SamenKwiek, executed by an organization called Health Valley, they are giving out subsidies for asset providers willing to join and help develop the platform. The aim is to do this solely in those early stages, and when SamenKwiek starts to grow rapidly with the aimed network externalities, this will be stopped.

Multiple interviews show that subsidies are very interesting for many possible asset providers. A physiotherapist said: "A subsidy could create an incentive to say: "yes, I want to collaborate.""

A chair of an organization which organizes activities for elderly stated that a subsidy would definitely make it more interesting to join the platform, but he also stated that it should be easily obtained and not too much paperwork. So, it will be important that the protocol for the subsidies is relatively easy and understandable.

The third onboarding strategy for asset providers is "**Incentive to participate via support service (P3.3)**" Under this strategy, SamenKwiek offers support services to providers to help their onboarding process and ensure a smooth transition into the platform. These support services aim to simplify the onboarding procedures and assist providers in understanding the platform's features and functionalities.

Multiple interviews showed us the importance of this, two physiotherapists stated that they already work with a lot of systems, and that the same counts for many other healthcare providers. They said that the integration of a new platform should be easy and not too time-consuming. This strategy relates to and can build on strategy P2.1.

Tradeoffs:

Another alternative strategy is "Incentive to participate via exclusive access." This strategy aims to create a sense of exclusivity among providers by offering them exclusive access to the platform. While exclusivity can generate interest and curiosity, it may limit the overall reach and diversity of providers who could contribute valuable assets to the platform. It could also lead to a potential lack of innovation and collaboration if providers are restricted from participating on other platforms or networks.

4.4.2 Onboarding strategies for asset consumers

The first chosen strategy for onboarding asset consumers is "**Incentive to participate via free first activity (C3.1).**" SamenKwiek offers consumers the opportunity to engage in their first activity on the platform for free. This would only be applicable to an activity which is not covered in the basic health insurance. It can be seen as a sign-up bonus. This incentivizes users to experience the benefits and value of the platform firsthand without any initial financial commitment. By providing a no-cost trial of the platform's activities, SamenKwiek encourages consumers to explore and engage further. This strategy allows users to experience the platform's offerings and make an informed decision about continued participation. However, there is a tradeoff in that offering free activities incurs costs for SamenKwiek, and the sustainability of this strategy needs to be carefully managed.

The second strategy is "**Incentive to participate via support service (C3.2).**" By providing dedicated support services, SamenKwiek helps consumers navigate the onboarding process and facilitates their use of the platform. This strategy closely relates to strategy P3.3 These support services include assistance, training, and guidance to ensure a smooth transition and maximize user satisfaction. This strategy aims to enhance the user experience and reduce barriers to entry. It is backed by multiple interviewed possible asset consumers who show a common theme of finding the registration for such a platform scary and difficult, especially the elderly.

Tradeoffs:

While there are other alternative strategies, two strategies were chosen for onboarding asset consumers based on their alignment with SamenKwiek's goals and the insights gathered from interviews. These selected strategies aim to incentivize participation and provide support services. One alternative strategy that has been considered is "Incentive to participate via exclusive access." This strategy would involve offering exclusive access to certain activities or features of the platform to incentivize consumers to join. Like explained in 4.4.1, while exclusivity can create a sense of curiosity and desirability, it may also limit the overall reach and inclusivity of the platform for series of reasons.

4.5 Step 2 - Level 4 – Retention

Level 4 of step 2 is about retention; it focuses on how to retain the asset providers and consumers on the long term. This is important for longevity of the platform and gives off a very important message to possible new asset consumers and providers when the current ones have been using the platform for a long period of time

4.5.1 Retention strategies for asset providers

The first chosen strategy for the retention of asset providers is called "**Emotional bond via caring (P4.1)**". Using this strategy, SamenKwiek would engage its providers by offering comprehensive care services to providers so that they feel valued in the long term. This would result in an emotional connection between SamenKwiek and its asset providers, creating a sense of trust, loyalty, and long-term commitment. By offering comprehensive care services, SamenKwiek goes beyond the transactional nature of the platform and shows a genuine concern for the well-being of its providers.

In multiple interviews a common theme appeared regarding the importance of this caring. They stated that they think it is important that their feedback is used to create a better platform based on their needs.

Comprehensive care services consist of a number of initiatives designed to support the providers on both personal and professional levels. SamenKwiek recognizes that providers are greatly important to the success of the platform and acknowledges their important contributions to SamenKwiek. Thus, the platform aims to create an environment where providers feel cared for and appreciated.

Furthermore, SamenKwiek can facilitate opportunities for professional development. This can be achieved through education programs and workshops. By investing in the ongoing education and skill development of its providers, SamenKwiek shows an interest in their professional improvements and makes sure they provide high quality services.

In addition to comprehensive care services, SamenKwiek can create channels of open communication and feedback. This makes sure providers can express their concerns, provide suggestions, and actively participate in shaping the platform's future. By actively listening to providers' feedback and using their ideas, SamenKwiek shows that their opinions matter and are of value in driving the success of the platform.

The second chosen strategy is called "**Emotional bond via networking events (P4.2)**". It consists of SamenKwiek "binding providers by the organization of creative and socially respected networking events." (Bartels, 2022) The providers will associate a positive experience and good feeling with the platform and get an opportunity to meet new people from their field of work.

The emotional bond via fun networking events strategy aims to create an enjoyable and social environment for providers, where they can relax, connect, and have a great time. By organizing entertaining events such as for example a dinner show, SamenKwiek creates positive emotional associations and strengthens the provider's connection to the platform. The fun and interactive nature of these events contribute to a sense of community, making providers feel valued and motivated to continue their engagement with SamenKwiek.

Something big like a dinner show is not something SamenKwiek should do very often, but it is a good example of a creative way to organize a networking event. In reality smaller scale networking events can be done more regularly.

Tradeoffs:

Another strategy related to contractual bonding was researched. This strategy would be a very effective way for SamenKwiek to retain their asset providers. However, the interviews showed that almost none of the possible asset providers would be willing to sign a contract for a multiple-year deal. They state that they first want to see the platform develop and turn in to a success story.

4.5.2 Retention strategies for asset consumers

The first chosen strategy for the retention of asset consumers is called “**Economic bond via discount programs (C4.1)**”. This strategy consists of “the asset broker binds its consumers by rewarding their loyalty in the form of bonus programs/discounts. The reward also creates an emotional relationship with the platform.” (Bartels, 2022). These discounts could be in the form of rewards after a certain amount of preventive healthcare activities. A reward could for example be discount on a next activity or one free activity.

During the interviews, the elderly participants expressed their interest in staying active and engaged in preventive healthcare activities. They highlighted the need for incentives and rewards to maintain their motivation and commitment to the platform. The economic bond via discount programs strategy directly addresses this by offering bonus programs and discounts as a way to reward loyalty and encourage continued participation in preventive healthcare activities.

The second strategy chosen is called “**Technical bond via innovative featuring (C4.2)**”. This strategy consists of “the asset broker engages its consumers by regularly providing new and unique features and recommendations.” (Bartels, 2022). This strategy aligns with the feedback received during the interviews, where potential asset consumers showed their desire for continuous improvement and the availability of new features on the platform.

Through the technical bond via innovative featuring strategy, SamenKwiek can engage its consumers by regularly introducing exciting new features that enhance their experience. This while staying at the front of technological advancements in the e-healthcare industry.

During the interviews, the potential asset consumers mentioned the importance of convenience, ease of use, and access to the handy tools. They emphasized the need for a user-friendly interface and features that address their specific healthcare needs. This strategy addresses these things by continuously introducing new functionalities, personalized recommendations, and improved user experiences. By offering innovative features such as personalized health monitoring, interactive educational content, data analysis, and for example apps for wearable devices or smart home technologies, SamenKwiek can provide its asset consumers with a comprehensive and engaging preventive healthcare solution. These advancements not only contribute to the effectiveness and efficiency of the platform but also keep the asset consumers motivated and excited about their health journey.

Tradeoffs:

A considered alternative strategy was “Emotional bond via experience shopping” This consists of “The asset broker binds its consumers by offering services that the consumers associate with positive impressions and experiences. The positive perception of the consumers towards the platform is thus actively influenced.”. While creating positive impressions and experiences is important, it may not directly address the specific needs of preventive e-healthcare. The focus of SamenKwiek is to empower asset consumers in their healthcare journey, and the technical bond via innovative featuring strategy aligns better with this objective. By continuously introducing new functionalities and personalized recommendations, SamenKwiek ensures that users have access to the latest tools, resources, and a user-friendly interface, ultimately enhancing their preventive healthcare experience.

4.6 Step 3 – Derived values

Step 3 of the NfX construction guide focuses on deriving corresponding values from the chosen strategies for both the asset providers and asset consumers. “The identified values and linkages between each market side and the asset broker represent the direct network effects because the derived values mainly influence the needs of one market side.” (Bartels, 2022).

Following are the derived values:

For Asset Providers:

Strategy: Independent marketing via cost-free extra-tools (P2.1) *Derived Value:* **Simplified integration process through free basic tools.** *Explanation:* By offering free tools for listing and updating activities, as well as facilitating integration with existing data and software, SamenKwiek can attract asset providers by simplifying their interaction with the platform.

Strategy: Partner-based marketing via local promotion activities (P2.2) *Derived Value:* **Increased credibility and exposure through collaboration with local advertising partners.** *Explanation:* By leveraging trusted local advertising partners, SamenKwiek can enhance its credibility and reach among asset providers, resulting in increased interest in the platform.

Strategy: Independent marketing via content (P2.3) *Derived Value:* **Positioning as a trusted source of information and expertise in the field.** *Explanation:* By creating valuable content related to preventive healthcare, collaboration of healthcare providers, and other relevant topics, SamenKwiek can establish itself as a trusted platform, attracting asset providers through the provision of practical insights and knowledge.

Strategy: Showing societal urge (P3.1) *Derived value:* **Increased intrinsic motivation for healthcare providers to collaborate and solve societal issues related to aging and healthcare.** *Explanation:* By highlighting the societal importance of the platform and demonstrating the need for collaboration, SamenKwiek can motivate healthcare providers to join the platform and contribute to solving the problem of aging in the Netherlands.

Strategy: Incentive to participate via payment (P3.2) *Derived value:* **Financial incentive through subsidies for early asset providers.** *Explanation:* Offering subsidies as an incentive during the early stages of the platform can attract asset providers by providing financial support and reducing the perceived risks of participation. The ease of obtaining subsidies and minimal paperwork is crucial for this strategy.

Strategy: Incentive to participate via support service (P3.3) *Derived value:* **Simplified onboarding process and assistance through support services.** *Explanation:* By offering support services, SamenKwiek aims to streamline the onboarding process for asset providers and help them understand and integrate with the platform's features and functionalities. This strategy reduces the time and effort required for providers to join the platform.

Strategy: Emotional bond via caring (P4.1) *Derived value:* **Emotional connection and long-term commitment from asset providers.** *Explanation:* By offering comprehensive care services, SamenKwiek demonstrates a genuine concern for the well-being of its providers. This strategy creates an emotional bond, trust, and loyalty by valuing and appreciating the providers. The platform also focuses on professional development opportunities to enhance the quality of services provided.

Strategy: Emotional bond via networking events (P4.2) *Derived value:* **Positive experiences and strengthened connections with the platform.** *Explanation:* Organizing creative and

socially respected networking events, such as dinner shows, creates enjoyable and social environments for providers. These events promote positive emotional associations and foster a sense of community. By facilitating opportunities for providers to meet new people from their field of work, SamenKwiek strengthens the provider's connection to the platform.

For Asset Consumers:

Strategy: Independent marketing via cost-free extra-tools (C2.1) *Derived Value:* **Enhanced accessibility and personalized assistance through phone call services.** *Explanation:* By offering a phone call service, SamenKwiek ensures that individuals who may have difficulty using the internet or prefer direct communication can still access and engage with the platform's services effectively.

Strategy: Partner-based marketing via local promotion activities (C2.2) *Derived Value:* **Customized and targeted promotional efforts reaching specific segments of the population.** *Explanation:* By collaborating with local advertising partners and relevant community organizations, SamenKwiek can effectively reach and engage target audiences, such as the elderly, individuals with diabetes, or those struggling with obesity, by tailoring promotional activities to their needs and interests.

Strategy: Independent marketing via content (C2.3) *Derived Value:* **Education and valuable information for asset consumers, positioning SamenKwiek as a trusted resource.** *Explanation:* By creating content covering various topics, such as health and wellness, social activities, and more, SamenKwiek can attract asset consumers by offering informative and practical advice, establishing itself as a reliable source within the community.

Strategy: Incentive to participate via free first activity (C3.1) *Derived value:* **No-cost trial of a platform's activity for consumers.** *Explanation:* Offering a free initial activity, especially if it's not covered by basic health insurance, incentivizes consumers to explore the platform's benefits without any financial commitment. This strategy allows users to experience the value of the platform firsthand and make informed decisions about continued participation.

Strategy: Incentive to participate via support service (C3.2) *Derived value:* **Dedicated support services for consumers during the onboarding process.** *Explanation:* Providing dedicated support services helps consumers, particularly the elderly, overcome barriers and navigate the registration process. This strategy aims to make the onboarding experience user-friendly and less intimidating, enhancing user satisfaction and encouraging participation.

Strategy: Economic bond via discount programs (C4.1) *Derived value:* **Loyalty and emotional relationship through bonus programs/discounts.** *Explanation:* By offering bonus programs and discounts, SamenKwiek rewards the loyalty of its asset consumers. These incentives maintain motivation and commitment to preventive healthcare activities. Discounts can be provided after a certain number of activities, encouraging continued participation and fostering an emotional bond with the platform.

Strategy: Technical bond via innovative featuring (C4.2) *Derived value:* **Engagement and satisfaction through regular introduction of new features.** *Explanation:* SamenKwiek engages its asset consumers by regularly providing new and unique features and recommendations. By continuously improving the platform and staying at the forefront of technological advancements, SamenKwiek addresses the consumers' desire for convenience, ease of use, and access to handy tools. This strategy enhances user experiences, addresses

specific healthcare needs, and keeps the asset consumers motivated and excited about their health journey.

4.7 Step 4 – Network externalities

Step 4 revolves around the act of examining how the growth of asset providers can drive growth among asset consumers, and the other way around. All derived values have from the previous sections which came from the chosen strategies have been examined. Subsequently, a visualization was created, It is possible that this creates new values. Values that do not support the creation of a two-sided network effect can be eliminated. The goal of this step is to evaluate the overall framework to determine if the implementation of two-sided network effects has been accomplished effectively. A figure has been created (Fig. 1) to show how these network effects cohere. This is the final finding of the NfX construction guide and should answer the research question.

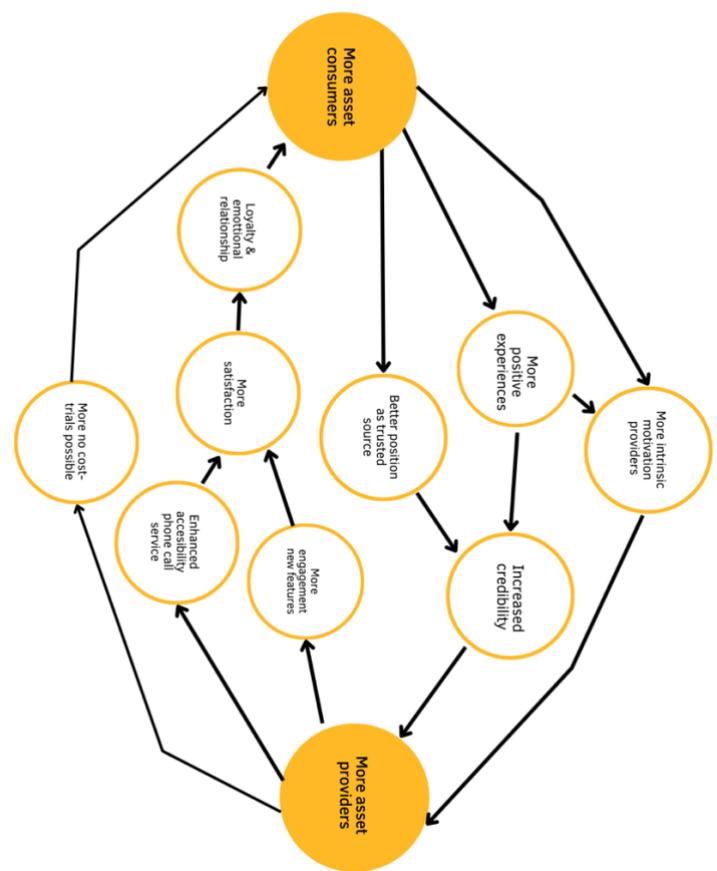


Figure 1: Overview of all final network externalities

The upper portion of the figure illustrates the creation of network externalities for more asset producers, while the lower portion represents asset consumers. Each bubble in the figure corresponds to a derived value (4.6) resulting from the recommended strategies. By following the arrows, the positive influences of these derived values can be observed. The explanations for each bubble are as follows:

The bubble labeled "More intrinsic motivation providers" is linked to the derived value of "**Increased intrinsic motivation for healthcare providers to collaborate and solve societal issues related to aging and healthcare.**" As shown in the figure,

this value is positively affected by an increase in asset consumers. This is because it demonstrates the platform's impact and societal value, which in turn attracts more asset providers.

The intrinsic motivation of the asset providers also gets positively influenced by 'more positive experiences', which is the derived value of "**Positive experiences and strengthened connections with the platform**". This shows the worth of the platform even more to the asset providers of the platform, it shows what SamenKwiek can do for people and success stories of other asset providers, and how that can affect their job and society in the long term.

More positive experiences also lead to an 'increased credibility' of the platform. This comes from strategy P2.2. Increased credibility is also positively influenced by a better position as a trusted source, which comes from "**Positioning as a trusted source of information and expertise in the field**". By being seen as a trusted source, the credibility also increases. Like seen in the figure, this then ultimately leads to more asset providers.

After more asset providers, the figure continues its loop to the other side, which ultimately increases the number of asset consumers. Firstly, more asset providers lead to "more engagement, more features", which is derived from "**Engagement and satisfaction through regular introduction of new features**". More asset providers also lead to more room for engagement and ultimately satisfaction because of new features on the platform.

More asset providers also lead to an "enhanced accessibility of the phone call service", which comes from "**Enhanced accessibility and personalized assistance through phone call services**". If there are more asset providers, there are more possible activities on the platform which can be recommend suitably to the right asset providers. These two values then then result in "more satisfaction", which is the cause of more "loyalty & emotional relationships"

Finally, more asset providers create opportunities for "more cost-free trials" derived from "**No-cost trial of a platform's activity for consumers.**" This is because an increased number of asset providers makes it easier to accommodate cost-free trials on the platform. Moreover, more asset providers provide greater financial capacity for conducting these trials, resulting in an influx of asset consumers.

Overall, this figure illustrates the interconnectedness between asset producers and consumers, showcasing how strategies and its derived values aimed at one side of the platform can positively influence and attract stakeholders on the other side, thereby creating network effects and fostering platform growth.

5. DISCUSSION AND CONCLUSION

This thesis conducted research on basis of 13 interviews to answer the research question: *What platform strategies create value, forming positive network externalities in a preventive two-sided e-healthcare platform?*

The findings of this thesis highlight the importance of leveraging derived values to create positive network externalities and drive the growth of a two-sided e-healthcare platform like SamenKwiek. By understanding and implementing the identified strategies, SamenKwiek can enhance its value proposition to both asset providers and asset consumers, ultimately leading to increased engagement and growth of the platform.

The derived values for asset providers, such as simplified integration processes, financial incentives, emotional bonds, and positioning as a trusted source of information, contribute to

attracting and retaining healthcare providers on the platform. These values address their practical, financial, and emotional needs, fostering a sense of commitment and loyalty. Similarly, the derived values for asset consumers, including enhanced accessibility, targeted promotions, educational resources, no-cost trials, dedicated support services, and loyalty programs, contribute to attracting and retaining consumers on the platform. These values address their accessibility, informational, and emotional needs, fostering engagement and satisfaction. By strategically implementing these derived values and continuously improving the platform's offerings based on user feedback, SamenKwiek can create a positive feedback loop, leading to the growth of the user and provider base. This growth, in turn, enhances the platform's value proposition, further attracting users and providers and reinforcing positive network externalities.

6. ACKNOWLEDGMENTS

I want to show my gratitude to all the interviewees who wanted to take part in the research and share their knowledge, and also Ariane von Raesfeld Meijer who guided me in this process. They were all key factors in being able to complete this thesis.

7. REFERENCES

- Amit, R. and Zott, C. (2015), "Crafting business architecture: the antecedents of business model design", *Strategic Entrepreneurship Journal*, Vol. 9 No. 4, pp. 331-350.
- Anderson, Edward G. and Lopez, Jose and Parker, Geoffrey, *Leveraging Value Creation to Drive the Growth of B2B Platforms* (March 17, 2022).
- Bartels, N.A., & Schmitt, A. (2022). *Developing network effects for digital platforms in two-sided markets – The NfX construction guide*.
- Druradmin. (2022). *Homepage - dRural*. Drural.Drural.eu
- Fehrer, J. A., Woratschek, H., & Brodie, R. J. (2018). *A systemic logic for platform business models*. *Journal of Service Management*, 29(4), 546-568.
- Hagiu, A., & Wright, J. (2020). *Multi-sided platforms*. *Harvard Business Review*, 98(6), 114-123.
- Katz, M. L., & Shapiro, C. (1985). *Network externalities, competition, and compatibility*. *American Economic Review*, 75(3), 424-440.
- Massa, L., Tucci, C. L., & Afuah, A. (2017). *A critical assessment of business model research*. *Academy of Management Annals*, 11(1), 73–104. <https://doi.org/10.5465/annals.2014.0072>
- Ministerie van Volksgezondheid, Welzijn en Sport. (2023, 21 juni). *Home - Zorginstituut Nederland*. <https://www.zorginstituutnederland.nl/>
- Shapiro C. & Varian H. R. (1999). *Information rules : a strategic guide to the network economy*. Harvard Business School Press.

Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). *Platform revolution: How networked markets are transforming the economy--and how to make them work for you.*

WW Norton & Company.

Williamson, O. E. (1975). *Markets and hierarchies: Analysis and antitrust implications.* Free Press.

World Health Organization. (2019). *Delivering quality health services: A global imperative for universal health coverage.* World Health Organization

Zhang, X., Chu, J., & Manchanda, P. (2021, November). *Online Healthcare Platform Evolution: The Interplay of Bargaining and Network Effects.*

8. APPENDIX

8.1 NfX- Box provider side

Category: Target Provider

- Industry-specific providers
- Geographical providers
- Uptown providers
- Low-cost providers
- Old hands
- Community
- Giant user
- Idol

Category: Marketing & Awareness for Providers

- Independent marketing via cost-free extra-tools
- Independent marketing via direct sales
- Independent marketing via events
- Independent marketing via barter
- Independent marketing via sponsoring
- Independent marketing via content
- Independent marketing via cross selling
- Independent marketing via print and online
- Partner-based marketing via local promotion activities
- Partner-based marketing via specialization
- Partner-based marketing via cross selling
- Partner-based marketing via rent-a-shelf
- Partner-based marketing via rent-out-a-shelf
- Partner-based marketing via private affiliation
- Partner-based marketing via business affiliation
- Partner-based marketing via exclusive offers

Category: Onboarding of Providers

- Incentive to participate via payment
- Incentive to participate via starting credit
- Incentive to participate via testing phases
- Incentive to participate via cost-free basic products

- Incentive to participate via cooperation-discount
- Incentive to participate via recruitment-discount
- Incentive to participate via content-registration
- Incentive to participate via exclusive access
- Incentive to participate via support service

Category: Retention of Providers

- Emotional bond via emotional lock-in
- Emotional bond via networking-events
- Emotional bond via experience shopping
- Emotional bond via VIP-status
- Emotional bond via caring
- Psychological bond via convenience-based lock-in
- Psychological bond via FOMO (Fear-of-missing-out)
- Contractual bond via contractual lock-in
- Technical bond via technical lock-in
- Technical bond via innovative featuring
- Economic bond via token-based credit
- Economic bond via lock-in-mechanism (exit charges)
- Economic bond via economic lock-in (time-based)
- Economic bond via discount programs

8.2 NfX- Box consumer side

Category: Target Provider

- None
- None
- Industry-specific consumers
- Geographical consumers
- Free-spending consumers
- Thrifty consumers
- Old hands
- Community
- Giant user
- Idol

Category: Marketing & Awareness for Consumers

- Independent Marketing: The asset broker draws attention to itself through activities that serve to generate attention for the platform. The asset broker carries these out himself from start to finish. The entire effort and control is in his hands.

- Independent marketing via cost-free extra-tools
- Independent marketing via direct sales
- Independent marketing via events
- Independent marketing via sponsoring
- Independent marketing via content
- Independent marketing via cross selling
- Independent marketing via print and online

- Partner-based marketing: The asset broker draws attention to his platform through partners by giving them the impetus to make the platform known to him. He focuses on a small amount of "spreaders" who subsequently, consciously or unconsciously, do the marketing work. The overall effort and control is small.

- Partner-based marketing via local promotion activities
- Partner-based marketing via specialization

- Partner-based marketing via cross selling
- Partner-based marketing via rent-a-shelf
- Partner-based marketing via rent-out-a-shelf
- Partner-based marketing via private affiliation
- Partner-based marketing via business affiliation
- Partner-based marketing via exclusive offers

Category: Onboarding of Consumers

- Advance of money: The asset broker convinces its consumers by offering a free initial phase of platform use. If necessary, offer an additional monetary starter fee.
 - Incentive to participate via starting credit
 - Incentive to participate via testing phases
 - Incentive to participate via cost-free basic products
- Discount: The asset broker convinces its consumers to participate in the platform by offering discounts on the fees to be paid for the use of the platform.
 - Incentive to participate via cooperation-discount
 - Incentive to participate via quantity discount
 - Incentive to participate via friendship discount
- Special treatment: The asset broker convinces its consumers to participate in the platform by offering individual treatments and special offers when using the platform.
 - Incentive to participate via content-registration
 - Incentive to participate via exclusive access
 - Incentive to participate via support service

Category: Retention of Consumers

- Emotional bond: The asset broker binds his consumers through sensory experiences, feelings of pleasure or variety.
 - Emotional bond via emotional lock-in
 - Emotional bond via networking-events
 - Emotional bond via experience shopping
 - Emotional bond via VIP-status
 - Emotional bond via network-care
- Psychological bond: The asset broker binds its consumers by promoting feelings such as belonging, acceptance, or reputation.
 - Psychological bond via convenience-based lock-in
 - Psychological bond via FOMO (Fear-of-missing-out)
 - Psychological bond via social standards
- Contractual bond: The asset broker binds its consumers by contractually demanding this.
 - Contractual bond via contractual lock-in
- Technical bond: The asset broker binds its consumers by ensuring their long-term retention through the provision of unique functionalities and functional added values.
 - Technical bond via technical lock-in
 - Technical bond via innovative featuring
 - Technical bond via multiuser-functionality
- Economic bond: The asset broker binds its consumers by achieving an advantageous price-performance ratio through economic added value.
 - Economic bond via token-based credit
 - Economic bond via lock-in-mechanism (exit charges)
 - Economic bond via economic lock-in