

NEPHROFLOW

Belgium, www.nephroflow.com

An app developer discovered a new niche market and evolved from being a service provider to becoming a product developer. Thanks to their open innovation collaboration with a lead user they gained fast access to the whole value chain which was vital for gaining acceptance for their new product

Executive Summary

NephroFlow provides a mobile, user-friendly platform that supports medical staff in their daily routines in the dialysis unit. It was developed in close collaboration with nephrologists and dialysis personnel. This tool drastically reduces workflows, costs and error margins in treatments, allowing for better and more efficient patient care. This open innovation case started as a collaboration with one hospital as a lead user. It led to new business opportunities with other hospitals. Currently, the company invests in marketing the product to dialysis centres in international markets.



CASE N° : SD40

SECTOR: MEDICAL ACT

TECH INTENSITY: HIGH-TECH

LIFE CYCLE STAGE: SCALE-UP

INNOVATION VECTORS: PRODUCT, SERVICE

01 PARTNERS: PSR, LARGE CORPORATION, LEAD USERS/CUSTOMERS

KEYWORDS: Medical, user friendly platform, hospital, development in close collaboration, business development, change business model, service provider, product provider

- BACKGROUND FRAMEWORK
- INNOVATION CHALLENGE & MARKET OPPORTUNITIES
- OI TRAJECTORY
- BUSINESS IMPACT
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NephroFlow[®]

BACKGROUND

In 2013 four associates started a mobile app development company. The company grew to 8 people and had small projects in different sectors. In the course of the described open innovation project the company went from a service company to a product company (laid a number people off and focused 100% on the development, co creation and commercialization of their product – an ICT platform for dialysis rooms at hospitals).

In future the company plans to expand the functionalities of their solution to be able to take advantage of larger market opportunities (support for the patient and carer). They are currently negotiating with different hospitals in Belgium and internationally to gain further market penetration.

INNOVATION CHALLENGE & MARKET OPPORTUNITIES

The company initially provided services, such as mobile application development in different sectors. Since the competitive landscape was saturated and Nephroflow had no particular USP, they needed to re-invent themselves and develop a new strategic business offering.

Hospital systems are slow and outdated which leads to lost time and efficiency in reporting routine dialysis tasks. Thanks to some of the team members' experience in the medical field, they identified the digitalization of the processes of dialysis rooms in hospitals as an opportunity that could bring a valuable solution to current problems.

OPEN INNOVATION TRAJECTORY

Concept development

Nephroflow had carried out a small project at the AZ Sint Lucas hospital in Belgium on digitalization at the request of the nephrology department. This initial project was funded mostly by the AZ Sint-Lucas, with a little help from regional funding by IMEC (€50 000). It led to a close collaboration with personnel and doctors which enabled the

SME to understand further opportunities for optimizing the system.

PROCESS

- The needs were captured at the hospital. The initial input to the team was provided by doctors (e.g. administering medication, prescriptions... etc.).
- The concept was created in close collaboration with the ICT department of the hospital, the doctors and personnel.
- To have a fully valid concept the team followed/observed all the steps in the dialysis process themselves. A single step could take several days to be analyzed.
- IMEC Istart offered coaching and support during the concept design.

Thanks to the good working relationship established with the staff, the process went very smoothly. Both parties worked together closely at the same location to come up with a good solution.

CONCEPT

The goal of the tool was to digitalize all the processes (work, care protocols...), recommend actions and ask questions to the person carrying out the dialysis. The tool needed to be anchored in the workflow of the personnel. After six months they came up with the concept of a mobile app (a user-friendly platform that supports medical staff in their daily routines in the dialysis rooms with the aim of drastically reducing workflows, costs and error margins in treatments, allowing for better and more efficient patient care).

The concept had the potential to become a standardized platform for different national –and even foreign hospitals. The improvements in efficiency could lead to ~ 60 minutes of time savings per nurse per shift. In a reference hospital with 150 dialysis patients (currently operating with 50 nurses) this could save the hospital approximately €200 000 annually. It also made it easier to meet accreditation requirements (as the system automatically logs all relevant information) and increased communication, patient safety and quality of care.

The development process, IPR and competition strategy

After the concept phase prototypes were built and it took more than a year to test and iterate with different versions. It was a process in which both partners collaborated closely. Technical and usability improvements were discovered and implemented over the different prototypes. Both parties communicated closely together throughout this process.

Field tests by the hospital partner took place at a very early stage by involving two nurses. After their initial testing and feedback the system was altered and expanded. The next round involved an 8-person nursing team using and testing the app full-time. After about 1.5 years the partners set up a big trial at the hospital for all data to be inserted in the old and new system at the same time.

During the development, the associates contacted other hospitals to demonstrate that the app could also solve their problems. It appeared to respond to a mainstream challenge. The value of the new solution was recognized as being able to alleviate an administrative burden and provide a link to real-time data to facilitate communication. In view of the considerable time spent by nurses on each dialysis patient, improvements to efficiency can have a large financial impact on the hospital's costs. For a reference hospital of 50 nurses, it was estimated that cost savings of €200 000 could be achieved by improving efficiency by approximately 12%.

At that point, Nephroflow decided to change their business model, restructure the company and focus on this one product.

All IP co developed with AZ Sint Lucas is owned by NephroFlow. The hospital was satisfied with the increased efficiency of their system and the improvements created in their process flow.

The USP brought by the digitalization of hospital processes (work, care protocols...) offered exceptional cost and efficiency benefits (>10% time savings for nurses) as well as additional recommended actions and questions to guide the staff member carrying out the dialysis.

Commercialization and follow-up

The app has been in use at AZ Sint Lucas since August 2015. In the meantime, Nephroflow has been actively exploring opportunities to roll out the app internationally. To gain more market traction they focused on building new features, such as remote monitoring (doctors following their patients from home). To speed up this process and to access the German market of dialysis centres the West Flemish investment group (Pollet Water Group – www.polletwatergroup.com) was acquired as a partner and investor (providing a €500 000 growth capital investment and access to a business network in the target market segment). The investment group also had an invested stake in two German firms (DWA and one other) which were active in the water treatment in dialysis at hospitals. Nephroflow hoped to use this network to get a foothold in this market.

The company went from being a service provider to a product provider (from selling man-hours to selling an IT platform). Some original staff members did not fit in the new company model and had to be laid off.

The IP rights belong to Nephroflow. This was negotiated at the start of the development. The hospital was driven by finding a more efficient dialysis process, which took up a very significant share of their staff resources. (One dialysis patient often requires 12 hours or more per week from staff for their treatment.) The case of AZ Sint Lucas hospital is used as a reference for marketing purposes. Nephroflow is actively talking to national and foreign hospitals. The market potential in Flanders is 27 dialysis centres and 1 000 centres in Germany.

The first functioning product has been completed. The current focus is on sales and internationalization. Further platform upgrades with new functionalities will be considered at a later stage. These include making the platform more user-friendly, increased availability on mobile devices and allowing doctors to monitor their patients at home.

BUSINESS IMPACT

The SME acquired knowledge and experience to become a specialized market player in the medical sector. Previously, Nephroflow was a high-level generalist providing rapid top-level solutions. The company undertook product development based on an in-depth understanding of customer and user needs. This was helped by extensive case observations in the hospital to develop the product concept.

During their open innovation collaboration, the company learned to investigate customer needs in detail and work with lead users. They were able to translate specific lead user requirements into a standardized product which could fit the average player in the industry. After working with AZ Sint Lucas on implementing an ideal solution, Nephroflow expanded the platform to suit the uses of other hospitals and potential users. Nephroflow is currently in negotiation with 15 more hospitals in Belgium to implement their system. Three are at an advanced stage of negotiation and a deal is expected to be signed soon. The next step will be internationalizing the package and targeting hospitals abroad.

The impact of the open innovation on the company's business consisted of:

- The development of a unique, innovative software solution for dialysis centres and hospitals;
- IPR owned by Nephroflow;
- A product offering significant efficiency gains:
 - The tool gives nurses more time with patients (due to >10% overall gains in productivity);
 - Actively supports them in unforeseen circumstances. The system logs all activity and facilitates planning, preparation, treatment, monitoring and administration. This leads to increased transparency, clear instructions and fewer mistakes.

As the company is still in an early life-cycle stage, they are not yet profitable and rely on capital investments. They have started commercial negotiations with other hospitals and are making an effort to internationalize their platform. As a result, they hope to become profitable within a fairly short time-frame.

LESSONS LEARNED

This case shows that open innovation can trigger a shift from being a service provider to a product developer which at the same time offers more business potential.

Main lessons learned:

The lead user/ partner can give significant support to multiple innovation processes within the SME (especially a start-up with limited market experience). It can:

- Provide insights and understanding of the needs of the whole market (how to improve efficiency in the dialysis process).
- Provide access to relevant networks (other hospitals, lead users) for the market validation. The entire value chain (in this case not only doctors but also patients, nurses, etc.) can be easier to access through a partner. There are fewer concerns about confidentiality; trust is easier to gain (e.g. close personal and working relationships with the AZ Sint-Lucas made it possible to obtain access to other stakeholders in the value chain which would have been more difficult and taken more time to achieve otherwise).
- Lead users can be used as a reference, thereby giving the SME a head start in marketing (much needed by start-ups).