



# POWER2DM

“Predictive model-based decision support for diabetes patient empowerment”

**Research and Innovation Project**

**PHC 28 – 2015: Self-management of health and disease and decision support systems based on predictive computer modelling used by the patient him or herself**

## Deliverable 7.12

### D7.4.1.a Report on Industry Liaison and Exploitation Activities I

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## EXECUTIVE SUMMARY

This Deliverable lists the status of the exploitation and Industry liaison activities and -results, as performed in the Netherlands during the first 14 months of Power2DM (Jan 2016-March 2017). Also it addresses changes in liaison approach versus the DoA.

In the Netherlands during the first 14 months of Power2DM (Jan 2016-March 2017) a consortium of TNO with two additional SMEs was formed aimed at the implementation of MiGuide, a health care professional CDS/patient-coaching utility that is partly based on TNO's foreground/background results of H2020 POWER2DM and FP7 (MissionT2D) research (called TNO health engine). MiGuide is considered a suitable platform for valorisation of POWER2DM results in the Dutch healthcare setting. This document lists outcomes of MiGuide prototype design, market- and minimal viable product research and -definition as well as description of the (Dutch) business case, and of recent activities.

## POWER2DM Consortium Partners

| Abbv    | Participant Organization Name   | Country     |
|---------|---|-------------|
| TNO     | Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek     | Netherlands |
| IDK     | Institute of Diabetes “Gerhardt Katsch” Karlsburg                           | Germany     |
| SRDC    | SRDC Yazilim Arastirma ve Gelistirme ve Danismanlik Ticaret Limited Sirketi | Turkey      |
| LUMC    | Leiden University Medical Center  | Netherlands |
| SAS     | SAS Servicio Andaluz de Salud   | Spain       |
| SRFG    | Salzburg Research Forschungs Gesellschaft                                   | Austria     |
| PD      | PrimeData   | Netherlands |
| iHealth | iHealthLabs Europe  | France      |

## OPEN ISSUES

| No: | Date | Issue | Resolved |
|-----|------|-------|----------|
|     |      |       |          |

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# 1 INTRODUCTION

## 1.1 Purpose and Scope

This document describes the initial development stage of the first partial result of Task 7.4: Stakeholder Liaison. Partner TNO has had considerable experience in engaging with multi-vendor communities, through its innovation programs, working with them to examine the optimal value propositions, licensing arrangements and market creation strategies that will facilitate and incentivise their adoption of ICT innovations arising from research studies from multiple domains. TNO offers knowledge transfer, knowledge application, knowledge development and cooperation services for SMEs to help them penetrating into the market. So, TNO has the high potential to bring the innovations produced in POWER2DM in the European market via its Small Business Innovation Research (SBIR) programme named “Technology seeks Entrepreneur”. In T7.4, TNO will utilize this program to liaise with the European SMEs. Activities of this task will be reported through regular progress reports and a final dedicated report. In the reporting period, the initial scope of activities was focused on the Dutch market which was considered the most promising avenue for an efficient start of liaison activities by TNO. The deliverable describes the liaison exploration, the actual forming of a liaison plus definition of a minimal viable product, the draft business plan, and the implementation strategy.

## 1.2 References to POWER2DM Documents

- POWER2DM Description of Action (Proposal)

## 1.3 Definitions, Abbreviations and Acronyms

Table 1 List of Abbreviations and Acronyms

| Abbreviation/<br>Acronym | DEFINITION                            |
|--------------------------|---------------------------------------|
| CDSS                     | Clinical Decision Support System      |
| CDS                      | Clinical Decision Support             |
| NHG                      | Professional association of Dutch GPs |
| GP                       | General practitioner                  |
| NP                       | Nurse practitioner                    |
| BC                       | Business Case                         |
| JV                       | Joint Venture                         |
| HIS*                     | Dutch GP Information System           |
|                          |                                       |
|                          |                                       |
|                          |                                       |

\*There are currently 7 different HIS in use in The Netherlands

## **2 LIAISON EXPLORATION**

### **2.1 Introduction**

At the time of writing the POWER2DM proposal, it was envisioned to use the TNO's SBIR program, recently restructured into "Technologie zoekt Ondernemer Technology-seeks-Entrepreneur). Although this seemed - at the time - a valuable option along which to explore/develop implementation of the POWER2DM program, it was found during operations that proactive, direct interactions with suitable SME partners proved a more direct and efficient route to steer development. This was mainly due to the inherent characteristics of the Technology-seeks-Entrepreneur program, i.e. advertising of innovation (Technology Push) rather than a mutual pull of partners seeking integration of their respective knowledge and skills into a separate communal entity.

Hence the SBIR/Technology-seeks-Entrepreneur avenue has been abandoned, and direct liaison activities were performed instead. This Deliverable describes the targeted SME's, the minimal viable product (called MiGuide) that was conceived, as well as the draft business plan that covers phased development and rollout of the MiGuide utility. It also reports on the actual progress.

### **2.2 Strategic considerations in liaison development**

The rationale was to liaise with Dutch SME's that offer products or services for which exploitable results (Table 6 in DoA) pertaining to the POWER2DM technologies: Prediction Framework, Data Integration Framework, Behavioural Change Intervention Models, could bring added value.

A key criterion was to include at least one SME that has an established customer base in the Dutch healthcare setting. Furthermore, it was considered best to start with a small core of SME's who together would be able to provide a minimal viable product. In further development stages, additional SME's could then be added to expand the core and broaden the product/functionality offer. An important advantage of this strategy is that it allows to seek additional funding for POWER2DM valorization right from the start of the project, rather than only after it will have been completed.

### **2.3 eHealth Companies in The Netherlands**

The landscape of eHealth platforms/companies in The Netherlands is quite varied.

There are many local and regional solutions that offer integration of healthdata and exchange of (parts of) medical health records between caregivers. The extent of integration, and the group of associated caregivers, is highly variable between those solutions. The vast majority of these solutions offer no or very limited functionalities for patients.

Looking at platforms that do offer functionalities for patients (in additions to caregivers) and that have a broader (super-regional) distribution, and also qualify for health insurance reimbursement because they are accredited by the Dutch organization "Zelfzorg Ondersteund", there are currently 6 of such platforms (<http://zelfzorgondersteund.nl/zorggroepen/tools/zelfzorgplatforms/>), shown in Table 1:

**Table 1. Dutch eHealth platforms offering functionalities both for healthcare professionals and patients, and that are certified by Zelfzorg Ondersteund.**

|   |                           |
|---|---------------------------|
| <a href="#"><u>Empower</u></a>                        | 24CARE                    |
| <a href="#"><u>Mijn Gezondheidsplatform</u></a>       | Promedico                 |
| <a href="#"><u>VitalHealth e-Vita</u></a>             | VitalHealth Software B.V. |
| <a href="#"><u>Keten Informatie Systeem (KIS)</u></a> | Portavita                 |
| <a href="#"><u>Gezondheidsmeter</u></a>               | Curavista                 |
| <a href="#"><u>Sananet Online</u></a>                 | Sananet Care B.V.         |

In general, for the somewhat more widely used platforms mentioned in Table 1 (notably e-Vita and Gezondheidsmeter) the functionalities and opportunities to integrate new concepts (such as coming from POWER2DM) were judged to be suboptimal from communications in TNO’s network contacts. The other platforms were judged to offer insufficient opportunities due to their relatively low current level of adoption, however in fact this is an issue with all platforms in Table 1.

Therefore it was decided to liaise with other SME companies that could rapidly create value, and that could eventually be of interest for the established platforms in a later stage by providing improved functionalities. The prime criteria were: i) high adoption of a current product in the primary care setting, ii) innovative digital communication technology, and iii) apt for integration of predictive model-based decision support.

Through contacts in TNO’s network, the companies [ExpertDoc](#) and [PEXLife](#) were selected as high-potential candidates.

### **3 LIAISON CORE PARTNERS**

#### **3.1 ExpertDoc**

ExpertDoc develops software systems for clinical decision support. ExpertDoc provides the right information at the right time and as specific as possible. With their extensive knowledge and years of experience in healthcare ExpertDoc helps their clients build their own clinical decision support system. ExpertDoc’s medical advisors are happy to assist clients throughout the process.

ExpertDoc can assist with both the development and the implementation of clinical decision support. They can link and integrate their clinical support system with existing systems as well as develop a new platform or an app to distribute the clinical support tools. Thanks to their years of experience, knowledge of the healthcare landscape and therein functioning systems and their extensive network, ExpertDoc we can help clients throughout the entire development and implementation process.

ExpertDoc is always looking for ways to improve her clinical decision support products. For example by incorporating machine learning, artificial intelligence and predictive analytics. Several initiatives in this area have already started.

The product portfolio of ExpertDoc includes two items that are of specific interest for POWER2DM. Firstly, for the development of medical decision support ExpertDoc has developed its own rules engine and editor. This technology, in contrast to many other decision support systems, is specifically made for use in health care. Since the software is developed in-house, ExpertDoc can guarantee rapid development with little to no restrictions on functionality.

Secondly, ExpertDoc provides NHGDoc which is a clinical decision support system for general practitioners (GP's), nurse practitioners and GP's assistants available in the HIS (Dutch: Huisarts Informatie Systeem; English: GP Information System). NHGDoc is endorsed and partially funded by the NHG, the Dutch professional association of GPs. The system compares information from the EHR with the recommendations in digitized Dutch guidelines. When a deviation from the guidelines is spotted in the EHR, NHGDoc generates an alert. With NHGDoc users have all-time access to patient tailored guideline recommendations at the point-of-care that allows them to make faster and smarter decisions, avoid mistakes and find blind spots. Already 2,500 GP practices in the Netherlands are connected to NHGDoc. Thereby, almost nation-wide (ca 70% coverage) access to Dutch GP's patient databases is already established.

The following 6 out of a total of 7 Dutch GP Information Systems (HIS) can connect to the NHGDoc functionality:

- MicroHIS X
- CGM Huisarts
- OmniHIS
- Promedico-ASP
- TetraHIS
- Zorgdossier

Today, approx. 65% of Dutch GP's have the possibility to access the NHGDoc decision support service.

ExpertDoc collaborates with several Dutch partners (Fig. 1)



Figure 1. Cooperation partners of ExpertDoc

### 3.2 PEXLife

PEXLife specializes in digital communication for customers and patients. PEX Life makes it easier for health organisations, pharmaceutical companies and the producers of wearables to engage with customers and patients in a personal way. By using digital channels in an optimal way, it helps organisations to communicate in a pleasant and effective manner. The platform, DigitalCX, understands the patients' needs and offers personal coaching and healthcare via the internet. It's an intuitive system that's in sync with modern life.

PEX Life is a subsidiary of CX . CX Company is a multinational expert in contextual customer interface and coachings technologies, and is currently the market leader in customer engagement. CX has more than 80 customers and continues to be a trendsetter in the digital customer journey (see Fig. 2). DigitalCX continuously proves its value in the world of customer engagement and now PEX Life is bringing this successful approach to healthcare.

With PEX Life every patient gets the personal attention he or she deserves.



*Figure 2. The customer base of CX Company offering the Digital CX communication platform.*

DigitalCX is self-service that understands context. It gives personal answers and increases engagement on any device and on any channel. DigitalCX makes every customer journey successful...

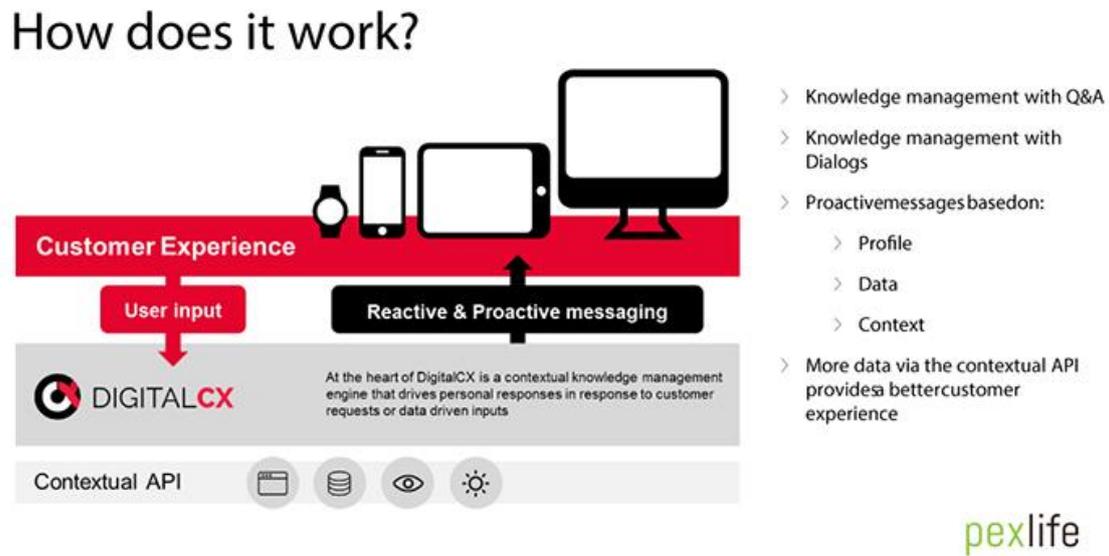
A question answered, a problem solved or a transaction secured.

It's possible to integrate DigitalCX with client systems to get a full overview of a client's customer when they engage with the client. This allows to adjust answers based on a customer's history and preferences. DigitalCX gives any customer or patient a personal and efficient experience.

Digital CX can offer insights to all interactions. It can analyse conversations and translate them into practical insights. This way the client can learn what customers and patients really want to know, allowing to improve services even further.

Do users of a client's wearable want to know their running pace or their heart rate? Do visitors of a hospital want to know where to park or do they care more about visiting hours? Digital CX will allow the client to adjust the interaction accordingly.

The PEXLife/Digital CX approach is illustrated in Figure 3.



*Figure 3. PEXLife approach.*

In addition to digital engagement, PEXLife also offers solutions for live engagement.

In the health and fitness industry PEXLife has started some great projects as well. PEXLife works with Stichting Benchmark GGZ, have developed the Digital Dermatologist and in Ghana they educate pregnant women in improving their lifestyle and healthcare (Fig. 4).



*Figure 4. Aalliances and customer base of PEXLife in the health and fitness industry.*

## 4 LIAISON MINIMAL VIABLE PRODUCT: MIGUIDE

The product NHGDoc of the SME ExpertDoc, was used as a starting point to conceptualize a utility named MiGuide. MiGuide is a personalized coachings- and CDS utility which is based on contextual coaching, digitized treatment guidelines, evidence based medical diagnostics (personal health records) as well as a personalized real-time and prospective patient journey depiction.

Partner contributions into MiGuide are as follows:

- ExpertDoc: digitized guidelines, access to personal health records (i.e. data to drive predictive models for CDS), alert functionality integrated in the GP information system (HIS);
- PEXLife: Digital communication rules and technology (including mobile app) for use by the patient
- TNO: Predictive models to forecast patient journeys over multi-year time trajectories (TNO Health Engine).

In the first iteration, MiGuide is composed of NHGDoc from ExpertDoc, a basic digital mobile coaching system (sport/body weight/nutrition/sleep/stress/blood measurement) provided by PEXLife and TNO's MT2D-Marvel model (i.e. TNO's background in POWER2DM). The MT2D-Marvel model is referenced to as TNO Health Engine in communications about MiGuide. Figure 5 shows an overview slide from one of several investor pitches held in The Netherlands.

**Onze Oplossing: MiGuide**



**TNO Health Engine**

Huisarts Informatie Systeem (HIS)

**Evidence based  
behaviour-change coach,  
monitor en  
clinical support platform**

**Digitized Guidelines**

Contextual (pro)active interface

NHG ondersteund



consortium van TNO, ExpertDoc en Pexlife



Figure 5. Example overview slide from Dutch investor pitch depicting key elements of the proposed MiGuide product.

During Phase I and Phase 2, market research was performed, a business plan was formulated, and proof-of-concept of the technical implementation (linking TNO Health Engine and PEX Life engine to the NHGDoc system such that all components operate on data retrieved from HIS) was done. Various round-table discussions were held as well as qualitative interview sessions with in total 10 General Practitioners/ Nurse Practitioners. The feedback mentioned as positive elements:

- Impactful Innovation
- Focus on central need
- Provides more concrete tools

Points requiring careful attention according to participants were :

- Who will pay?
- Keep it sophisticated, but simple
- Integrate into the HIS

This functionality, thus endorsed by the Dutch health care professional association and with existing customer base and built-in progressive patient-personalization characteristics, and also with real-time interaction with patient's dossier data (of e.g. glycemic control/metabolic markers, previous treatment modalities, family history etc.) allows shared decision making and health /disease-monitoring. It provides continuous support in the administrative and health care workflow of GPs and NPs as well as behavioural change- and monitoring-support to patients, all anchored into evidence-based and prospective patient journey projections and based on current personal data of subjects and intended treatment plans and -goals. As such it constitutes a minimum viable product.

In a next iteration, it is foreseen to include the KADIS functionality (background of POWER2DM partner IDK) and mobile technology of POWER2DM partner iHealth in the MiGuide platform. In still further iterations, it is anticipated that future POWER2DM foreground IP can be integrated in the MiGuide platform. This could notably include the fully FHIR-compliant POWER2DM Personal Data Store for e.g. selfmanagement data, the content of the JITAI interventions as included in the POWER2DM Communication Engine, the long-term risk prediction models, and the Action Plan Engine. Furthermore, the POWER2DM Shared Decision Making Application could be integrated as a special interface offered to the GP for diabetic patients.

## **5 THE MIGUIDE BUSINESS CASE**

### **5.1 Introduction**

This chapter gives a very concise description of the MiGuide BC. It is based on:

MiGuide's BC is based on:

- 1) Assumed efficacy of MiGuide (see 5.2 for details)
- 2) Subsidies, in-kind contributions of SME's, and participation of additional investors/partners in JV
- 3) Basal figures for the Dutch implementation as given in Table 2.

**Table 2. Basis for businesscase of MiGuide in The Netherlands**

| Basis for NL Business case                          |                      | Comment   |
|---|----------------------|---|
| Project phase 3 start datum                         | 1-1-2018             | after subsidy has been awarded, duration 3 months                 |
| Project phase 4 start datum                         | 1-4-2018             | After realisation MVP, start pilot                                |
| Project phase 5 start datum                         | 1-1-2019             | start roll-out after pilot phase                                  |
| Price per patient per year                          | € 30,00              | Based on BC and marker research. May decrease to 10 euro/year     |
| Number of GP's                                      | 8.700,00             | Total in NL   |
| Conversion of GP's                                  | 30%                  | Conservative estimate based on market research and expert opinion |
| Number of GP's as customer                          | 2.610,00             | 30% of market   |
| Average GP practice size                            | 2.165,00             | current norm  |
| Number of diabetes patients per average GP practice | 124,14               | statistical average   |
| Target group size                                   | 1.080.000,00         | as of 2016  |
| Target group reach                                  | 324.000,00           | coupled to 30% GP conversion                                      |
| Number of diabetes patients as customer             | 97.200,00            | target towards end of 2021  |
| Target group reach                                  | 9%                   |   |
| Conversion GP's                                     | in 2021 30% realised | Conservative estimate based on growth curve NHGDoc                |
| Conversion patients                                 | in 2021 9% realised  | Conservative estimate based on growth curve NHGDoc                |

## 5.2 MiGuide (cost) efficacy expectation

The scheme below details the expected efficacy and impact on healthcare costs of the MiGuide platform upon projected development (see 5.3).

Conservatively estimated savings of 15 mio per annum in 2019 and beyond (9% reach in the target group) expected in The Netherlands alone

| Business Driver                                  | Estimated efficacy of HealthInnovator                              | Impact on Health care costs                        |
|--|--|--|
| 1: Successful Lifestyle change adoption          | 7% Weight loss DM2 incidence reduction of 3-8% incidence DM2       | 6.600.000 euro per annum                           |
| 2: Increased Medication Compliance               | 15% (0,87-0,74)  | 10% reduction in onset microvascular complications |
| 3: Improved Glycemic Control                     | 11% increase in HbA1c <7%<br>43% lower risk on Diabetic Nephroathy | 6.000.000 euro per annum                           |
| 5: Reduced Incidence microvascular complications | Reduced hospital stay and frequency 5 days                         | 30-40% of all DMs develop DN <sup>§</sup>          |
| 6: Reduce visits to POH   GP                     | 20% less visits  | 4.100.000 euro per annum                           |

### 5.3 MiGuide projected development roadmap and required investments

Figure 6 depicts the projected development phases of MiGuide.



Figure 6. Roadmap for the MiGuide platform development.

Figure 7 depicts the investments needed for the next successive development stages 3 and 4 of MiGuide.



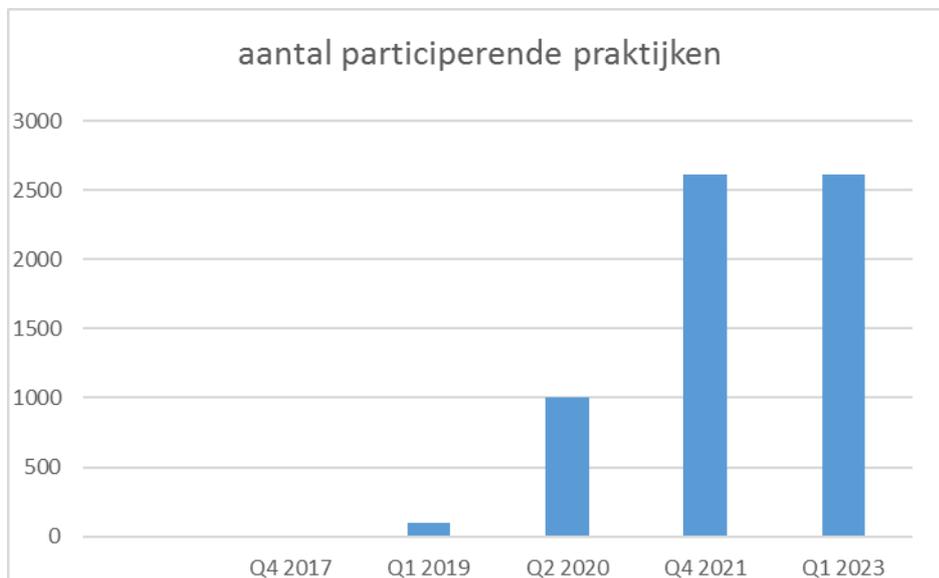
Figure 7. Investments needed for MiGuide roadmap implementation.

Figure 8 depicts an estimate of investments needed to enter the international marketplace.



*Figure 8. Coarse estimate of investments needed for international implementation of the MiGuide roadmap.*

Figure 9 shows the anticipated roll-out in Dutch GP environment.



*Figure 9. Roll-out plan for MiGuide in the Dutch GP environment.*

Table 3 shows spreadsheet calculations underlying the MiGuide Businesscase in The Netherlands, drafted jointly by ExpertDoc, PEXLife and TNO. The total projected investment need for Phase 3&4 is 658.970,- Eur, the projected total cash need is 1.823.350,- Eur, the projected Break-even point is in Q2 2020.

Table 3. P&L (conservative estimate) within Netherlands of MiGuide: Break-even point in Q2 2020

|  | Phase 1&2       |                 |                 |                 | Ph.3             | Phase 4          |                  |                  |                  | Phase 5          |                  |                  |                 | Phase 6        |                |                |                |                |                |                |         |
|--|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------|
| P&L MiGuide B.V. (NL only)                 | Q3 2016         | Q4 2016         | Q1,2,3 2017     | Q4 2017         | Q1 2018          | Q2 2018          | Q3 2018          | Q4 2018          | Q1 2019          | Q2 2019          | Q3 2019          | Q4 2019          | Q1 2020         | Q2 2020        | Q3 2020        | Q4 2020        | Q1 2021        | Q2 2021        | Q3 2021        | Q4 2021        |         |
| <b>Turnover</b>                            |                 |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Insurance companies NL                     | -               | -               | -               | -               | -                | 1.117            | 1.117            | 13.966           | 34.914           | 69.828           | 157.112          | 209.483          | 418.966         | 558.621        | 558.621        | 729.000        | 729.000        | 729.000        | 729.000        | 729.000        |         |
| Insurance companies INT                    |                 |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Insurance companies INT Subsidy            | 16.667          | 16.667          | 16.667          | -               |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Turnover other                             | -               | -               | -               |                 |                  |                  |                  |                  |                  | 20.000           | 20.000           | 30.000           | 30.000          | 30.000         | 50.000         | 50.000         | 100.000        | 100.000        | 100.000        | 100.000        |         |
| <b>Total Turnover</b>                      | <b>16.667</b>   | <b>16.667</b>   | <b>16.667</b>   | <b>-</b>        | <b>-</b>         | <b>1.117</b>     | <b>1.117</b>     | <b>13.966</b>    | <b>34.914</b>    | <b>89.828</b>    | <b>177.112</b>   | <b>239.483</b>   | <b>448.966</b>  | <b>588.621</b> | <b>608.621</b> | <b>779.000</b> | <b>829.000</b> | <b>829.000</b> | <b>829.000</b> | <b>829.001</b> |         |
| Create CDS diabetic phase 1&2              | 39.000          | 39.000          | 39.000          | -               | -                | -                | -                |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Create CDS diabetic phase 3&4              |                 |                 |                 |                 | 164.743          | 164.743          | 164.743          | 164.743          |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Other countries                            |                 |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Direct costs License PEX                   |                 |                 |                 |                 |                  |                  |                  |                  | 37.500           | 37.500           | 37.500           | 37.500           | 37.500          | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500  |
| Direct costs License TNO                   |                 |                 |                 |                 |                  |                  |                  |                  | 37.500           | 37.500           | 37.500           | 37.500           | 37.500          | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500  |
| Direct costs License ED                    | -               | -               | -               | -               |                  |                  |                  |                  | 37.500           | 37.500           | 37.500           | 37.500           | 37.500          | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500         | 37.500  |
| Direct costs hours Maintenance             |                 |                 |                 |                 |                  |                  | 28               | 873              | 2.182            | 5.614            | 11.070           | 14.968           | 28.060          | 36.789         | 38.039         | 48.688         | 51.813         | 51.813         | 51.813         | 51.813         | 51.813  |
| Direct costs Other                         | -               | -               | -               | -               | -                |                  | 14               | 175              | 1.746            | 4.491            | 8.856            | 11.974           | 22.448          | 29.431         | 30.431         | 38.950         | 41.450         | 41.450         | 41.450         | 41.450         | 41.450  |
| <b>total direct costs</b>                  | <b>39.000</b>   | <b>39.000</b>   | <b>39.000</b>   | <b>-</b>        | <b>164.743</b>   | <b>164.743</b>   | <b>164.784</b>   | <b>165.790</b>   | <b>116.428</b>   | <b>122.606</b>   | <b>132.425</b>   | <b>139.442</b>   | <b>163.009</b>  | <b>178.720</b> | <b>180.970</b> | <b>200.138</b> | <b>205.763</b> | <b>205.763</b> | <b>205.763</b> | <b>205.763</b> |         |
| <b>Gross profit</b>                        | <b>(22.333)</b> | <b>(22.333)</b> | <b>(22.333)</b> | <b>-</b>        | <b>(164.743)</b> | <b>(163.625)</b> | <b>(163.667)</b> | <b>(151.824)</b> | <b>(81.514)</b>  | <b>(32.778)</b>  | <b>44.687</b>    | <b>100.041</b>   | <b>285.957</b>  | <b>409.901</b> | <b>427.651</b> | <b>578.863</b> | <b>623.238</b> | <b>623.238</b> | <b>623.238</b> | <b>623.238</b> |         |
| <b>Overhead costs</b>                      |                 |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |
| Personnel expenses (board & Sales)         | -               | -               | -               | -               | 6.000            | 6.000            | 6.000            | 6.000            | 37.500           | 37.500           | 62.500           | 62.500           | 75.000          | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000  |
| Personnel expenses Staff (medical & Sales) |                 |                 |                 |                 |                  | 6.000            | 6.000            | 6.000            | 27.000           | 27.000           | 62.500           | 62.500           | 75.000          | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000         | 75.000  |
| Temporary employees                        | -               | -               | -               | -               | -                | -                | 10.000           | 10.000           |                  | 15.000           | 15.000           |                  |                 |                |                |                |                |                |                |                | 1       |
| Other personnel expenses                   | -               | -               | -               | -               | 1.200            | 1.200            | 1.200            | 1.200            | 7.500            | 7.500            | 12.500           | 12.500           | 15.000          | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000  |
| Housing costs                              | -               | -               | -               | -               | -                | 5.000            | 5.000            | 5.000            | 7.500            | 7.500            | 7.500            | 7.500            | 7.500           | 7.500          | 7.500          | 7.500          | 7.500          | 7.500          | 7.500          | 7.500          | 7.500   |
| Marketing                                  | -               | -               | -               | 3.000           | 3.000            | 3.000            | 30.000           | 30.000           | 50.000           | 50.000           | 50.000           | 100.000          | 100.000         | 100.000        | 100.000        | 100.000        | 100.000        | 100.000        | 100.000        | 100.000        | 100.000 |
| IT costs                                   | -               | -               | -               | -               | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000           | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000   |
| Travel & accommodation                     | -               | -               | -               | 2.500           | 2.500            | 2.500            | 2.500            | 2.500            | 15.000           | 15.000           | 15.000           | 15.000           | 15.000          | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000         | 15.000  |
| Office costs                               | -               | -               | -               | -               | -                | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000            | 2.000           | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000          | 2.000   |
| Insurance                                  | -               | -               | -               | 2.500           | 2.500            | 2.500            | 2.500            | 2.500            | 2.500            | 2.500            | 2.500            | 2.500            | 2.500           | 2.500          | 2.500          | 2.500          | 2.500          | 2.500          | 2.500          | 2.500          | 2.500   |
| Audit & Accountancy Fees                   | -               | -               | -               | 2.500           | 2.500            | 2.500            | 2.500            | 2.500            | 5.000            | 5.000            | 5.000            | 5.000            | 5.000           | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000   |
| Legal & Consultancy Fees                   | -               | -               | 3.000           | 2.500           | 2.500            | 15.000           | 2.500            | 2.500            | 5.000            | 5.000            | 5.000            | 5.000            | 5.000           | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000   |
| Other general costs                        | -               | 2.083           | -               | 2.500           | 2.500            | 2.500            | 2.500            | 2.500            | 5.000            | 5.000            | 5.000            | 5.000            | 5.000           | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000          | 5.000   |
| <b>Total indirect costs</b>                | <b>-</b>        | <b>2.083</b>    | <b>3.000</b>    | <b>15.500</b>   | <b>24.700</b>    | <b>50.200</b>    | <b>74.700</b>    | <b>74.700</b>    | <b>166.000</b>   | <b>181.000</b>   | <b>246.500</b>   | <b>281.500</b>   | <b>309.000</b>  | <b>309.000</b> | <b>309.000</b> | <b>309.000</b> | <b>309.000</b> | <b>309.000</b> | <b>309.000</b> | <b>309.001</b> |         |
| <b>Result before tax per year</b>          | <b>(22.333)</b> | <b>(24.417)</b> | <b>(25.333)</b> | <b>(15.500)</b> | <b>(189.443)</b> | <b>(213.825)</b> | <b>(238.367)</b> | <b>(226.524)</b> | <b>(247.514)</b> | <b>(213.778)</b> | <b>(201.813)</b> | <b>(181.459)</b> | <b>(23.043)</b> | <b>100.901</b> | <b>118.651</b> | <b>269.863</b> | <b>314.238</b> | <b>314.238</b> | <b>314.238</b> | <b>314.237</b> |         |
|  |                 |                 |                 |                 |                  |                  |                  | € -868.159       |                  |                  |                  | € -844.564       |                 |                |                | € 466.371      |                |                |                | 1.256.950      |         |
| Cash flow needed                           | € -1.823.350    |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                 |                |                |                |                |                |                |                |         |

## **6 LIAISON IMPLEMENTATION STRATEGY**

### **6.1 Introduction**

Already it has been mentioned that the team has been rather successful in the exploration of Liaison partners. In such an extent that two liaison partners have successfully been identified and we currently are working on negotiating and establishing formal arrangements. The exception is that a (set of) external investors is still being looked for.

On top of liaison exploration the MiGuide team developed and deployed an implementation strategy, based on acquiring resources to integrate the respective technologies and to reach field-trial implementation so as to establish clinical value and cost efficacy.

The overall strategy is based on two pillars:

- 1) Establish an independent entity (joint Venture) that allows to absorb and accumulate external investments
- 2) Establish a clinical field trial environment to assess clinical efficacy and cost-efficacy in order to allow acquisition of health insurance reimbursement status of MiGuide.

In section 6.2 the fund raising /implementation strategy and tactics are concisely reported.

### **6.2 Implementation strategy and fund raising**

Currently the program is focusing on integrating POWER2DM partners IDK and iHealth into the MiGuide/Dutch implementation as next steps, which should help to develop an independent entity/consortium (Joint Venture) that can implement and valorize the POWER2DM and associated partner's assets. This step is important to provide a vehicle that will allow external (foreign) investors to participate and fund the development. A first discussion meeting of TNO, ExpertDoc and PEXLife with POWER2DM partners IDK and iHealth was held on June 6, 2017 in Berlin, Germany.

Further discussions involving the complete POWER2DM Consortium are planned for POWER2D's autumn meeting to be held on 11-12 October in Amsterdam, The Netherlands.

Additionally, attracting financial support/investors is a prime objective and some success can already be reported here.

During Q2-4 2016 and Q1 2017, the MiGuide initiative/team has for instance been successful in attracting external funding/grants for implementation/feasibility of the proposition (i.e. regional MIT Zuid-Holland). This feasibility study has led to successful verification of the various and critical data-exchange and IT-integration of the envisaged utility. Dutch GP patient dossier access by the TNO-Health engine and reciprocal analytic results provision was established/demonstrated. Also, secure and efficient data transfer between the M-health interfaces and respective databases (digitized guidelines, GP's health dossiers and subject's local devices) all have been confirmed.

Further - in a complementary attempt to attract funding- MiGuide has presented itself on the annual Dutch Fair of ICT and healthcare in The Jaarbeurs congress center (Utrecht, Netherlands) in early March 2017, as well as the generation of supporting documentation and investor pitches held at VCs

(e.g. Innovation Quarters, Veen Oost) and health insurance company “Friesland” (a subsidiary of the largest Dutch health care insurer Achmea Group) have led to subsequent contacts and mutual interests. Also external VCs (Australia based) have shown deep interest. However, despite considerable traction, no funding has as yet been secured. This in no small part due to the complex nature /considerable uncertainty of MiGuide’s true value/potential. Such is the downside of real innovations.

However, given the continuous- sometimes even autonomous interest- of external investors that is experienced, as well as the many funding opportunities that are arising, we currently look positively forward to the upcoming period..