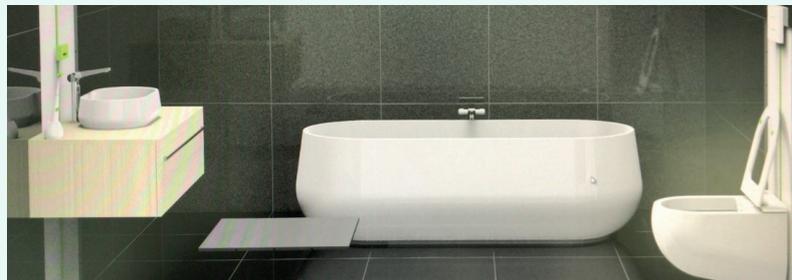
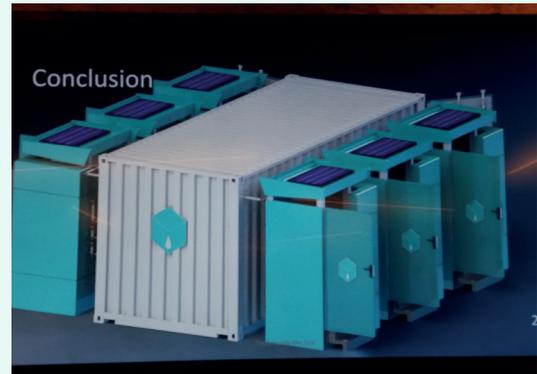


Journey to the MEDiLOO™



Joep Derksen

Jan Rolloos

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Journey to the MEDiLOO™

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The Essence

This book will take you on the journey to the MEDiLOO™. The views and opinions represented in this document are entirely those of the authors of the book and not necessarily of the individuals and institutions mentioned in the book.

The leading experts in several fields such as the medical world, Information Technology, development of medical sensors, have been working together for years to invent, develop and realise the MEDiLOO™. The MEDiLOO™ is a concept of the Foundation J&J Consortium further developed in cooperation with IHE Delft Institute for Water Education and a multidisciplinary team of experts, academic and research institutions, designers, ICT companies and technology suppliers. The J&J Consortium leads the MEDiLOO™ development, with the valuable support of other experts in various fields.

Threatening facts:

- 3.7 billion people have no sanitation and clean water (WHO)
- 33 million people in mostly poor countries die each year from the effect of diarrhoea, of which 500,000 children under the age of 5 (WHO)
- In the Sahara area, 600,000 people die from paratyphoid each year (Erasmus MC Rotterdam)
- Around 500,000 people die worldwide from the COVID-19 pandemic in 2020

Can the J&J Consortium, with its MEDiLOO™ solution offer an early warning and information within the health system in the future?! To prevent unnecessary deaths.

The MEDiLOO™ is a sanitation unit, based on detection algorithms to search and find possible dangerous infectious diseases. It helps the users explore their personal health. Additionally, after having given approval for the sharing of the health information, governments and / or medical institutions are warned in case of a possible infectious disease outbreak. This consent is the so-called informed consent: in order to use the MEDiLOO™ you have to give your consent for sharing the medical information in case of the possible presence of dangerous infectious diseases.

Part of the MEDiLOO™ is the medical support; the medical officers work on early warnings from the users. They will do that in a separate location.

The MEDiLOO™ comes with a mobile sewerage transport system. The sewerage can be used for fertilisation and burning blocks. Regarding the ethical aspect: medical sensors and ethical and privacy issues. The foundation J&J Consortium has extensively made use of the European laws and regulations with regard to the protection and preservation of the personal and individual privacy.

The MEDiOO™ helps exploring the early signs of an outbreak. Therefore, it is possible to intervene at the earliest of stages. This will prevent people from being infected, for instance in refugee camps or at places with mass groupings of people. This will potentially save many lives.

Epilogue

Damir Brdjanovic started to work at IHE Delft Institute for Water Education in 2002, where he became Professor of Sanitary Engineering. He was the instigator for the eSOS Smart Toilet®.



The eSOS Smart Toilet®; In disaster areas where many people live together in poor conditions, diseases are lurking. Sanitation plays an important role – a hole in the ground or overflowing emergency toilets are breeding grounds for bacteria and viruses. If the flow of waste is better managed, the risk will be reduced and the quality of life will improve considerably. To address this issue IHE Delft and partners had envisioned an award-winning eSOS Smart Toilet, one that is not only hygienic, safe and affordable, but also serves as a source of information about the situation in the area where it is located. The experimental version of the eSOS toilet was successfully tested in the Philippines for functionality and acceptance. This lightweight, easy-to-maintain toilet is equipped with sensors that collect the relevant data using specially designed monitoring software. Based on this information, the operation and maintenance of toilets can be significantly improved making the entire sanitation chain more sustainable. A prototype of the eSOS Smart Toilet was developed and tested in Nairobi, Kenya.

The prototype of the eSOS Smart Toilet as the base for the MEDiLOO™

One of the prototypes of the eSOS Smart Toilet was tested in camps in the Philippines, the other one in Kenia. The flow of urine and stool is managed better, water is available to wash hands, UV-light is available for the toilet. Solar panels supply energy and computers arrange logistics, et cetera.

An unexpected positive result came out of this testing phase. Since the eSOS Smart Toilets were under 24 our surveillance, they were a haven for the women in the camps. At night, the women came together around the toilet, to spend time together in a safe way.





One of the results of all research was the publication 'Sanitation Innovations'. This book was published by IHE Delft about eSOS toilet, with 10 million euro funding of the Bill and Melinda Gates Foundation. This publication provides an overview of the main outputs so far of the two grants made by the Bill & Melinda Gates Foundation to IHE Delft Institute for Water Education in the period 2011 until 2022. Damir is the editor of this magnificent publication (ISBN 978-90-73445-34-5).

The eSOS, however, was not yet a completed product.

The whole story of the realisation of the Smart Toilet, can be found in annex 1 of the book 'Journey to the MEDILOO™, Extended version.

First contact

April 2015:

In April 2015, Joep Derksen, a self-made entrepreneur in the media, interviewed professor Damir Brdjanovic for the newspaper The Holland Times about his work on the eSOS toilet. After the interview was finished, Joep asked Damir what he needed to have to further expand his idea. „An investor/innovator” was his reply. Joep: „Right at that moment, one name popped up in my mind: Jan Rolloos.” Joep knew Jan Rolloos from the elementary school, De Noordwijkse School, where Joep’s twin children got their education. His daughter and son and Jan’s daughter attended the same class for eight years.

Jan: „Joep explained about his meeting with professor Damir Brdjanovic from Delft, who had designed a toilet with advanced sanitary facilities. He called it a ‘smart toilet’. Joep wrote a wonderful article about this sanitary project for the underdeveloped countries.” Joep set up a meeting together with Damir and Jan. The latter recalls: „Soon we were impressed by the designs and standalone facilities of the toilet. Especially the built-in logistics and ICT, with cloud applications was impressive. Such a useful and unique idea should be patented. Therefore we collected a modest development amount. And as a team, under supervision of Joris Krijger (at the time our brilliant working student) immediately applied for a Dutch patent.”

„It was a wonderful achievement, to realise such a necessary and targeted toilet in the field. Damir is a great promotor of the Smart Toilet and it was warmly received at various international sanitation congresses. This patent was unfortunately never activated and because of that, a worldwide patent was not within our possibilities. The idea was soon taken over by producers from India. However, without the deep insight shown and executed by Damir.”



Damir, Jan and Joep celebrate their cooperation

The new cooperation

November 2018 – December 2018:

In November 2018 Joep read an article about Bill Gates visiting China. He forwarded it to Damir and Jan and Joep were invited to discuss the possibilities of a new cooperation. Damir reported that he wanted to expand the number of sensors, to be able to realise an early warning about the medical condition of the users of the toilet. In this way, outbreaks can be prevented. This positive development was based on the original idea mentioned by Jan in 2015.

Though the prototypes of the eSOS Smart Toilet were successful, Damir wanted to realise a more revolutionary and effective toilet in the medical field. He also thought of the perfect name for this type of toilet; the MEDiLOO®. All persons involved loved this name, because of the underlying humour. (We all like to go to the loo; in Dutch: 'Toedeloe!')

Bicycle buddies

But first, it was necessary to have some new ideas. That's when Lady Fortune, or chance if you like, appeared. Because of his physical conditions, Jan had signed up for 'Fietsmaatjes' (Bicycle buddies). This organisation uses healthy volunteers to let them cycle with people with handicaps. The bikes are designed in such a way, that the two passengers are sitting next to each other. Jan's bicycle buddy was Adriaan Timmers, a retired local family doctor, who also has extensive experience as a doctor regarding tropical diseases in developing countries. Forty years before, Adriaan and Jan started up a partnership, which initially had a rocky start. Jan remembered laughingly: „Adriaan considered me to be an arrogant bastard. But I was just convinced about the quality of my products.” It was the Medicom Pharmacom project for doctors and pharmacists in the computer firm PharmaPartners, of which Jan was the founder and owner. During those four decades Adriaan and Jan built up a warm and fruitful relationship. Adriaan became the medical mentor for the employees of PharmaPartners; a medical dominance in the Netherlands.

Damir was shocked by the total lack of sanitation and the incomprehensible annual number of deaths (as reported by the WHO) of (estimated) more than 30 million by diarrhoea related infectious diseases. In the days before and after Christmas 2018 Jan and Adriaan made several bike trips and they talked about possible ways of how a MEDiLOO™ can actually be used to trace diseases inside a human body. Adriaan explained, that a family doctor checks on the health of his patients by making use of certain parameters. Such as: 'What is the colour of the eye lids, the colour of the urine, the weight of the person'. Jan was shocked that in the Sahara area annually 600,000 people die of paratyphoid. During these bicycle trips the two could deliberate for hours about medical affairs.

So, during the cycling trips, the MEDiLOO™ was discussed. Adriaan could perfectly envision our way of thinking. It was needed to give an upgrade of the Smart Toilet into a medical sanitary installation with early warning facilities. During the 'Maatjesritten', the two had a Eureka moment, when they cycled through the dunes of Noordwijk. For every infectious disease, such as cholera, it is necessary to measure a limited number of symptoms to develop an algorithm, which can calculate an early warning in a logical, easy and fast way.



It seemed too good to be true. This led to the comment of Jan: „If an early warning is so easy to calculate, why on earth do you need to go to the medical university for six years?“

“Joep and Janneke”

December 2018 – February 2019:

We saw the light. On 30 December 2018 Jan and Joep worked out the details, with the intense support of Adriaan. Joep and Jan set up the Foundation J&J Consortium, under the supervision of Damir. The two agreed, that Jan became the chairman and chancellor and Joep would hold the position of secretary. They laughingly recall: „There was one condition for Jan’s chairmanship; the letters J&J would stand for ‘Joep & Jan’, to show that the base of the foundation was an equal partnership. When Damir heard of this, he said laughingly: “Joep and Janneke”, herewith referring to the popular children book series by the famous writer Annie M.G. Schmidt.

The early investment for the realisation and continuation of the foundation was done by the co-founders. Afterwards several business friends of Jan donated some money and Joep found the Stichting Voorzorg Utrecht to donate a considerable amount for the realisation of the first prototype of the MEDiLOO within one year.



The birth and rise of the consortium

The MEDiLOO™ team:

In the year 2015 Joep and Jan were seriously impressed by the Smart Toilet of professor Damir Brdjanovic of the IHE Delft (under auspices of UNESCO). Not only by the modular engineering, but also by the integrated logistics and IT solutions.

„At that moment, we got up to date by the vast humanitarian grant from the Bill and Melinda Gates Foundation, determined to bring sanitation to the poor developing countries. During our discussions, Jan suggested to try to get a Dutch patent, in order to protect the superior invention.” Jan contacted his friends, amongst others Joris Krijger, a student and experienced patent writer. The patent was prepared and Joep and Jan learned a lot about sanitation in the developing countries, largely due to the cooperation with Damir. They liked it a lot. Especially the professionalism, the determination and the creativity shown by Damir. At the time, no follow-up was given to the patent.

In the year 2018 Damir contacted Joep and Jan again. He had promoted the Smart Toiled worldwide in the sanitary community and had generated a lot of attention. Damir wanted to discuss with us the use of the medical sensors; on top of the sensors for cleaning, detecting and infrared facilities.

Jan consulted his old friend Adriaan Timmers, a retired family doctor, between 1980s and 1990s the mentor of Jan's employees in the Medicom computer project for general practitioners. Jan and Adriaan invented the early warning matrix for tropical infection diseases for poor underdeveloped countries. They designed three groups of medical sensors against a set of symptoms measured in the smart toilet resulting in early warnings for the users of the toilets and a cloud reporting for outbreaks.

Joep made an in-depth report on European / worldwide privacy provisions. With this document, a critical problem was solved regarding the data handling where large numbers of private individuals were involved.

In the meantime, Joep and Jan (under supervision of Damir) initiated the non-profit foundation J&J Consortium, which was officially set up in January 2019. They brought in a small start-up capital for the daily cost and for a patent request.

Damir came up with a surprising name: The MEDiLOO™.

Adriaan, Joep and Jan developed the first report: The design of the MEDiLOO™. Joris started the Dutch patent request of J&J Consortium. Damir kept himself busy promoting the MEDiLOO™ (the extension of the well-accepted Smart Toilet) in the growing international sanitary community and humanitarian organisations.

Joep coordinated the presentation of the MEDiLOO™ to the press. Jan and Joep raised the money for covering the expenses for the year 2019, by approaching and finding sponsors.

The consortium members

The management team consists of the following persons: The executive management is comprised by Jan Rolloos and Joep Derksen. The general management is formed by Damir Brdjanovic (for sanitation), Adriaan Timmers (for medical) and Joris Krijger (for patent application).

Executive management:

Jan Rolloos: He was the first to outline not only the concept of the realisation of a sanitary facility combining the daily use of a toilet with the medical checks of the user. But also, to outline the idea how to achieve such a dream. Jan thought of the idea to set up a consortium, to attract the top medical and IT experts, so that their extensive knowledge of these two separate worlds could be combined in one project: the MEDiLOO™.

Jan used his connections to build up the team, with leading experts and professors in various fields, with the objective to realise the sensors necessary for the proper mode of operation to measure the symptoms of the MEDiLOO™ users.

The knowledge of the electronic techniques and the IT, as a trained Fortran (Formula Translation) developer with IBM, where he could also make use of his in 1972 published Fortran book (ISBN: 90-10-10389-7), in which the core of the logical programming for the MEDiLOO™ symptoms was effectively laid out, of which he was co-author, was absolutely vital. For the early warning processing and the results for the users of the MEDiLOO™.



Joep Derksen: The international concerns regarding the privacy issues, could mean a threat to the realisation of the MEDiLOO™. After extensive research Joep wrote the 'Code of ethics for the Foundation J&J Consortium, based on European Laws.

During the development of the MEDiLOO concept, Joep came up with the idea to also add 'prevention' as part of the product. With this addition, the MEDiLOO philosophy was complete: the MEDiLOO prevents for infections, checks the health of the users, offers a solution regarding instant short-term health improvement (ORS-water). He came up with the idea to collect and use (morning) dew for the usage in the toilet for flushing and hand washing, but also for use with ORS water.

He introduced the name 'MEDIAPP' and registered this name as well as all other registered names regarding the MEDiLOO™ products. Joep takes care of all organisational aspects, minutes of meetings, marketing and acquisition and he functions as MEDIAPP project manager.



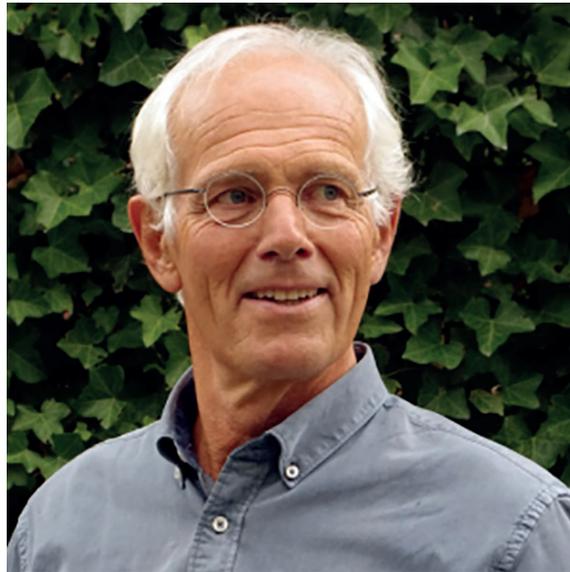
General management

Damir Brdjanovic is in fact the genius mastermind for sanitation in the broader sense of the word. His contacts in the sanitary world scene, governments and humanitarian sponsors. Jan: „Damirs contribution to the consortium was undoubtedly vital. As board members we came up with ideas, but it was our Advisor Damir who could in no time translate these ideas into factual applicable solutions. He made us realise that the possibility of a MEDiLOO™ as a utility is very intriguing. In fact, it is used on a daily base and as such it can be the means to medically check each user on a permanent and consistent base.“ This is the essence, the realisation of a combination of clean sanitary facilities in combination with medical sensors and solutions.



Adriaan Timmers; his professional attitude in life, his communication and interaction with everybody involved in the MEDiLOO™ project, combined with his logical medical reasoning has proven to be such a true and vital element to the consortium. Adriaan is practical experienced in tropical diseases. He laid the foundation of realising the MEDiLOO™ matrix, regarding the symptoms and sensors. Because of his knowledge of the symptoms. It started with the connection of diarrhoea related diseases to the ORS solution (as confirmed by the WHO), which was introduced by Adriaan.

Highly appreciated is his critical and inspiring attitude towards the use of ORS, where he also came with the solution of connecting the consortium with the esteemed Saxion University. They managed to work with super clean water with nano techniques. The urgency of finding a solution in combatting virus infections, such as COVID-19, was soon confirmed by Adriaan. He translated the theory of the use of the algorithms in the factual practical use of symptoms measuring.



Joris Krijger Is cum laude graduated as a student in psychology and literature. He received two honourable awards. He worked as a patent writer for Jan in his domestic facilities and realised the SID-patent (Seek, Identify, Destroy) for the disinfection of operating rooms. Joris is the patent writer, effectively being the leader of the patent team.



The ambassadors

Next to Damir Brdjanovic, Adriaan Timmers, Jan Rolloos and Joep Derksen, the consortium has so far welcomed the following ambassadors:

John Bolte

In the search for experts in the medical world, who want to join the consortium and help with the further development of the MEDiLOO™, Jan searched on the internet and found the contact details of John Bolte, lecturer on smart sensor systems at The Hague University of Applied Sciences and the Centre for Sustainability, Environment and Health at RIVM National Institute for Public Health and the Environment, where he is the assignment coordinator for personal exposure and impact monitoring using wearable sensors. The meeting was very special. John welcomed Jan and Joep in his office. Jan is somebody who makes a long introduction about his background and John listened politely. After ten minutes, Jan mentioned that in the 1970s he wrote a book about Fortran technology, at which John exclaimed: „ Are you that Jan Rolloos? I have studied and used this book for decades!“ With this, the ice was broken.



It turned out, that the combined ideas for the MEDiLOO™, is something that Bolte and colleagues of his had been pondering about as well. The configuration was an essential missing piece of the puzzle.

Maurice Aalders

The history of Jan Rolloos and Maurice Aalders goes back many years. At the time, Maurice Aalders worked on the development of a blood measuring camera. It was a success, but Aalders did not get the credits he deserved. Jan had never forgotten Maurice and he wanted to offer Maurice the possibility to use one of his hyperspectral cameras in the MEDiLOO™.

Maurice was immediately enthusiastic and came up with ideas to improve the MEDiLOO™. The hyperspectral camera will change the landscape for medical solutions in a revolutionary way. Through identifying the spectra, a multitude of diseases, viruses and bacteria can be discovered, dramatically increasing the chances for the on the spot cure of the patients.

The chemical entities connected with the symptoms can be laid out real-time using the hyperspectral cameras and the related software.



Harry Futselaar

Harry Futselaar holds the position of professor International Water Technology (IWT) at Saxion UAS. He is responsible for the coordination of the research lines focusing on Water & Energy (biogas & produced water); Water & Materials (micro pollutants, bio-based materials); Water & Environment (climate resilient cities); Water & Awareness (capacity building).

He obtained his PhD at the University of Twente with a research on the design, construction and process development of a (patented) transverse flow membrane module and has held several positions in industry as responsible for the market and technology development in the areas of water and wastewater treatment and for bridging strategic innovation, market-driven and technology-push development for water and wastewater product market combinations.

Harry was introduced to the MEDiLOO™ concept through Saxion colleague Ruben Timmers, researcher and project manager Water & Awareness within his research group IWT. Together they saw great opportunities to help further the promising MEDiLOO™ initiative with their knowledge and industry partners specialised in water treatment technologies combined with the involvement of enthusiastic and capable students. In return Saxion IWT could add this very interesting project to the IWT research and education portfolio.



Ruben Timmers

Ruben Timmers is the son of Adriaan Timmers. He is researcher at the research group International Water Technology (IWT) of Saxion University of Applied Sciences (UAS) in Enschede. Dedicated to connect people, ideas and technologies to make our world a better place together.

Passionate about the global network of FabLabs and Maker Education movement: empowering and supporting people of all ages to take responsibility and make our world a better place, Technology & Entrepreneurship: rewarding the creation of real value for society, and Partnership Innovation: building trust and mutual benefit between partners to make a difference together.

Ruben became passionate about the MEDiLOO™ concept and took initiative to introduce MEDiLOO™ into the Smart Solutions Semester at Saxion. The Smart Solutions Semester is an interdisciplinary R&D semester, during which teams of students from different degree programmes will get hands-on with a complex issue from the professional field or a research group.



Passion

Em. Prof. Ing. Jan Rolloos

About the reasons why he started this whole project.

„I was ready for a new adventure. During the first very pleasant meeting with Damir I was very impressed by him and his professional working attitude in the humanitarian field. It suddenly dawned on me. Millions of people die every year from diseases that can be prevented from spreading.

From that moment on, I spent many hours pondering about how a toilet can help people protect against harmful bacteria and viruses. With the introduction of the MEDiLOO™ we have created the possibility for people to have access to clean sanitation, their health is being checked and we provide the early warning against infectious diseases.

Having worked on the realisation of the MEDiLOO™ has been a most entertaining journey. I was surrounded with merely pleasant people to work with. Competent people with humour, giving me the fun I need in my work and life.”

Joep Derksen, BA

About the reasons why he started this whole project.

„For me, the ultimate realisation of the MEDiLOO™ and its use in developing countries would be a dream coming true. It is my pleasure to be part of a wonderful team of inspiring people, with a broad variety of expertise.

The MEDiLOO™ will be the first developed product in which I have also added my signature. Imagine, that millions of lives can be saved in developing countries with the MEDiLOO™?!

The concept to use dew for the MEDiLOO™ is useful in several ways. The filtration process uses less energy, when cleaner water is provided. Also, the dew is valuable for the production of ORS water to be administered to the MEDiLOO™ users.

My contribution of the use of dew is a valuable asset to the success of the MEDiLOO™, with the addition that it is merely part of an entire project which could only be successfully set up thanks to the contribution of all members involved. This is the source of great inspiration to me!

Tasks and achievements of the team



Damir: is the central guard annex supervisor of the proceedings of the entire MEDiLOO concept, which has its foundation the eSOS Smart Toilet.

Adriaan: Medical: With his great analytical thinking and positive attitude, Adriaan introduced the Foundation J&J Consortium into the secrets of the medical disciplines which were valid for infectious diseases in tropical countries. Such as: symptom analyses, hygiene, ORS, symptom combatting, early warning, . He stressed the vital importance of the local medical support.

Jan: Logics: Fortran technology and logics, designed and developed by Jan. Medical sensor technology, Sensor interfaces, algorithms development, CPU's, speed. And of course being the instigator and prime developer of the entire J&J Consortium.

Joep: He came up with the idea to collect and use (morning) dew for the usage in the toilet for flushing and hand washing, but also for use with ORS water. Joep also thought of and worked out all ethical and privacy aspects, in accordance with European laws and regulations.

Adriaan and Jan thought of the MEDiLOOMatrix (with the programming of Fortran) and Damir thought of the MEDiLOOLOGistics model that belongs to the Smart Toilet from Damir. Additionally, the consortium thought of an app that takes care of the logical solution for handling the matrix and have it resulted in an early warning. The existing program developed for the Smart Toilet, specifically the logistics and maintenance handling has been developed by Damir.

Privacy and ethics

Privacy and ethics are two important subjects. The basic European laws for privacy and ethics have been intensely studied by Joep. It is important to design the first concept. We understand the importance of this subject. The goal is to start the discussion in a positive way. This led to the following Ethics Statement:

Ethics statement:

Data collected via the MediApp (and other apps related to the MEDiLOO™; hereafter mentioned as 'MediApp') should be stored for the shortest time possible. That period will take into account the time that the medical experts in the neighbourhood need to process the data. This being a maximum of two weeks. Also, the data is kept in accordance with any legal obligations from the country involved. Stichting J&J Consortium will keep **time limits** to **erase or review** the data stored.

By way of an exception, personal data may be kept for a longer period for archiving purposes in the public interest or for reasons of scientific or historical research, provided that appropriate technical and organisational measures are put in place (such as anonymization, encryption, etc.).

On the MediApp, each user can decide whether or not his/her data will be processed. And each user can decide whether this data will be processed including or excluding this individual's data. At all times can the user of the MediApp change his/her preference regarding this information sharing.

How much data can be collected?

Personal data should only be processed where it isn't reasonably feasible to carry out the processing in another manner in a similar time period. Where possible, it is preferable to use anonymous data. Where personal data is needed, it should be **adequate, relevant, and limited to what is necessary for the purpose ('data minimisation')**.

What information must be given to individuals; whose data is collected?

At the time of collecting their data, people must be informed clearly about at least:

- **who** our company/organisation is (our contact details);
- **why** our company/organisation will be using their personal data (purposes);
- the categories of personal data concerned;
- the **legal justification** for processing their data;
- **for how** long the data will be kept;
- **who else** might receive it;
- whether their personal data will be **transferred** to a recipient outside the EU;
- that they have a right to a **copy of the data** (right to access personal data) and other **basic rights** in the field of data protection (see complete list of rights);
- their **right to lodge a complaint** with a Data Protection Authority (DPA);
- their **right to withdraw consent** at any time;
- where applicable, the existence of **automated decision-making** and the logic involved, including the consequences thereof.

The information may be provided in **writing, orally** at the request of the individual when identity of that person is proven by other means, or by electronic means where appropriate. Our company/organisation will do that in a **concise, transparent, intelligible and easily accessible way**, in **clear and plain language** and **free of charge**.

When data is obtained from another company/organisation, our company/organisation should provide the information listed above to the person concerned at the latest within 1 month after our company obtained the personal data; or, in case our company/organisation communicates with the individual, when the data is used to communicate with them; or, if a disclosure to another company is envisaged, when the personal data was first disclosed.

Our company/organisation is also required to inform the individual of the categories of data and the source from which it was obtained including if it was obtained from publicly accessible sources.

What data can we process and under which conditions?

The type and amount of personal data our company/organisation may process depends on several key rules, including

- personal data must be processed in a **lawful and transparent** manner, ensuring fairness towards the individuals whose personal data you're processing ('lawfulness, fairness and transparency').
- Our company must have **specific purposes** for processing the data and you must indicate those purposes to individuals when collecting their personal data. You will not simply collect personal data for undefined purposes ('purpose limitation').
- Our company must collect and process **only the personal data that is necessary to fulfil that purpose** ('data minimisation').
- Our company must ensure the personal data is accurate and up to date, having regard to the purposes for which it's processed, and correct it if not ('accuracy').
- Our company can't further use the personal data for other purposes that aren't **compatible** with the original purpose of collection.
- Our company must ensure that personal data is **stored for no longer than necessary** for the purposes for which it was collected ('storage limitation').
- Our company must install appropriate **technical and organisational safeguards** that ensure the security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technology ('integrity and confidentiality').

Can our company/organisation use data for (an)other purpose(s)?

Yes, but only in some cases. If our company/organisation has collected data on the basis of **legitimate interest**, a **contract** or **vital interests** it can be used for another purpose but only after checking that **the new purpose is compatible with the original purpose**.

The following points should be considered:

- the link between the original purpose and the new/upcoming purpose;
- the context in which the data was collected (what is the relationship between your company/organisation and the individual?);
- the type and nature of the data (is it sensitive?);
- the possible consequences of the intended further processing (how will it impact the individual?);
- the existence of appropriate safeguards (such as encryption or pseudonymisation).

If our company/organisation wants to use the data for statistics or for scientific research it is not necessary to run the compatibility test.

If our company/organisation has collected the data on the basis of **consent or following a legal requirement**, no further processing beyond what is covered by the original consent or the provisions of the law is possible. Further processing would require obtaining new consent or a new legal basis.

Regarding the storage of information for children using the MEDiLOO™, not being in the possession of a smart phone / MediApp: Written consent of the parent(s)/caretaker(s) is required. The information collected will have to be stored as a file in a safeguarded facility.

The technology behind the MEDiLOO™ can only be used for:

- Prevention of outbreaks
- Planning of medical care, clean water and nutrition

The development of the apps behind the MEDiLOO™

From the beginning, the realisation was present, that all information gathered by the MEDiLOO™ had to be processed with an external system. The use of apps is therefore vital for the success of the MEDiLOO™.

Four types of apps are going to be developed:

- **MEDiLOOalg®**: for algorithms for users and medical officers; with respect to all ethical conditions. In June 2020 the students of the Saxion Hogeschool executed the programming of 14 algorithms and further developed the symptoms table and the parameters
- **MEDiAPP®** for the on the spot early warning about the users personal health condition; with respect to all ethical conditions. In June 2020 the students of the Saxion Hogeschool developed the first concept of this MEDiAPP®
- **MEDiLOOapp®** for authorities in case of possible outbreak warnings; with respect to all ethical conditions. For the reporting to the local medical officers, consulted by the users. It starts with the ORS; with respect to all ethical conditions
- **MEDiLOG®** for logistics. This is the system which is the basis for the transport system behind the MEDiLOO™. When MEDiLOO™ have been installed, it is necessary to clean them and empty the basins and having them replaced by clean basins regularly. The MEDiLOG regulates this mobile sanitary transportation system; with respect to all ethical conditions. Damir has finalised the MEDiLOG®

Objectives

A strategic plan was set up by the founders, Joep and Jan. The first assignment of J&J Consortium was realising the design, with the Smart Toilet of Damir as the basis for the MEDiLOO™ concept. This was achieved in January 2019; the revolutionary MEDiLOO Configuration was the prime underlying idea. The consortium decided it was necessary to make a clear division in the management teams. The executive management is comprised by Jan Rolloos and Joep Derksen. The general management is formed by Damir Brdjanovic (for sanitation), Adriaan Timmers (for medical) and Joris Krijger (for patent application).

The second assignment was to set up and realise a Dutch patent of J&J Consortium, again under the supervision of Joris Krijger. In February 2019 the patent application was handed in.

The third assignment was the formation of a consortium of a wide range of experts in various professional fields of sensors, electronics, ICT, medical and development. Within a few months reputable names such as John Bolte (Professor (Lector) Smart Sensor Systems, The Hague University of Applied Sciences), Maurice Aalders (Professor at AMC, director at CLHC, CSO at FTS) and Harry Futselaar (Professor International Water Technology at Saxion International Water Technology) became ambassadors for the MEDiLOO™.

The fourth assignment was the actual realisation of the base prototype; within one year. Few thought that this would be possible. Yet; it was accomplished. In December 2019 the base prototype of the MEDiLOO™, which was predominantly also a working prototype of the Smart Toilet, was sent to the Saxion UAS International Water Technology. Here, researcher Ruben Timmers started working with a talented group of students on the further improvement of the MEDiLOO™

In the meantime, Damir was successfully promoting the MEDiLOO™ concept in the international medical community. Another successful promotion activity was the fact that Damir and his relations realised the contents to build a wonderful website, which was developed for the Foundation J&J Consortium: www.mediloo.org.

Also Adriaan and Jan continued to cycle once every week. Continuously they discussed medical solutions.

The first patent pending

The first patent pending was requested by the foundation J&J Consortium in 2019. It is called: 'MEDiLOO™; Mobile Sanitary Space. Equipped with medical monitoring devices for health monitoring in crisis and for mass gathering situations.

The invention of the algorithm processing of 'early warning for dangerous infectious diseases asks for a serious design.

The patent request honours the efforts of a number of scientists and technicians. The patent office takes great effort to give professional comments. This is highly appreciated!

The donation of IHE Delft

To the Foundation J&J Consortium, IHE Delft had formally donated an eSOS Smart Toilet. With this eSOS Smart Toilet effective field researches were realised. This prototype was installed at the Water Experiment Centre Twente (WECT), a research and testing facility of Saxion IWT with industry partners at the wastewater treatment plant Glanerbrug (one of the treatment plants of waterboard Vechtstromen) and was subsequently extended with the BMI-system as well as the water supply for the ORS; use of application and hygiene.



The base prototype of the MEDiLOO has arrived at the WECT facility for further R&D by Saxion IWT.

Prototype

In the Autumn of 2019, with the introduction from Damir, IHE Delft could offer the foundation J&J Consortium a prototype of the eSOS toilet, which was still standing at the premises of IHE Delft. This 300-kilogram heavy device was taken to the Saxion UAS in Enschede, where the students executed some tests on the prototype and upgraded it to the 'base prototype' of the MEDiLOO™. With this feat, the final objective of obtaining a prototype of the MEDiLOO™ was realised.

Water specialty Saxion University of Applied Sciences

The solution for the combatting of symptoms, combined with sanitary facilities and prevention, point directly to the availability of clean or super clean water.

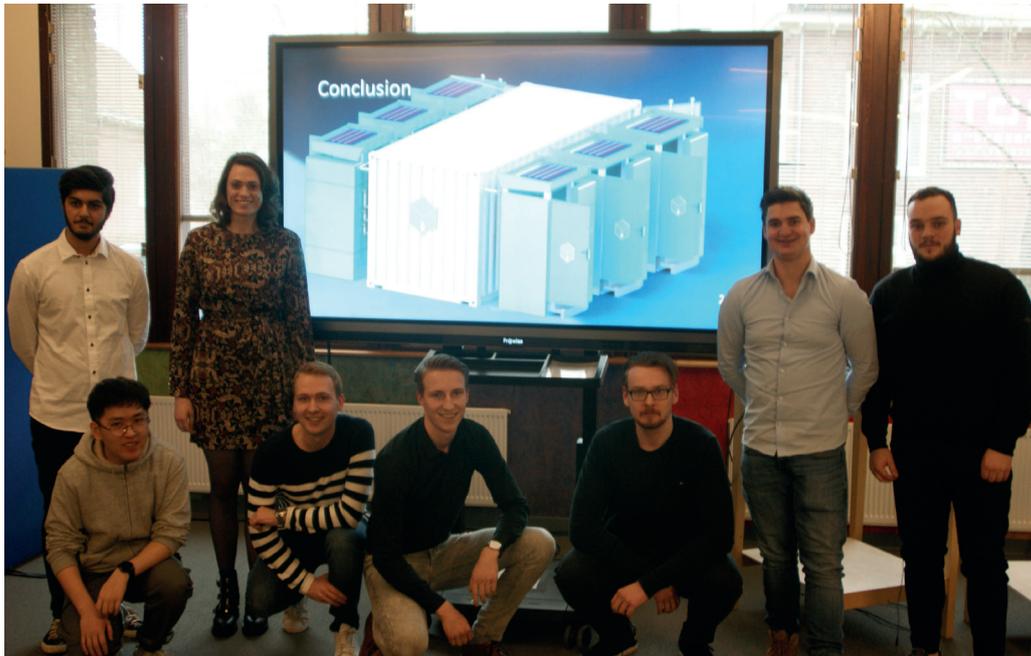
It so happens that the son of Adriaan, Ruben Timmers, researcher at the Saxion University of Applied Sciences (UAS), is working at the research group of International Water Technology (IWT) and involved in new developments with regard to the production of clean water. Saxion research group IWT with its Professor Harry Futselaar was invited to join the J&J Consortium.

Ruben supervised two interdisciplinary groups of 9 and 10 students who received the assignment regarding MEDiLOO, to come up with innovative ideas. The end result presented was fresh and surprising. It turned out, that the students came up with a solution of a challenge that the Foundation J&J Consortium had been struggling with for some time. Where to place a MEDiLab®; a facility to monitor the MEDiLOOs and possibly produce antibiotics and phages?



The students are ready to work with the base prototype

The students designed a central MEDiLOO™ facility (in a container); with multiple MEDiLOOs around it, water production, solar panels and light medical support. Additionally, the students presented an operating Body Mass Index BMI-system. This BMI-system is an essential part of the symptoms measurements. A job well done by the students: quick and practical!



The members of the first student team of Saxion University of Applied Sciences

Saxion UAS: the teams

The students of the first and second team of the Saxion UAS, in the school year 2019 – 2020 worked out indepth, surprisingly detailed and valuable additions within the full concept of the MEDiLOO™.

The first group of Saxion students came up with an idea of placing several MEDiLOO™s around a container. This container can also serve as the MEDiLAB™, an idea that J&J Consortium previously had thought of. A short presentation of the results can be found here: <https://youtu.be/tnltN5fgkv4>.

A real important element for the MEDiLOO™ measurements was also developed and tested by the student team: The BMI (Body Mass Index) instrument. They worked it out to the level of a working prototype, which played an important role in developing the standardisation of a multi interface board.

The second group of Saxion students elaborated on the work of the previous group and amongst others came up with the design for an ORS-water mixing installation and made a detailed healthcare case study, and cost calculation, for the added value of MEDiLOO™ to help prevent cholera in Zambia.

We greatly appreciate their creativity and the broad input of these students!

See Annex IV in the 'Journey to the MEDiLOO™, Extended version'

The academic world in the consortium

Over the past decades contacts from the academic world have laid the foundation for projects and products which have been thought of by Jan. For example: the machine that measures the freshness of salmon of Schmidt Seafood in Rotterdam, based on the hyperspectral technology of Professor Maurice Aalders, the SID project (Seek, Identify, Destroy) for the disinfecting of operation rooms, in cooperation with Jan's colleagues at TU Delft and the Kingston University in London.

Thus the Foundation J&J Consortium asked its partners, John Bolte: Professor (Lector) Smart Sensor Systems, The Hague University of Applied Sciences, Den Haag and Maurice Aalders: Professor at AMC, director at CLHC, CSO at FTS, Amsterdam to help with the next step. To successfully apply their medical sensors and hyperspectral cameras for the MEDiLOO concept.

January 2020 – May 2020

The Pandemic

In this period, the entire world population was confronted with a new and deadly threat: the COVID-19 virus. Up to that period in time, J&J Consortium had focussed on bacterial infectious diseases, for which the symptoms and algorithms were figured out and realised. The urgency of facing a new medical and economic crisis, caused by the COVID-19, came to a new realisation. Damir proposed: „Can we come up with a solution, where the MEDiLOO™ can identify COVID-19 carriers amongst the users of the MEDiLOO™?“ Adriaan concluded after some research: „The virus causes an infection of upper (nose, throat, conjunctivae = eyes) and lower airways (pneumonia). But can also cause an infection of the intestines (diarrhoea), and then we are able to

find the virus in sewage with PCR technique. Adriaan: „We came to the conclusion, that the basic elements of exploring the symptoms for COVID-19 are essentially comparable to the symptoms of other infectious diseases.“ So the symptoms of a COVID-19 infection can be: fever, cough, sneezing, red infected eyes and diarrhoea. We can add these symptoms in the matrix.“

Jan started to work on the additions of these symptoms in the matrix, resulting in a first publication of the J&J Consortium, in association with IHE Delft (ISBN: 978-90-830690-0-5). „The symptoms ‘Temperature’, ‘Colour of eye lids’ and ‘Diarrhoea’ can already be discovered and identified by the MEDiLOO™. On the basis of this knowledge, it is possible to realise an algorithm for early warning. Hyperspectral camera can execute breath and cough analyses.“

Late May Damir got in touch with a colleague from Delft, who is active in sewage health controls. Nowadays, it takes them two weeks to do all checkings, but Damir could mention that the Foundation J&J Consortium is active with the development of the MEDiLOO™, with which the results of the health controls can be determined within 24 hours, including the administrative processing.

Slogan

Every great idea needs a good slogan. Damir came up with the perfect slogan: „Where technology and public health meet.“

Adriaan Timmers, a retired local family doctor who has had his practices in Noordwijk for over 40 years, helped on preparing for the patent with regard to the medical terms.

The early warning; the essence

The core

After a year of struggling with the medical terms, under the lead by Adriaan, we finally 'discovered' the words early warning. We understood the importance of it and the possibilities.

The early warning system is the core of the entire MEDiLOO™ development. During the course of this project we introduced the principle of algorithms.

Symptoms & Measurements:

Sensors, optical identification, hyperspectral cameras, urine analysis on test strips, lab on chips

The early warning: the essence. This is an early warning for dangerous infectious diseases is described in the first patent pending. The detailing is presented in the set of matrices and tables. There are three central solutions

- The table of more than 30 symptoms with their respective codes and their critical intervals in numbers;
- The set of sensors with their specific dataset per symptom;
- The logical processing of the data embedded in algorithms

This result gives room for a further detailing of the medical insights.

MEDILOOTABLE™
TABLE OF SYMPTOMS AND MEDICAL SENSORS, ASSOCIATED CODES AND CRITERIA

Symptoms	Parameters	Sensors / Lab on chip	Optical monitoring	Hyperspectral cameras	Code	Criteria	Result
Fever	Temperature	X			F	>39 degrees	>39
Diarrhoea normal	Stool	X			DN	Watery, Diarrhoea	
Diarrhoea extended	Stool	X			DE	Watery, Diarrhoea	
Diarrhoea + blood	Stool + blood	X			DB	Red Coloured	
Diarrhoea + blood extended	Stool + blood	X			DBE	Red Coloured	
Dehydration normal	Blood			X	DHN	Na (<125 mmol/l or > 150 mmol/l), K(<3.5 mmol/l or > 5.0 mmol/l) Ht > 0,50	
Dehydration extended	Blood			X	DHE	Na (<125 mmol/l or > 150 mmol/l), K(<3.5 mmol/l or > 5.0 mmol/l) Ht > 0,50 + pulse high	
Anaemia female	Blood			X	AF	Hb <6.5 mmol/l)	<6,5
Anemia male	Blood			X	AM	Hb < 7.5 mmol/l	<7,5
Haemoglobinuria	Urine	X			HE	Dark yellow / Amber Coloured	
Hypoglycaemia	Blood			X	HY	Glucoses < 3.5	
Pulse low	Heart beat	X			PL	Low < 60	<60
Pulse high	Heart beat	X			PH	High > 100	>100
Weight loss acute		X	X		WA	Kg	Kg
Weight loss chronic		X	X		WC	Kg	Kg
Underweight	Weight/length	X	X		UW	BMI < 18	
Red Eyes	Eye white		X		RE		
Swollen eye lids	Eye lid		X		SEL		
Discharge eye lids	Eye lid		X		DEL		
Jaundice	Skin		X		JA		
Yellow eyes	Eye white		X		YE		
Brown urine	Urine	X	X		BU		
Light stool	Stool	X	X		LS		
Breath	Marker			X	BR		
Marker Coughing	Signaal	X			MCG		
Marker COVID-19	Stool			X	MC	Marker stool	

LOGICAL PROGRAMMING

EXPLANATION FOR ALGORITHMS PROVIDING THE EARLY WARNINGS:

In order to obtain measured values from the sensors, optical measurements and measurements with hyperspectral equipment, algorithms that respond to criteria associated with the different measured values are used.

Logical expressions are used when logging the algorithms, such as: LT (= less than), GT (= more than), LE (= less or equal), GE (= greater or equal) AND (= and also), and other expressions, as defined in the computer study book Fortran, Programming of Technical Science Problems, page 89 - 93, written by L. Costers Jr. and J. Rolloos, publisher Agon Elsevier 1972 (ISBN 90 10 10389 7).

In the private app (MEDiAPP ®), general characteristics of the user are stored (for example: m / f, origin). These characteristics are important for the processing of the algorithms. Storing in the private app is a guarantee of personal privacy.

The criteria that are measured are stored directly in the user's personal app. Also historical information, such as weight and temperature; in some cases, the historical criteria should be included in the final assessment of the early warning. The privacy of the user is therefore optimally guaranteed.

Anonymized information can be processed in the cloud app (MEDiLOOApp).

Example of an algorithm:

CHOLERA
DE.(NA.GT.125.AND.K.LT.3,5.OR.GT.5.AND.HT.GT.0,5).AND.PH.GT.100.AND.HY.3,5.AND.WA.
- TRUE=EARLY WARNING CHOLERA

Explanation: The measured values are converted to the code tables and in the software including logic, resulting in an early warning.

Personal memory:

Female (F) and male (M)

Origin / race (RA, RB, RC, RD, etc)

RESULTS OF THE REAL TIME PROCESSING

OF ALGORITHMS FOR TROPICAL INFECTIOUS DISEASES, MALNUTRITION AND VIRUSES, RESULTING IN EARLY WARNINGS:

Inspired by: 'ALGORITHMEN IN LOGICAL FORTRAN IV' (Fortran Programmering van technisch-wetenschappelijke problemen, L. Costers jr & J. Rolloos, ISBN: 90-10-10389-7, pages 89 – 93)

ALGORITHMS FOR TROPICAL INFECTIOUS BACTERIAL DISEASES, MALNUTRITIONS AND VIRUS INFECTION (COVID-19).

TABLE FOR LOGICAL PROGRAMMING IN FORTRAN IV, CODES FOR SYMPTOMS, SYMDROMES , RESULTING IN AN EARLY WARNING.

1. MALARIA (MALE)

(F.GT.39..AND.DN.C1.AND.AM.LT.7,5.AND.PH.GT.100..AND.HY.GT.3.5.AND.HE.GT.C5.AND.DHN.C4.)

TRUE=EARLY WARNING FOR MALARIA (MALE)

2. MALARIA (FEMALE)

(F.GT.39..AND.DN.C1.AND.AF.LT.6.5.AND.PH.GT.100..AND.HY.GT.3.5.AND.HE.GT.C5.AND.DHN.C4.)

TRUE= EARLY WARNING FOR MALARIA (FEMALE)

3. TYPHOID (MALE)

(F.GT.39..AND.DN.C1.AND.DE.GT.C2.AND.AM.LT.7.5.AND.PL.LT.60..)

TRUE= EARLY WARNING FOR THYROID (MALE)

4. TYPHOID (FEMALE)

(F.GT.39..AND.DN.C1.AND.DE.GT.C2.AND.AF.LT.6.5.AND.PL.LT.60..)

TRUE=EARLY WARNING FOR THYROID (FEMALE)

5. CHOLERA

(DE.LT.C2.AND.GT.100..AND.WA.LT.HI.AND.DHE.LT.C4.AND.HY.LT.3.5.)

TRUE=EARLY WARNING FOR CHOLERA

6 . PARATYPHOID

(F.GT.39..AND.DN.LT.C1.AND.DB.GT.C4.AND.DHN.LT.C6.AND.WA.LT.H1.)

TRUE=EARLY WARNING FOR PARATYPHOID

7. HEPATITIS

(BU.GT.V6.AND.JA.GT.V4.AND.YE.GT.V5.AND.LS.LT.V7.)

TRUE= EARLY WARNING FOR HEPATITIS

8. CAMPYLOBACTER

(F.GT.39..AND.DB.GT.C3.AND.WA.LT.H1.AND.DHN.LT.C6.)

TRUE= EARLY WARNING FOR CAMPYLOBACTER

9. DYSENTERY

(F.GT.39..AND.DHN.GT.C6.AND.WA.GT.H2.AND.DB.GT.C3.)

TRUE =EARLY WARNING FOR DYSENTETY

10. TRACHOMA

(RE.GT.V1.AND.SEL.GT.GT.V2.AND.DEL.GT.V3)

TRUE=EARLY WARNING FOR TRACHOMA

11. MALNUTRITION (MALE)

(AM.LT.7.5.AND.WC.GT.H2.AND.UW.GT.18.)

TRUE= EARLY WARNING FOR MALNUTRITION (MALE)

12. MALNUTRITION (FEMALE)

(AF.LT.6.5.AND.WC.GT.H2.AND.UW.GT.18.)

TRUE= EARLY WARNING FOR MALNUTRITION (FEMALE)

13. COVID-19

(F.GR.39..AND.RE.GT.V1.AND.BR.V8.AND.DN.MC.GT.C8)

TRUE= EARLY WARNING FOR COVID-19

11. MALNUTRITION (MALE)

(AM.LT.7.5.AND.WC.GT.H2.AND.UW.GT.18.)

TRUE= EARLY WARNING FOR MALNUTRITION (MALE)

12. MALNUTRITION (FEMALE)

(AF.LT.6.5.AND.WC.GT.H2.AND.UW.GT.18.)

TRUE= EARLY WARNING FOR MALNUTRITION (FEMALE)

13. COVID-19

(F.GR.39..AND.RE.GT.V1.AND.BR.V8.AND.DN.MC.GT.C8)

TRUE= EARLY WARNING FOR COVID-19

Early warning for COVID-19

In 2020, the entire world population was confronted with a new and deadly threat: the COVID-19 virus. Up to that period in time, J&J Consortium had focussed on bacterial infectious diseases, for which the symptoms and algorithms were figured out and realised. The urgency of facing a new medical and economic crisis, caused by the COVID-19, came to a new realisation. I proposed: „Can we come up with a solution, where the MEDiLOO™ can identify COVID-19 carriers amongst the users of the MEDiLOO™?“ Adriaan concluded after some research: „The virus causes an infection of upper (nose, throat , conjunctivae = eyes) and lower airways (pneumonia). But can also cause an infection of the intestines, and then we are able to find the virus in sewage with PCR technique. So the symptoms of a COVID-19 infection can be: fever, cough, sneezing, red infected eyes and diarrhoea. We can add these symptoms in the matrix.“ We started to work on the additions of these symptoms in the matrix, resulting in a first publication of the J&J Consortium, in association with IHE Delft (ISBN: 978-90-830690-0-5).

The realisation came that the Fortran algorithms designed by Jan can be used for finding both a virus as well as a bacteria type. The urgency of the virus COVID-19 has led the J&J Consortium to further evolve the detailed algorithms into an early warning for COVID-19; the virus that globally disrupted the healthy systems and economy.



Damir presented the MEDiLOO™ early warning matrix on one of the International Sanitation Conferences

New (second) patent pending:

Name: Mobile Sanitary Service System with Water Purification and ORS Administration Functionalities

When we heard the figures from the WHO (as mentioned in the Essence), we designed a solution, which not only works in a standalone unit of the MEDiLOO™, but also as part of a MEDiLOO™ system. This happened under the direction of Adriaan.

While driving from Noordwijk to The Hague, our Doctor Adriaan gave us a lesson on the treatment of diarrhoea. The basic element is treatment with ORS (oral rehydration solution; a mixture of water sugars and salts), with the comment, that the patient can only take it with superclean water, which is not always available in the developing countries. When you drink contaminated water, you can get more sick than you already were.

A new patent was born.

The team at Saxion University of Applied Sciences provided the solution for water processing. Joep came up with a surprising suggestion to use dew water.

The new thinking: water, dew, ORS:

Water:

The water processing in the MEDiLAB™ is the first and vital advantage of the MEDiLOO™ system.

Prevention due to hygiene, such as washing hands and sanitation are the key words (see: water / Saxion), where super clean drinking water is needed for ORS intake. A water facility is designed with nano poor filtration techniques, also in the MEDiLAB™.

Regarding the MEDiLOO Solutions for health and sanitation we are more than halfway.

Dew

Joep came up with the idea of collecting (morning) dew for the use of the MEDiLOO™ toilets and the entire MEDiLOO™ system. For dew water collection you can use the horizontal area but you can also use the (vertical) height to install the dew water collector (having 'enough' space on top of the container being larger than the surface area of the system/container). This water can be used for flushing the toilets, or as an addition to provide the toilet users with ORS-water. This will be added to the second patent of the Foundation J&J Consortium.

ORS

Sometime later, we came to the understanding that the team of Saxion UAS works with hollow fiber membranes. With that technology we had the possibility to produce super clean water (water without bacteria). This fuelled the idea to integrate super clean water and the addition of ORS to it. Next to the ORS, the user is strongly advised to also drink 1.5 liters of clean water that very same day. Adriaan mentioned that this could be a first aid for a very high percentage of people with diarrhoea; to be used in the MEDiLOO™ or as an addition to the MEDiLOO™.

The result of an early warning can be the administering of ORS, according to the instruction of the local medical officer. The example for dehydration is ORS and after that giving fluids and good food.

Through the use of the algorithms, the existence of viruses can be discovered, after which, amongst others, ORS can be administered.

Hyperspectral cameras

The speciality of our ambassador Maurice Aalders, the hyperspectral cameras, have one strong advantage: they can measure the parameters in our symptom table with the speed of light. You need the colour of the chemical entity in the spectrum. When you know the colour, the hyperspectral camera can find the colour with the computer programs built for this purpose.

Within the foundation J&J Consortium, there is experience within the program for Schmidt Zeevis with measuring the colour of the blood in the gills of salmon. And depending on the colour of the blood you could detect the freshness of the fish. This was realised with the technology of Maurice.

In the changing world, due to the COVID-19 pandemic, we decided to give the hyperspectral technology our special attention. With promising possibilities.

Finances and sponsors

Finances

For the whole year of 2019, there were of course expenses to be paid. Both Jan and Joep found sponsors. Jan contacted some of his friends who donated a few thousand euros and Joep found the Stichting Voorzorg Utrecht to contribute for the realisation of the prototype of the MEDiLOO™.

We want to particularly thank the following sponsors:

Business sponsors:

Stichting Voorzorg Utrecht

HEAD Katwijk

Schmidt Zeevis

Private sponsors:

Hein de Jong

Edwin de Beukelaar

Damir Brdjanovic

Jan Rolloos (founder)

Joep Derksen (founder)

What did we actually achieve?

We have been active with the Foundation J&J Consortium since December 2018; since the publication of this book in July 2020, a little more than 1,5 years have gone by. During that time period, we have developed the sanitation concept of the MEDiLOO, the medical matrix with the tables and solutions; both for infectious tropical diseases, under development, and viral infections (COVID-19).

Also, the medical sensor innovations with the Multi Interface Board (MIB), a series of MEDiLOO-apps both for the private users as well as for the cloud. Additionally we set up the logical programming of the algorithms to produce the early warnings. Finally, the logistics of the maintenance of the MEDiLOOs privacy, specifically for the private users has been well taken care of.

Of main importance is the first aid for the symptom Diarrhoea, responsible for a major part of the complaint: ORS with super clean (without bacteria) water will help considerably in this matter. For the retrieval of water resources nearby water supplies, but also (morning) dew is used.

One of the most important assets is the network that the J&J Consortium set up and realised. For future developments of the MEDiLOO™, the MEDiLOO™ system and all further aspects this is of great importance.

We sincerely thank all the participating scientists and ambassadors.

Quo Vadis

Upon reflecting the previous period, the conclusion can be made that the financial support from the international humanitarian sanitation world has in fact been minimal.

In the beginning of 2020 we were confronted with the worldwide COVID-19 virus; causing panic in both the health care as well as the economic world. Priorities understandably went to fighting this pandemic. During this time, our consultants became critical about the financing part. MEDiLOO™ is primarily meant for poor areas where there is no fundamental money for sanitation and health purposes. The following suggestions were given to the board of the Foundation J&J Consortium:

- Join the development of the Smart Toilet with medical checking facilities (see https://www.nature.com/articles/s41551-020-0575-0.epdf?sharing_token=Mu2TVrLe3KNSG3n48dmgqtRgN0jAjWel9jnR3ZoTv0OKc93axGd4Bsb4XlgVQTj9gVlth3NvKDu6ssDoizOD5C797FOMSJRok3VaiqACtmYxUOy_Dr-al--NyouW7wICCVNY3K7m3-sKNPa0kOihccdaqEt0cFLTyE1jI0W7jE4%3D) for the rich and lucky people with money in the world. Use our technology of early warning and specifically the hyperspectral technology (light speed symptom detection)
- -The manufacturers of toilets might be interested in the high end of the market with the technology of J&J Consortium
- -The COVID-19 pandemic offered new business opportunities. Governments need outbreak information; tests, sensors, symptoms and logical algorithms are now being directed to actual and future outbreaks.

Our Advisor Damir is already active with his friends from KWR to try to win a sizeable European Horizon price for the early warning for diseases caused by mosquitos. The J&J Consortium technology is ready and available.

This changing horizon gave us the idea of widening our business scope. Our Advisor Damir advised us to not only focus on the humanitarian goals: 'No money is available in this field. Concentrate on the market for the rich and famous, for a change'.

Reflections

The valuable comments of our Advisor Damir are presented below.

The realisation of the MEDiLOO™ for the poor and/or developing countries is factually a far away dream, partly caused by the pandemic of the COVID-19 virus.

The pandemic results in anxiety and the need for more measuring to prevent and control outbreaks. Damir came up with the development, that we have to take the essentials and the patents pending out of the MEDiLOO™ design. And change the course of the future of the MEDiLOO™. The objective is to integrate the MEDiLOO™ technology into the homes and toilets of the wealthy and privileged people in the world.

We highly appreciate the following email sent by Damir:

Damir wrote the following:

„ Dear all

After some heavy thinking, I come to the following conclusions and proposals. **I want that this email is considered as official minutes and as such also enters in the book you are preparing.**

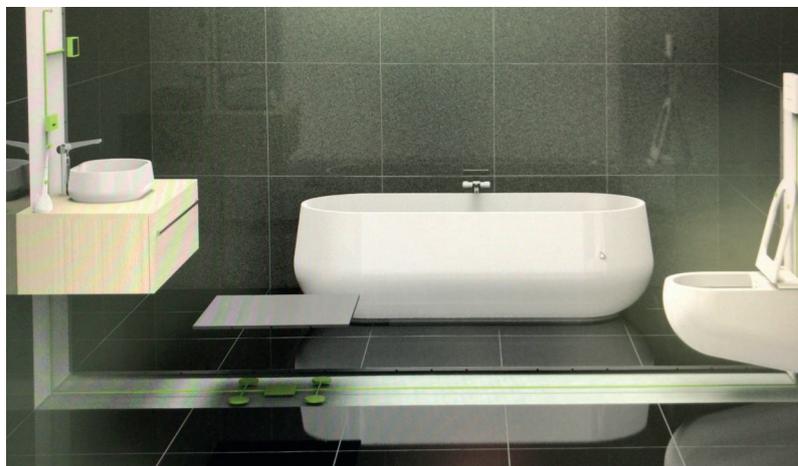
Namely, I have been involved in the eSOS/MEDiLOO for almost a decade now. While I could arrange funds for eSOS, we cannot arrange to fund the MEDiLOO (yet). Since we established the MEDiLOO some years ago, we could not arrange any substantial funding and we have spent considerable time, efforts, and own money into it. **So, obviously something is wrong.** And obviously **we need to make changes** to prevent we exhaust our enthusiasm and collapse due to the absence of funding. Last Friday (two days ago) I presented my new ideas to Jan and Joep during our regular meeting in Noordwijk. In short - we need to rebrand the MEDiLOO. The current concept targets humanitarian aid and funding and is considered a pro-poor product. Obviously funders are not recognizing the potential behind it for whatever reason. **So I become increasingly aware that we have to put aside (maybe only for the time being) the pro-poor concept and bring to the fore the high-end technical innovation of the toilet.** This holds for both visual and textual focus and messages we want to bring. So instead of focusing on the beautiful exterior design of a decentralized toilet, we need to focus on the interior design of the futuristic capsule/module/box of the toilet where the technology comes first, functionalities and features. **We need to zoom into technology and not the pro-poor market.** For clarity, the present concept remains but only as a pro-poor option with a certain set of target poor-related diseases.

Secondly, by re-branding into not Only pro-poor products (but also pro-rich) **the scope of diseases** has to be expanded. I strongly suggest we do not necessarily expand the list of technology we already have in mind (sensors etc.) but look carefully at which pro-rich symptoms and diseases we can include in the existing concept.

Another conclusion is that currently, our list of diseases is very extensive, not necessarily a bad thing, however, for the marketing and fund-raising purposes I think **we have to focus** (at least at the beginning) **on fewer diseases** and only these which we can work out from the start to the end. With the present list, we are already doing it in regards to the latest EUH2020 call, but we need to do it anyway in general.

So this brings me to the list of actions and more ideas:

1. Next Friday I arranged a meeting in Noordwijk with us and other potential partner. They want to talk with us about funding, and possibly about rendering some pro-rich images of MEDiLOO.
2. I will have the meeting with the co-inventor of DEMOS, to adjust the DEMOS concept where at the moment we have the vertical division between sewerred and non-sewerred parts of the city (and where MEDiLOO only covers the latter) while in my new concept described above, the division in DEMOS will be horizontal (dividing the information between individual and cumulative information across the city) where MEDiLOO will provide individual info and KWR system collective info, across the city. In this way, MEDiLOO is not only for toilets outside the home (pro-poor) but can also be placed inside the home (also pro-rich). If agreed with him, this concept will be presented at the World Bank webinar on 24 June 2020, 15:00h. Will send you details.



3. So, I have an idea about a new project that can attract money. It will use the newly branded image and primarily-pro rich target (but also relevant for pro-poor, but not as a front-page message) and it will target just one set of diseases using the technology that we are familiar with. Based on what I hear and know, I propose to build a story about colon diseases (eg. cancer) where one of the leading symptoms can be blood in the stool and we detect the blood by an optical or hyperspectral camera (like you do with your fish application). It is both applicable for males and females (except for the menstrual period, but no problem) and is quite a solid symptom of intestinal issues of problems with colon or anus (i.e. hemorrhoids). If you agree with this please shape this idea with Adrian further into the full concept.

4. If we come up with that new concept und 3., the next steps would be to: a) engage one hospital as a partner (preferably from Den Haag), b) engage one known supplier of sanitary equipment/toilets (preferably from NL, e.g. Gheberit, Grohe, Spinhx , Villeroy, etc) and c) one health institution from NL (eg. GGD or someone with an interest to help sick people). Together with (...) we submit a proposal for the grant to develop a toilet which will supplement or even replace the faeces test (this test I just did a few weeks ago) automatically and not only for 50+ but for all, and every day not once in 5 years!!! PS. In Den Haag municipality where a friend of mine works there are innovation grants for NL businesses and we can apply for it. It is not only Den Haag focused but at least one partner should be from DH. We produce the toilet bowl with technology in it and we do a pilot in the new houses or apartments build in Den Haag. So here we focus only on the toilet bowl and not on the entire toilet.

So these are my ideas to be shared with you. I believe this is the way forward. Next to the blood in the stool we can think about other symptoms that can be obtained from the stool and urine with our sensors (think about urine and kidney diseases or inflammatory issues). So we have to re-brand and adjust our booklet, website, and perhaps update the patents.

Best regards

Damir"

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References:

Booklet MEDiLOO™ where technology and public health meet, by Jan Rolloos, Joep Derksen, Adriaan Timmers, Damir Brdjanovic, ISBN: 978-90-830690-0-5

Fortran, Programmering van technisch-wetenschappelijke problemen, L. Costers jr., J. Rolloos, ISBN: 90-10-10389-7

All annexes as mentioned in this publication can be found in the digital version of the book 'Journey to the MEDiLOO™, Extended version' (ISBN: 978-90-830690-2-9). This version can be found on the website www.jandjconsortium.org.

Timetable

April 2015:	First contact with Damir
August 2016:	Constructing and design of first patent application
December 2018:	Renewed efforts because of extensions of the Smart Toilet
December 2018:	Breakthrough regarding the algorithms development and the assignment of the coded symptoms for the MEDiLOO™
January 2019:	Foundation of J&J Consortium
February 2019:	Application of first patent pending for J&J Consortium
August 2019:	Confirmation of first patent pending for J&J Consortium
November 2019:	Realisation of first base prototype of MEDiLOO™
December 2019:	Development of BMI in prototype of MEDiLOO™ at Saxion by its students
January 2020:	Saxion students present the MEDiLOO™ system
May 2020	First publication realised: 'MEDiLOO™: where technology and public health meet'
12 June 2020	Publication of MEDiLOO™ in Nature: https://www.nature.com/articles/s41551-020-0575-0.epdf?sharing_token=Mu2TVrLe3KNSG3n48dmgqtRgN0jAjWel9jnR3ZoTv0OKc93axGd4Bsb4XlIgvQTj9gVlth3NvKDdu6ssDoizOD5C797FOMSJR0k3VaiqACtmYxUOy_Dr-al--NyouW7wICcvNY3K7m3-sKNPa0kOihccdaqEt0cFLTyE1jl0W7jE4%3D
July 2020	Repositioning of the MEDiLOO™; also focus on the rich and wealthy
August 2020	The completion and handing in of the development for the second patent application for J&J Consortium regarding first aid for diarrhoea with ORS, super clean water, dew and water treatment
August 2020	Publication of 'Journey to the MEDiLOO™'



The team with the base prototype of the MEDiLOO™

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