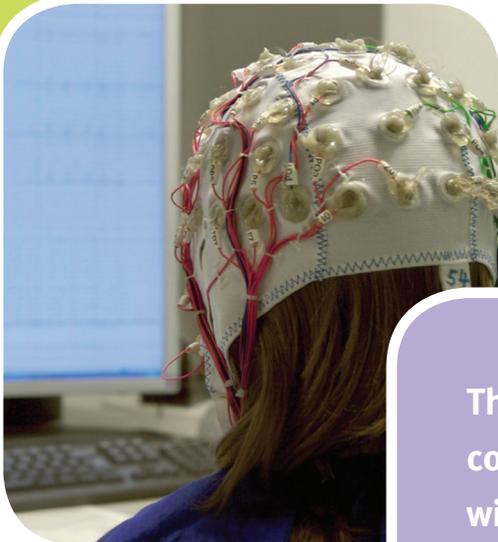
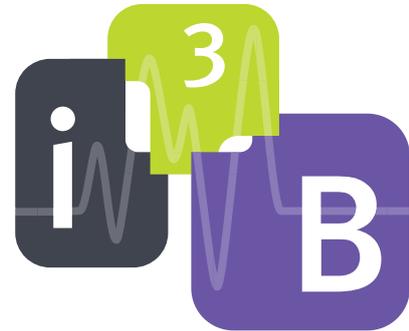
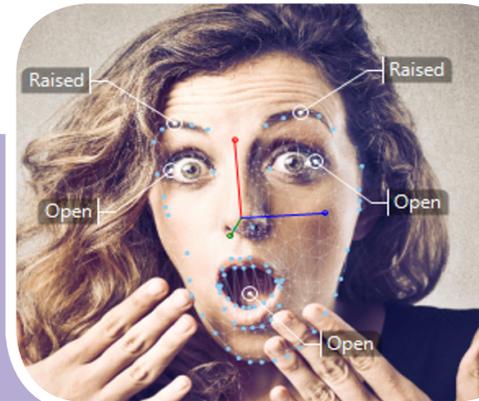


ICT for Brain, Body & Behavior

Annual Report 2018



The i3B network strives for collaboration and impact with innovative ICT solutions to monitor brain, cognition, physiology and behavior.



CONTENTS

	Executive summary	2
1.	Introduction	4
1.1	Ambition	4
1.2	Mission	4
1.3	Application domains	5
2.	Ecosystem	8
2.1	Companies	9
2.2	Knowledge providers	10
2.3	End users	10
2.4	Network and sector organizations, alliances	10
2.5	i3B Lab	10
2.6	Field labs	11
3.	Activities	12
3.1	Connect	12
3.2	Innovate	16
3.3	Accelerate Business	20
3.4	Learn	20
3.5	Exchange talent	20
3.6	Lab facilities	21
3.7	Expand network	21
4.	Results	22
5.	Finance	24
6.	Governance	26

EXECUTIVE SUMMARY

The i3B innovation network is in a transition period. i3B strives for more collaboration and impact with our innovative ICT based solutions on brain, cognition, physiology and behavior. We will focus therefore on specific applications domains in line with needs of participants, and will collaborate in small groups (SIGs) to reach the required impact. Resulting also in more financial resources for the i3B foundation, to run the network. The strategy and planned activities for 2018 as stated in the Work Plan 2018 are:

Strategy

1. **Focus and impact.** i3B will focus her attention to specific domains; monitoring animals, workload and healthy lifestyle.
2. **Organization.** Special Interest Groups (SIGs) on these domains form the core of the i3B network. All i3B activities are aligned with SIGs .
3. **Agendas.** SIGs will influence, set innovation agenda's on these domains, if possible with help of national and EU networking subsidies.
4. **Projects.** The i3B foundation will be more often beneficiary in projects.
5. **Expansion.** Retain and expand i3B with larger companies and knowledge institutes in line with SIG goals. The oral agreement with Thales to join thanks to the SIG model of collaboration gives us confidence for the future.
6. **Collaboration.** Look for cross overs, close collaboration with other innovation networks.

Activities

1. **Connect.** i3B organized several SIG meetings and three events.
2. **Innovate.** i3B submitted two network enhancing projects in 2018 with i3B as a beneficiary and performed project matchmaking for participants.
3. **Accelerate business.** i3B published two newsletters, several posts on LinkedIn groups, and was present with booth/pitch at three events.
4. **Learn.** i3B coached Bereslim, Elitac, Orikami, Boomerweb, Vicar Cision and Artinis and organized a coaching session at the C.I.A.L.E. event (5th of June, 2018)

5. **Career.** -
6. **Lab facilities.** Feasibility and application for EFRO field lab application for animal monitoring. No other lab activities.
7. **Expand network.** Add large(r) companies, compensate for and retain knowledge institutes in line with SIG strategy and added value partners. The first large company, Thales Nederland, started participation in i3B in 2018.

Result

i3B realized most of her ambitions in 2018: Connect stakeholders in joint agendas and events. Innovate by establishing innovation projects, Accelerate the business of her participants by matchmaking events, Learn through coaching of SMEs and Expand, Promote the network through social media, newsletters and events. A detailed overview is stated hereunder:

Connect. The i3B SIG Human Factors composed and published the white paper '*Measuring the Cognitive Human*' (click [here](#) to download) which is a research agenda aimed at building joint projects toward the larger ambition of building a real-time robust monitoring system of Human Factors in critical operations. In 2018, i3B (co-)organized several events such as a Hackathon, a Healthy Lifestyle Matchmaking event, H-Workload 2018, several Coaching sessions (see: Learn), Special Interest Group meetings and the '*i3B meets IBM*' event in Wageningen.

Innovate. i3B submitted two (EFRO) Cluster & Network enhancing subsidy applications on Food & Cognition and Animal Monitoring (x3D). Both subsidies have been granted, herewith multiplying participant contributions. In total, i3B performed project matchmaking for 10 unique i3B participants.

Accelerate business. i3B accelerated business of her participants by amongst others a Hackathon event on the future of shopping for visually impaired people and a Healthy Lifestyle matchmaking event with over 80 participants in Nijmegen.

Learn. i3B coached several participants on entrepreneurship in 2018. The coaching was part of the C.I.A.L.E. project, organized with DOON coaching professionals. The feedback from participants was very positive.

Expand network. Thanks to the new SIG model of collaboration, i3B had the first commitment of a large company (Thales Nederland) to join the network. The promotion goals were practically achieved; publishing newsletters, regular website updates and LinkedIn group updates. We have 55 members in the i3B LinkedIn group.

Enjoy reading and looking forward to connect and innovate in 2019.

Henk Gerards
Managing Director i3B

INTRODUCTION

1.1 Ambition

ICT for Brain, Body and Behavior (i3B) aims to be the European independent network of ICT companies and knowledge institutes in the field of brain, cognition, physiology and behavior.

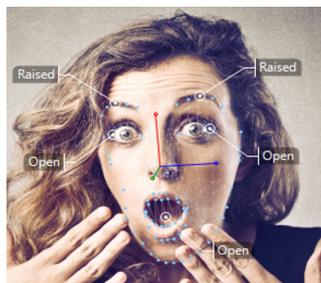
‘Our participants jointly investigate, develop and commercialize software tools and practical solutions for accurate measurement, powerful analysis and meaningful feedback.’

1.2 Mission

The i3B mission is to connect science and business, innovate through joint R&D projects, accelerate business and train and foster career opportunities within the network, facilitated by (field) labs.

i3B participants develop ICT tools to measure, analyze and provide feedback on brain, body and behavior; in a wide variety of circumstances such as eating, buying, driving, human-system interaction, moving (sports, elderly), stress, social interaction, psychiatric disorders, sleep quality, precision livestock farming, animal monitoring and human factors. The partners in the i3B network contribute by delivering advanced measurement, analysis or feedback components, hardware or software, which are integrated into multi-modal systems and practical solutions.

A selection of ICT solutions out of the i3B network to illustrate the abilities of the network: ergonomic body posture advisor, a simulator for measuring consumers’ buying



VicarVision - Emotion recognition software for the elderly in a nursing home.



i3B consortium - Driving behavior simulator.



i3B consortium - Simulator to measure for buying behavior in a virtual supermarket.

behavior in a virtual supermarket, a simulator that measures driver behavior, emotion and task performance, emotion recognition software for the elderly in a nursing home and an innovative neuro- and biofeedback system.

1.3 Application domains

The i3B participants jointly investigate, develop and commercialize software tools and practical solutions for accurate measurement, powerful analysis and meaningful feedback with societal impact in four main application domains: Health, Food, Mobility and Security.



Application domains.

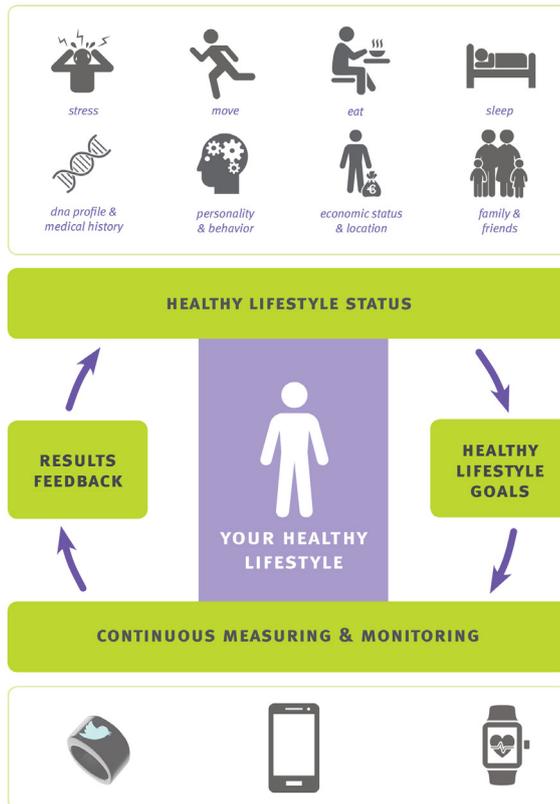
In 2018 these application domains are narrowed down to the following focus domains:

1. Monitoring Healthy lifestyle
2. Monitoring Animals
3. Monitoring Human Factors

A short introduction

1. Healthy Lifestyle

i3B joined forces with Health Valley NL and Food Valley NL in the European funded project C.I.A.L.E. (Connect, Innovate, Accelerate, Learn and Expand). Thanks to this cooperation, the participants form as it were, the largest SME network in the east Netherlands region as part of the C.I.A.L.E. project a Healthy Lifestyle innovation agenda is established. The purposes of the innovation agenda are to connect science and businesses around the Healthy Lifestyle theme, to realize joint funded R&D projects and to realize healthy lifestyle innovations: a priority for 2018 and onwards. The innovation agenda is available upon request.



ICT solutions for a Healthy lifestyle.

The figure on the left gives a schematic overview of your healthy lifestyle cycle. Your health status is determined by factors like how much you move, eat, sleep, socially interact and your DNA profile. Ultimately the (R&D) efforts lead to an integrated, user friendly sensor based ICT solution to continuously monitor your healthy lifestyle and goals and provide meaningful and motivating feedback on your healthy lifestyle.

2. ICT based solutions to measure, interpret and predict animal behavior

i3B Foundation, Wageningen Livestock Research, Van Hall Larenstein University of Applied Sciences, Saxion University of Applied Sciences and University of Twente joined forces in the x3D EFRO cluster and network reinforcement project. x3D stands for information, communication and sensor technology (ics, pronounced x) monitoring animal behavior, animal health and animal welfare (x3D). The x3D project initiates, promotes and strengthens cooperation between (SME) business, knowledge institutions and end users. This leads to x3D innovations, resulting in a contribution to the economic and social development of the East Netherlands region. Project activities consist of connecting stakeholders through round tables, inspiration and match-making events, developing valorisation outlines, workshops with groups of SME entrepreneurs, and finally the promotion of the x3D cluster.



Cow sensor

3. Workload monitoring

Determine cognitive, mental (stress) workload for drivers. Drivers like in cars, trains, boats and airplanes. The need exists for a non-invasive, objective, validated, automatic measurements of cognitive workload. Participants such as Thales, NLR, MARIN, Noldus

IT, Eaglescience, Elitac and others collaborate to set the human factors ambition and develop (R&D) programs to tackle the challenge. A whitepaper is developed in 2018.

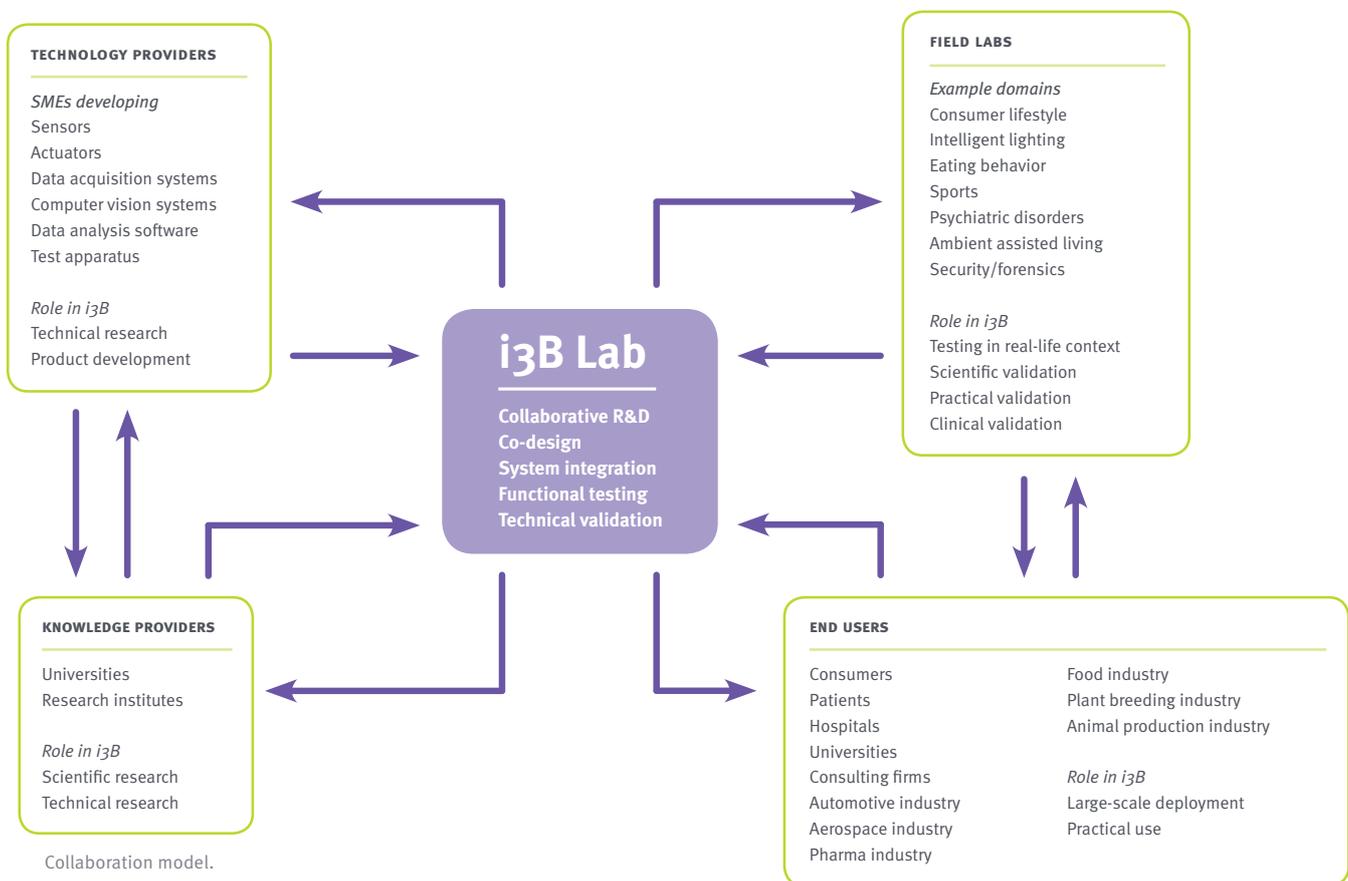


Workload monitoring.

CHAPTER 2

ECOSYSTEM

The diagram below is a schematic representation of the i3B model of collaboration of knowledge institutes, high-tech companies and end users. The collaboration is aimed at joint research, development and commercialization. The i3B network can utilize (field) lab facilities to exchange ideas, develop prototypes, test and finally introduce to the world innovative ICT solutions for brain, body and behavior.



2.2 Knowledge providers

Research at universities and institutes (knowledge providers) from different disciplines results in scientific knowledge about brain, cognition, physiology, and behavior, the measurements needed for this and the desired read-out parameters. The knowledge institutes in the i3B network also provide the latest knowledge in sensor technology, computer vision, artificial intelligence, Internet of Things and Big Data analysis. In section 3.7 we will elaborate on the growth of the i3B network in 2018.



2.3 End users

i3B collaborates closely with end users (user centered design) to develop innovative ICT solutions. Eventually, i3B tools are sold to consumers, hospitals, universities, and companies.

2.4 Network and sector organizations, alliances

This category comprises network organizations, platforms and associations that collaborate with i3B to strengthen the innovation capacity in the domains of Food, Health, Mobility and Security.



2.5 i3B Lab

In the i3B Lab the prototypes of the technology providers are tested in relevant but small-scale lab environments with representative test subjects. The prototypes are technically validated, debugged and iteratively improved. As soon as they are robust enough they are offered to the next link in the chain: field labs.

2.6 Field labs

Field labs are controlled environments, modelled after the real world. In these domain-specific research facilities, the i3B tools are validated in field tests, clinical studies and valorization with end users before they are launched commercially. The labs can either be linked to i3B (such as the Restaurant of the Future for food choice and eating behavior), or they can be independent, such as the Philips Experience Lab for consumer lifestyle, and Sportinnovation Centre Papendal.

CHAPTER 3

ACTIVITIES

The i3B Foundation has undertaken a range of activities for the benefit of participants and end users in 2018. A non-exhaustive overview of activities is stated below.

3.1 Connect

The i3B network connected science and businesses to exchanges ideas, knowledge and trends. In 2018, the decision has been made to focus on monitoring healthy lifestyle, animals and human factors in dedicated small groups (SIGs). The SIG establishes a joint agenda and will execute the agenda in joint projects.

Agendas

i3B composed a strategic research agenda (white paper) on Human Factors, coordinated by Thales Netherlands and realized in the SIG Human Factors, published beginning of 2018. The i3B SIG Animal monitoring has also been continued in 2018. i3B submitted in this respect beginning of 2018 the EFRO cluster and network application 'x3D' which allows to build a cluster in the area of animal monitoring. Besides, an EFRO cluster and network application on Food & Cognition has been granted in 2018, which is complementary to the Healthy Lifestyle innovation agenda.

Events

i3B organized more than the 9 anticipated 'Connect' events: 7 SIG meetings, a Hackathon on the Future of shopping for visually impaired people, a Healthy Lifestyle Matchmaking event, the H-Workload event, several Coaching sessions and i3B meets IBM.

Overview

An overview of i3B Connect activities in 2018, in chronological order:

i3B Special Interest Group Human Factors meetings (participants only)

In 2018, the i3B SIG Human Factors had five meetings (January, March, May, July, October). A white paper has been composed by the SIG and new Project Outlines are elaborated by the SIG members.

i3B Special Interest Group Animal monitoring meeting (participants only)

In 2018, the i3B SIG Animal monitoring had three meetings (January, April and September), focusing on the EFRO x3D subsidy application and several Project Outlines.

The x3D project, a joint effort by the SIG Animal monitoring, has been granted in 2018, creating the opportunity to structurally build and expand a cluster on animal monitoring.

24/25/26 January 2018 - Koninklijke Visio Hackathon

Future of Shopping: Visually impaired i3B and Koninklijke Visio organized a Hackathon to tackle challenges visually impaired people face when shopping in a supermarket. On 24 January, an ‘*experience meeting*’ took place in an Albert Heijn XL store in Eindhoven. In this session, all Hackathon participants were asked to perform a shopping task while wearing a blinding pair of glasses. The participants were guided by ‘*experience experts*’ with actual visual challenges. This inspirational session was followed by two intensive days of working on solutions in Hackathon setting, hosted by DOON innovation coaches. For a video impression of the Hackathon: click [here](#).



Visio, i3B and Albert Heijn representation at the Hackathon Shopping Experience meeting

13/14 February 2018 - Bereslim coaching (C.I.A.L.E. prize winner)

In the i3B newsletter of November 2017, we announced the C.I.A.L.E. ‘*Win a Coach*’ contest prize winners Biovolt and Bereslim. The individual coaching days Bereslim won took place in Zwolle on 13 and 14 February 2018 under guidance of a DOON innovation coach. Based on techniques such as DesignThinking, Lean Startup, Agile, Scrum, et cetera. We elaborated on the Bereslim value proposition and business model during the coaching session.



The coaching session Bereslim won in the ‘C.I.A.L.E. Win a Coach’ contest.

15 March 2018 - Health Valley Event

The 10th annual Health Valley Event took place on 15 March 2018 at Cinemec, Nijmegen. i3B set up a booth at this event, to promote a joint Healthy Lifestyle collaboration project and the i3B network. The event was a great success, with over 1250 attendees.



22 March 2018 - Kempenhaeghe Innovation Session

The 20th edition of the annual international clinical symposium ‘Update@kempenhaeghe.nl’ took place on 21, 22 & 23 March 2018 in Heeze, the Netherlands. Over the past decades, this symposium has become a major international scientific event in the Low Countries. During state-of-art main sessions, workshops and parallel sessions, recent progress in the diagnosis and treatment of epilepsy, sleep disorders and cognitive dysfunction were discussed. i3B performed a pitch during the Innovation session for Neurology at Kempenhaeghe to promote the i3B network and the recently submitted Food & Cognition program. At this event, representatives from industry and clinicians interacted on innovative topics in neurology and epilepsy.



5 June 2018 – C.I.A.L.E. event

The foundations i3B, Health Valley and Food Valley NL joined forces in an ‘EU funded’ project called C.I.A.L.E.: Connect, Innovate, Accelerate, Learn and Expand. The foundations represent together the largest ecosystem of innovative SME companies in the East Netherlands region. On 5 June 2018, the C.I.A.L.E. partners organized an SME matchmaking event at the Sana-dome in Nijmegen. The event started with an entrepreneurship coaching workshop. Subsequently, an inspiration and matchmaking session took place, with shared experiences from the SMEs who received C.I.A.L.E. coaching, a Keynote lecture by Peter Blangé (KNVB) and a brainstorm towards new Healthy Lifestyle projects. Last but not least, the C.I.A.L.E. project received an award from Sigrid Helbig, Director of Nijmegen Economic Board.



From left to right: Victor Haze (Health Valley), Simon Haafs (i3B), Sigrid Helbig (Nijmegen Economic Board) and Jeroen Wouters (Food Valley NL).

27 & 28 August 2018 – C.I.A.L.E. coaching Elitac

The C.I.A.L.E. project contains entrepreneurship coaching based on techniques such as Design Thinking, Lean Startup, Agile, et cetera. i3B participant Elitac was coached for two days on organizational, market-technical and developmental issues. The coaching was guided by innovation professionals from DOON.

6 September 2018 – i3B meets IBM

The event ‘i3B meets IBM – from sensors towards prediction’ took place at the Noldus IT office in Wageningen. The event kicked off with an interactive demonstration by Arjen van de Wetering (IBM) and Willem Hendriks (IBM) on IBM techniques around sensor data. Subsequently, Marcel van Gerven (Donders Institute) presented



i3B meets IBM, with an interactive demo and machine learning quiz

his latest insights on Human-Centered Artificial Intelligence and its applications in science, art and society.

12 & 13 September 2018 – C.I.A.L.E. coaching Artinis & Orikami

The C.I.A.L.E. project includes entrepreneurship coaching based on techniques such as Design Thinking, Lean Startup and Agile. i3B participants Artinis and Orikami were coached for two days on organizational, market-technical and developmental issues. The coaching was guided by innovation coaches from DOON.



C.I.A.L.E. coaching session with Artinis

20 & 21 September 2018 – H Workload conference

The 2nd International Symposium on Human Mental Workload: Models and Applications (H-WORKLOAD 2018) took place in Amsterdam at the Netherlands Aerospace Centre (NLR). At this event, several i3B participants exhibited with a demonstration stand. Besides, i3B SIG Human Factors member Rolf Zon (NLR) pitched the i3B White paper ([click here to download](#)) in order to spread the word about the SIG's activities and to find potential partners.



Rolf Zon's presentation at H-Workload 2018.

24 & 25 September 2018 – C.I.A.L.E. coaching Orikami and Boomerweb

The C.I.A.L.E. project includes entrepreneurship coaching based on techniques such as Design Thinking, Lean Startup and Agile. Boomerweb was coached for two days on organizational, market-technical and developmental issues. The coaching was guided by innovation professionals from DOON.

27 September 2018 – Wageningen UR Company Day

At the 'Company Day: Future Perspective' event, organized by Wageningen UR as part of her centennial celebrations, an inspiring view on the latest technologies and possible applications was provided on six themes: Big Data, Blockchain, Climate Smart and Circular Food Production, CRISPR-Cas, Photosynthesis and Precision Agriculture.

At the Precision Agriculture track of this event, i3B was present with an exhibition stand regarding the x3D project by the i3B SIG i3D (Animal monitoring), while i3B chairman Lucas Noldus participated in a panel session on Artificial Intelligence.



3.2 Innovate

Participants become partners in national or European project consortia with financial support from programs such as Horizon 2020, TKI and INTERREG. In these projects, i3B Foundation is a partner, or at least two i3B participants are part of the consortium.

The goal in 2018 was to submit 2 network enhancing projects with i3B as beneficiary and to perform matchmaking for at least eight unique participants. In 2018, i3B submitted 10 project proposals of which 8 were successful, 2 projects are still under review and no proposals were rejected. i3B performed matchmaking for 10 unique i3B participants.

Hereunder, we made a selection of i3B projects in the categories: successful (approved), under review, rejected and finalized.

Successful applications

x3D

The x3D project initiates, promotes and strengthens cooperation between (SME) business, knowledge institutions and end users. This leads to x3D innovations, resulting in a contribution to the economic and social development of the East Netherlands region. Project activities consist of connecting stakeholders through round tables, inspiration and matchmaking events, developing valorisation outlines, workshops with groups of SME entrepreneurs, and finally the promotion of the x3D cluster.



Food & Cognition

i3B, Wageningen University, Radboud University, Noldus IT, University of Twente and the Noaber foundation joined forces in the Food & Cognition EFRO cluster and network reinforcement project. The goals of this project are understanding eating behavior in relation to the brain and designing technology to give personalized targeted eating advice. The activities consist of building an innovation roadmap with public and private commitments and positioning the roadmap nationally and in Europe.



MOTION

The H2020 project MOTION will train a new generation of highly-skilled experts in the field of early development. The primary scientific aim of the MOTION project thus is to leverage these new technological advances to study infants' and toddlers' body move-

ments, gaze direction, and brain activity as they spontaneously and actively explore the world around them. MOTION will develop, produce and commercialize new tools to study early development in close cooperation between industry and academic partners



Radboud University Nijmegen



Big Developments

The Family Pig Barn is a revolutionary new type of barn in which pigs will live in groups and will be potty-trained to use specially designed pig toilets. By collecting urine and feces separately, no ammonia will be produced and the bad odor for which pig farms are notorious is prevented. Feed will be dropped in the bedding in between the animals, where the pigs will have to search for it, as wild boars do in nature. Furthermore, the piglets will stay with the sows for an extended period of time, which reduces stress-related behaviors at a later age.



Citizen Science

Consumers, patients and citizen are increasingly taking their own measurements in the field of nutrition, health and the environment. In the 'Citizen Science' testing ground, the required mobile and handheld sensors from SME's are validated. The quality of the measurements from the sensors of liquids (water, blood, tear fluid), gasses (breath, air) or food is will thus be reliable and scientifically substantiated. i3B participants Radboud University and Wageningen University & Research are part of the consortium.



Radboud University Nijmegen



CuRly Pig TAIL (Creating Resilience in Pigs Through Artificial Intelligence)

The PPS-project Curly Pig Tail wants to develop an automated monitoring system that enables pig farmers to spot potential behavioral problems and individual health problems of pigs. Data used in this tool are primarily based on image analyzes of the individual animal and the group, combined with already present data such as feed consumption and water intake. By identifying patterns in data streams, deviations in these patterns can be detected which signals upcoming unwanted behavior such as tail biting or emerging diseases. With the implementation of this tool it will be possible for pig farmers to intervene early so that illness (and therefore antibiotic treatments) and tail biting is prevented. This meets the demand for sustainable and responsible animal husbandry,

with low antibiotic use and no interventions on the animal. i3B partners in the project are Wageningen Livestock Research and Noldus IT.



Future-proof animal transport

The animal transport sector wants to be able to respond to developments that may occur during the transport of animals, in order to do what is best for the comfort and well-being of animals. Ensuring transparency and consumer confidence in the livestock transport sector and a good price-quality ratio. In the transition to sustainable livestock chains, the transport sector (livestock trade, cattle transport, collection centres, importers and exporters) is working on the impact of developments within the society national and international related to the transport of animals, how to respond to this and in particular how well-being of the animals during transport can be structurally improved.

In the 'future-proof animal transport' project, aimed at pigs, calves and cattle, there is a need for innovation, including a scientific basis, for the application of innovative sensors, materials and systems that can contribute to:

- Transporting animals responsibly;
- An objective assessment of animal comfort / well-being during transport;
- Ensuring animal comfort / well-being during transport.

i3B partners in the project are: Wageningen Livestock Research and Noldus IT.



GrazeGuide

In dairy farming, there is a need for methods offering dairy cow grazing in a labour-extensive, efficient, animal-friendly and socially responsible way. The aim of this PPS-project is to develop a tool meeting these requirements. When using this GrazeGuide system applying grazing will be easier for dairy farmers with a traditional milking parlour, but also for farmers using automatic milking systems.

At the end of this PPS-project the (virtual) GrazeGuide fence can be moved automatically with an app on a tablet, smartphone or PC. Grazing, in the GrazeGuide way, will mean a labour saving for the farmer (outdoor grazing as such already gives labour savings because less roughage harvesting is needed). An additional advantage of using the system is that (large) groups of cows can be managed in production groups during grazing, just like stall-feeding. The effect of the GrazeGuide technology will be that grazing is applied

more widely (more ‘meadow milk’) and will be better secured. i3B partners in the project are: Wageningen Livestock Research, Noldus IT and SODAQ



Applications under review

The following project applications were (re)submitted in 2018:

Smart@Foodie (resubmitted)

Diet related non communicable chronic diseases (NCDs e.g., obesity, cardiovascular disease as well as unsustainable food practices is a societal challenge. This COST Action will meet the challenge of achieving a high level of coordination at the interphase between ‘digital’ and ‘food’. It will coordinate the short to long term development of digital technologies that can effectively monitor and measure food choice and consumption as approaches to combating the rise in incidence of lifestyle related diseases related to poor diet, whilst also increasing the sustainability of the food supply chain by accelerating methods for mapping and monitoring food production and distribution. i3B participants in this subsidy application are: Wageningen UR, i3B and Utrecht University



Gregarious Groups (submitted)

In this NWO subsidy application, i3B participants Wageningen University & Research, Noldus IT, Utrecht University and FarmResult aim for monitoring animals in group settings. This application is still under review.



Rejected proposals in 2018

No projects applications have been rejected in 2018.

Finalized project in 2018

The C.I.A.L.E. project came to an end in October 2018. The last activities for C.I.A.L.E. were organizing the Healthy Lifestyle Matchmaking event on June 5th, 2018 and the coaching of several SMEs in 2018.



Conclusion

The goal in 2018 was to submit two network enhancing projects with i3B as a beneficiary and to perform matchmaking for at least 8 unique i3B participants. i3B achieved this ambition with the (approved) EFRO subsidy applications x3D and Food & Cognition. The matchmaking ambition has also been achieved: 10 unique i3B participants are matched in (subsidized) consortia through i3B (Wageningen UR, Van Hall Larenstein, Radboud University, Utrecht University, Noldus IT, Smart Eye, Artinis, TMSi, Sodaq and Farm-Result).

3.3 Accelerate business

i3B participants develop new ICT products for Brain, Body and Behavior. Typical R&D project results are products such as DriveLab. i3B promotes these products through conferences and matchmaking events. To accelerate business, i3B attends, presents or shares a booth with i3B participants at several conferences. The ambition for 2018 was to organize three SIG meetings per domain, a minimum of three events and to launch new LinkedIn Groups on Healthy Lifestyle, Animal monitoring and Human Factors.

These ambitions have all been realized in 2018: the SIGs came together 3 times or more in 2018, i3B organized a Hackathon for Future Shopping, a Healthy Lifestyle Matchmaking event, a Human Factors event (H-Workload) and the matchmaking event i3B meets IBM (instead of the matchmaking event on Animal behavior, as planned in the Work plan 2018). Besides, i3B attended several conference to promote the network: Health Valley event, Kempenhaeghe Innovation Session and the WUR Company Day.

3.4 Learn

In 2018, C.I.A.L.E. project partners i3B, Food Valley NL and Health Valley NL requested SMEs to share their innovation idea in the context of Healthy Lifestyle. From the submissions, we selected innovation ideas for the next step through coaching by DOON innovation professionals, based on 'Lean Innovation' tools and techniques. We helped step by step to translate the idea towards a solid value proposition, a first possible business model, and to validate it with the potential target audience. The coaching sessions proved to be successful so far with positive feedback from i3B participants. This is underlined by the fact i3B participants individually hired these innovation coaches as a follow-up on the i3B entrepreneurship program.

3.5 Exchange talent

The exchange of human talent like students, researchers, entrepreneurs in the i3B cluster contributes to knowledge transfer, attract and maintain talent for the network and the

development of new innovative ICT products. Exchange talent was not a specific priority in 2018. When students for example approached us for an internship, we promoted them in the i3B network. Besides, i3B shared vacancies within the network.

3.6 Lab facilities

The i3B network can utilize i3B (field) lab facilities to exchange ideas, develop prototypes, test and finally introduce to the world innovative ICT solutions for Brain, Body and Behavior. In 2017, i3B had one main goal regarding lab facilities: expansion of the CARUS Animal Monitoring lab in Wageningen. With the subsidy application 'x3D' (please compare 3.2), supported by the i3B SIG Animal monitoring, i3B was able to set the next step towards achieving this ambition.

3.7 Expand network

i3B was continuously able to grow the network and revenues, since the start of the foundation in 2012. The ambitious revenue goal for 2018 was set at € 150.000 based on €100.000 Participant fees, € 8000 for services and € 42.000 subsidy incomes. The actual results are €99.097 Participant fees, € 33.863 subsidy incomes and € 3940 for services. Because of lower costs than initially calculated (on Sales, General- and Project costs), the final result for 2018 is a + of € 3388,-

In 2018, a total of 4 new participants joined the i3B network: Thales Nederland, BBO, Running 2020 and Phenosys.



The promotion goals were not all achieved; new LinkedIn groups have been launched on Animal Monitoring, Healthy Lifestyle and Human Factors. In 2018, i3B published two newsletters (instead of the planned 3 newsletters) because in the Summer of 2018 the Managing Director decided there was insufficient news for a full newsletter. Therefore, i3B published newsletters in April and December 2018. The goal for 2018 was to post 25 messages on LinkedIn groups, but because of a lack of relevant news the total LinkedIn posts in 2018 is: 5.

The goal to represent the i3B network at minimum three events has been achieved (Kemphenhaeghe Innovation Session, Health Valley Event, WUR Company Day).

CHAPTER 4

RESULTS

This table summarizes the activities and key performance indicators with the results per 31 December 2018. The key performance indicators from the workplan 2018 are used to evaluate the results. The description of the figure follows below the table.

Ambition	Planned	On schedule	Explanation
Connect	9 Connect meetings; organize 6 SIG meetings and 3 events	✓	i3B (co)-organized more than 10 events. 7 Special Interest Groups meetings, Hackathon Visually Impaired, match-making event Healthy Lifestyle, i3B meets IBM.
	Launch 3 LinkedIn groups	✓	Healthy Lifestyle, Animal Monitoring, Human Factors. EXTRA: i3B published a white paper on Human Factors.
Innovate	i3B submits a minimum of two network enhancing projects in 2018 with i3B as a beneficiary.	✓	EFRO x3D & EFRO Food & Cognition (both approved).
	i3B performs match-making for at least 8 unique i3B participants.	✓	10 unique participants.
Accelerate business	Publish 3 newsletters	✗	2 newsletters were published in 2018.
	25 LinkedIn posts	✗	5 LinkedIn posts were published in 2018.
	Present with booth/pitch at 3 events	✓	Kempenhaeghe, Health Valley Event, WUR Company Day.



Realized



Failed

Learn	Coaching for Bereslim and Biovolt in 2018	✓	Coaching took place in 2018.
	Evaluate pilot innovation program	✓	The program evaluation shows the workshops were a success.
	Organize an innovation workshop day for i3B participants	✓	At the CIALE event of 5 June 2018, a Workshop morning session for i3B participants took place.
Career	Nihil	✓	No focus on Career in 2019.
Lab facilities	Feasibility check and if feasible application for animal monitoring labs	✓	First step has been taken with the EFRO x3D Animal Monitoring project.
Expand network	Add large(r) companies	✓	Thales Nederland.
	Compensate for and retain knowledge institutes	✗	In 2018, HAS Den Bosch decided to terminate the agreement per medio 2019. No new knowledge institutes were added to the i3B network in 2018.
	All acquisition in line with SIG ambitions	✓	
	Realize participant fees of € 100.000	✗	€99.097 participant fees in 2018.



CHAPTER 5

FINANCE

Profit and loss statement

	2014	2015	2016	2017	2018	2018	2019
				Realization	Budget	Realization	Budget
REVENUES							
Participants ¹	79 500	100 303	92 410	117 613	100 000	99 097	100 000
Subsidy ²	0	0	20 326	39 309	42 000	33 863	70 000
Services ³					8 000	3 940	5 000
Total in euro	79 750	103 303	112 736	156 922	150 000	136 900	175 000
EXPENSES							
Personnel ³	39 340	102 962	105,962	122 490	115 000	121 865	151 500
Sales ⁴	2 764	10 369	9,514	5 836	15 000	5 839	6 500
Office ⁵	5 650	10 641	0	398	0	331	0
General ⁶	13 714	9 113	9,463	22 894	10 000	5 478	10 000
Project costs ⁷					10 000	0	7 000
Total in euro	61 468	133 085	124 939	151 618	150 000	133 512	175 000
Result in euro	18 282	-32 782	-12 176	5 304	0	3 388	0
Equity	66 578	33 796	21 620	26 924	26 924	30 312	30 312

1. Participation fees by companies and knowledge institutes.

2. Subsidy revenues, project management of R&D projects

3. Services, i3B receives a linking fee for connection DOON innovation coaches with i3B participants (10%)

4. Personnel – director – secretary – marketing (includes freelancers) – business developers

5. Sales – Symposia visits, stands, gifts for speakers

6. Office – accommodation – office supplies

7. General – accountant, advice, part of EFRO subsidy

8. Project costs, part of EFRO subsidy

Explanatory notes

Financial statements 2012-2018

Financial statement figures based on approved accountants report.

Prognosis 2018 (31-12-2018)

Revenues

- Participants. The revenue was set for € 100.000 for 2018 which was practically achieved.
- Subsidy. The approved European C.I.A.L.E. subsidy is €92,500 for 2,5 years, started in May 2016. The revenue prognosis for 2018 was €42,000, the actual declarable subsidy is € 33.863.

Expenses

- ??

Expected result

i3B invested less than planned in General- and project costs, resulting in a €3388 positive result for 2018.

- Expected equity
€ 30.312 per 31 December 2018.

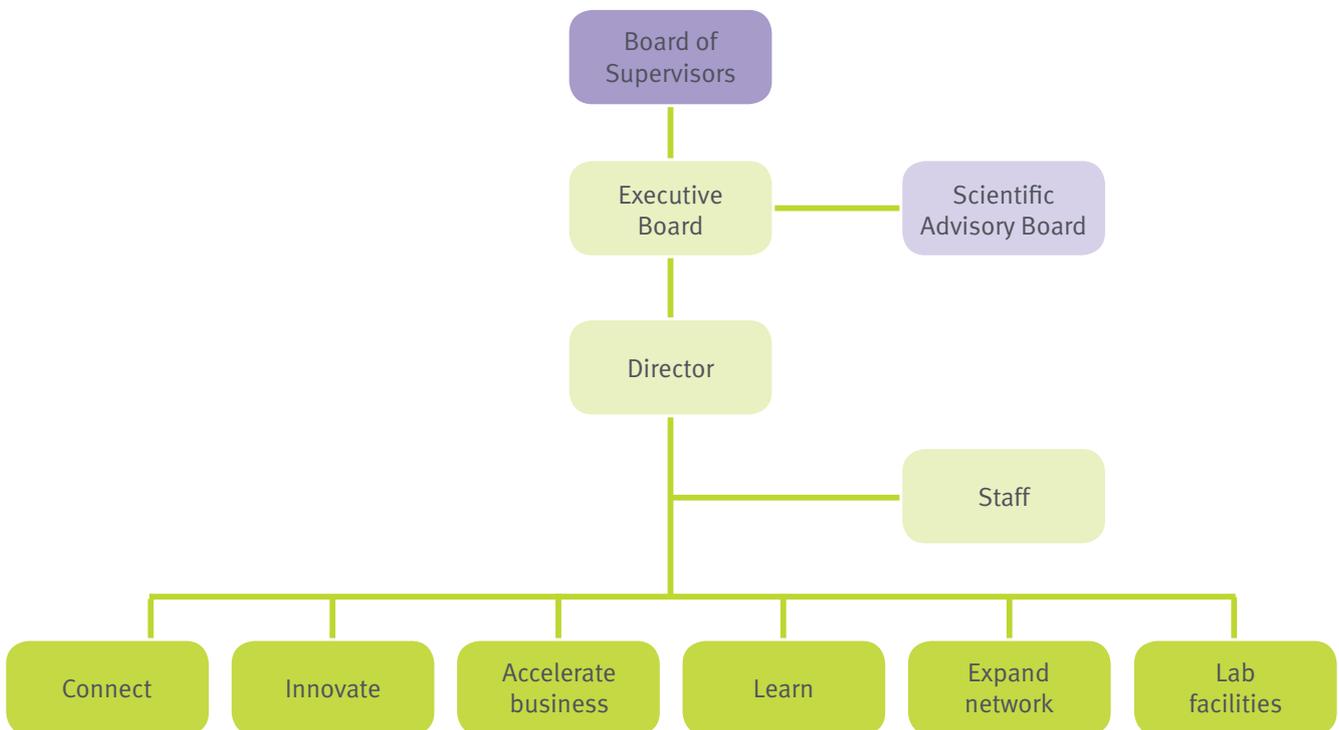
Balance sheet

	2017	2016	2015
CURRENT ASSETS			
<i>Assets</i>			
Debtors	8 510	20 558	7 806
Other receivables and prepayments	21 198	21 213	411
<i>Sum of receivables</i>	<i>29 708</i>	<i>414 771</i>	<i>8 217</i>
<i>Liquid assets</i>	<i>41 645</i>	<i>42 407</i>	<i>77 916</i>
Sum of current assets			
Total assets (in euro)	71 888	84 862	86 133
CAPITAL			
Foundation capital beginning of year	21 620	33 796	66 578
Annual result	5 304	-12 176	-32 782
Foundation capital end of year	26 924	21 620	33 796
CURRENT LIABILITIES			
Debts to suppliers and trade credits	3 213	1 294	3 134
Tax and social insurances	5 750	17 739	17 590
Other debts and accrued liabilities	36 001	44 209	30 348
Sum of current liabilities	44 964	63 242	51 072
Total liabilities (in euro)	71 888	84 862	84 868

CHAPTER 6

GOVERNANCE

i3B is a foundation with a not-for-profit organization. The i3B governance is shown in the organogram below. The green blocks at the bottom are the six activity lines.



Organogram

Staff

Henk Gerards, *Managing Director*

Jan Pieter Meijering, *Project & Communications support*

Executive Board

Lucas Noldus, Noldus Information Technology, *chairman*

Ron van Rossum, Amsterdam Economic Board, *treasurer*

Jan van Erp, TNO, *secretary*

Nico Delleman, Orange Sports Forum, *member*

Marc Grootjen, Eaglescience, *member*

Board of Supervisors

Leon Kenemans, University Utrecht, *chairman*

Menno van Manen, Wageningen UR, *member*

Hans Abbink, Almende BV, *member*

Marieke van der Hoeven, Philips Research, *member*

Scientific Advisory Board

Richard van Wezel, Donders Institute for Brain, Cognition and Behavior, *chairman*

Egon van den Broek, Utrecht University

Toon Cillessen, Radboud University

Peter Desain, Radboud University

Bert Don, TNO

Vanessa Evers, University of Twente

Rainer Goebel, Maastricht University

Kees de Graaf, Wageningen University

Jaap Harlaar, VU Medical Center

Leo den Hartog, Nutreco

Paul Havinga, University of Twente

Frans van der Helm, Delft University of Technology

Hermie Hermens, Roessingh Research & Development

Dirk Heylen, University Twente

Ralph Jaspers, Radboud University

Mina Johnson, Radboud University

Pieter Jonker, Delft University of Technology

Hans Korteling, TNO

Ben Kröse, University of Amsterdam

John-Jules Meyer, Utrecht University

Kees Nieuwenhuis, Thales Group

John van Opstal, Radboud University

Elke den Ouden, Eindhoven University of Technology

Herbert Prins, Wageningen University

Nick Ramsey, UMC Utrecht

Maarten van Sinderen, University of Twente

Monique Smeets, Unilever Research & Development

Jacques Terken, Eindhoven University of Technology

Jan Theeuwes, VU University Amsterdam

Hans van Trijp, Wageningen University

Peter Veltink, University of Twente

Remco Veltkamp, University Utrecht

Willem Verwey, University of Twente

Carolina de Weerth, Radboud University

Matt Coler, INCAS3

Special Interest Group i3D – Animal monitoring

Kees Lokhorst, WUR ASG/VHL, *chairman*

Hans Hopster, VHL

Lenny van Erp, HAS

Andrew Spink, Noldus IT

Lucas Noldus, Noldus IT

Bas Rodenburg, Utrecht University

Kathalijne Visser, Aeres

Gerard van Essen, i3B Business Developer

Richard ten Cate, FarmResult

Jouke Kardolus, OOSTNV (occasional)

Special Interest Group – Human Factors

Jos van Doorn, MARIN, *chairman*

Jan van Erp, TNO

Anne-Marie Brouwer, TNO

Marc Grootjen, Eaglescience/Elitac

Lucas Noldus, Noldus IT

Rolf Zon, NLR

Johan de Heer, T-Xchange

Kees Nieuwenhuis, Thales Netherlands

Leo Hoogendoorn, TMSi

Colin Guiking, MARIN

Simone Borsci, UTwente

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