Copyright © 2016 Stichting Study Tour Industria

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law. For permission requests, write to the publisher, using the address below.

IRP Board 2015-2016
Kasper Bossink  Chairman
Brian Beckers  Financial Manager
Gabrielle van Nes  Coordinator Contract Research
Wouter Boersma  Coordinator External Relations
Vivian Verhaert  Coordinator Culture, Accommodation & Transportation

Board Stichting Study Tour Industria
Brian Beckers
Marjolein de Been
Kasper Bossink
Dylan Rijnen
Tamara Schouten
Isabelle van Wely

Supervisors TU/e
Dr. A. (Arun) Chockalingam
Dr. A. (Allard) Kastelein
Prof.dr.ir. P.W.P.J. (Paul) Grefen

Special thanks to
BI-Quest
Business Talent Network
Eindhoven 365
Mitch and Mates
Universiteitsfonds Eindhoven

Contact
Stichting Study Tour Industria
Postbus 513, Pav. U.03
5600 MB Eindhoven
The Netherlands
irp@industria.tue.nl

COLOFON
Let me start by introducing myself. My name is Sebastiaan Hooijschuur and I am this year’s Chairman of Study Association Industria. Industria is the Study Association for the Bachelor study Industrial Engineering and the Master studies Operations Management & Logistics and Innovation Management at Eindhoven University of Technology. Industria organizes all kind of activities, which you can divide into one of the four pillars: study, career, international and leisure.

One of the biggest and most leading activities of Industria is the International Research Project: conducting research project in the Netherlands and afterwards a three-week trip for Master’s students to a foreign country outside Europe, in which cultural activities and company visits are combined. This year the International Research Project will bring the participants to Japan and Singapore.

Both of these countries fit extremely well to the central theme of the International Research Project: Outcome Economy. I hope the participants will be able learn a lot from the research projects and during their trip on what these countries can offer them in their career and how it’s like to work and live in a country far away from the Netherlands. I’m sure this will bring us some great stories!

At last I would like to compliment the committee that organized this year’s International Research Project. The organization and the collaboration with the Industria board went smoothly, and were of very high quality. I wish all participants a great trip and I’m already curious about the great stories that they’ll bring back to us.

Sebastiaan Hooijschuur
Chairman Study Association Industria
In the summer of 2015, the International Research Project of 2016 existed of five students that wanted to build an instructive project and discover more of the world. These five students consisted of the new IRP board, which can be seen in the photograph below.

Every year, the foundation of the IRP is the theme and the country of destination. After helpful discussions with employees of the faculty, we chose ‘the Outcome Economy’ as this year’s theme in combination with a study trip that visited Japan and Singapore.

After setting up the collaboration with our supervisors, Dr. Allard Kastelein, Dr. Arun Chockalingam and Prof. Dr. Ir. Paul Grefen, we completed our team of IRP participants by selecting 17 master’s students from the School of Industrial Engineering & Innovation Sciences. To prepare on the upcoming journey, we had a couple of teambuilding activities and learned more about the Outcome Economy through an interesting and educational master class given by Prof. Dr. Ir. Paul Grefen. Furthermore, all the students have conducted research projects in the Netherlands.

It was great to see the enthusiasm and involvement of the supervisors and participants. The participants, who were all an additional help to the IRP board, were part of a committee. This led to a great project and a wonderful and instructive study tour through Japan and Singapore. We can be very proud of this interesting year and I am very thankful for having worked together with Brian, Gabrielle, Wouter and Vivian.

I would like to thank all our company contacts from the Netherlands as well as from Japan and Singapore. The opportunities that you have given us were of high value to us. Furthermore, we want to thank our board of recommendation, our sponsors, our collaboration with study association Industria, and of course our very enthusiastic supervisors.

In my opinion, the International Research Project was a great success for all participants and interested parties. In this magazine you can find everything about the IRP 2016: our trip and the research projects conducted. We hope you enjoy reading this magazine!

Kasper Bossink
Chairman International Research Project 2016
CONTENT

IRP Introduction
Board of Recommendation 7
The Outcome Economy 8
Japan & Singapore 10

Research Projects
Outcome Economy in projects 12
Research Projects 14

Day Reports
Outcome Economy in Japan & Singapore 36
Travel Experiences 38
Tokyo 40
Kyoto 50
Kobe 55
Osaka 60
Singapore 65

IRP Conclusion
Conclusion 70
BOARD OF RECOMMENDATION

H.E. Mr. Masaru Tsuji
Ambassador of Japan of the Netherlands

Drs. I. (Imke) Carsouw
Managing Director Brainport Development

Ir. S.A. (Simon) Bambach
CEO VDL Enabling Technology Group

Prof. dr. ir. F.P.T (Frank) Baaijens
Rector Magnificus Eindhoven University of Technology

Prof. dr. ir. P.W.J. (Paul) Grefen
Chairman of Information Systems Group, Eindhoven University of Technology

Dr. F.M. (Frans) van Eijnatten
Program Director of Master’s Program ‘Innovation Management’ Eindhoven University of Technology

Prof. dr. ir. J.C. (Jan) Fransoo
Program Director of Master’s Program ‘Operations Management & Logistics’ Eindhoven University of Technology

Dr. T. (Tarkan) Tan
Program Director of Master’s Program ‘Operations, Management & Logistics’ Eindhoven University of Technology
In the development of the modern economy, we can observe a shift towards increased customer-orientation. If we put things a bit black-and-white, we can describe this shift as follows. In traditional (say ‘old school’) thinking, a company determines its output for a market, either physical products or services, from its own perspective, trying to optimize the output using its own internal criteria and measures. In modern, customer-oriented thinking, a company determines its output for a market from the perspective of the customers in that market, using their criteria. In other words: instead of delivering what the producer wants to sell, delivering what the customer wants to buy. This holds both in business-to-consumer and business-to-business markets.

In the modern times where competition becomes fiercer on a global scale, delivering an output that may make a customer happy is, however, often not good enough anymore. A customer that is happy at its input side (i.e., happy about products or services supplied to it) is not necessarily a customer that is successful at its output side (i.e., successful in delivering products to its own market). This means that a producer should provide an output that makes a customer more successful - and preferably in a way that can be quantified and measured. If you can show that you make your customers stronger, you ensure your own success. This is where the notion of the Outcome Economy comes in. As stated by Accenture in their Technology Vision 2015: “the Outcome Economy is defined by the ability of companies to create value by delivering solutions to customers that in turn lead to quantifiable results”.

We can project this thought on many business domains. A typical example is a manufacturer of airplane engines. In ‘old school’ thinking, it may focus on making engines with the best product characteristics from its own perspective. In Outcome Economy thinking, it should focus on enabling its customers to achieve the business outcomes that are important to them, such as high operational availability of airplanes equipped with engines of the manufacturer. This may be achieved by trying to optimize the technical quality of engines to the extreme (and hence possibly drive up their costs to the extreme as well) to avoid engine failures, or alternatively by supporting quick swapping of engines that have failures (or are predicted to have failures). In doing so, we have moved from producer-centered products to customer-centered solutions.

When these solutions must lead to quantifiable results, we must define what result is quantified exactly and how measurements are made to assess this result - certainly if the projected outcomes are put into contracts. The ‘how’ question includes the ‘who’, the ‘when’ and the ‘with what’ sub-questions. The ‘who’ question pertains to which party should do the measurements: is it the producer, the customer, or perhaps an independent third party? The ‘when’ question pertains to the moment at which and the frequency with which measurements are taken. Certainly in highly volatile markets this is an important issue. Last - but not least - the ‘with what’ question is about the instruments that are used to make the measurements. As measurements are about information, this is where information technology comes into play.

Measuring customer outcomes is usually not an easy task. Take the airplane engine manufacturer that wants to sell high operational availability of airplanes to its customers. Here the ‘high’ needs to be quantified, say at 98.5% (to name a rather arbitrary number). To assess whether the manufacturer properly contributes to this value, engine operation must be monitored, the various steps in engine maintenance and failure handling must be meticulously recorded in time and the effect on airplane operation must also be measured. This can be done by having sensors in the engines that measure all relevant operating characteristics and transmit these to the manufacturer, by logging all engine handling process steps for maintenance and repair, and by measuring airplane downtime. Given the fact that there are thousands of engines in play, this creates large data streams and intensive data processing. On the data generation side, we see what is called the Internet of Things, where engines and airplanes are the ‘things’...
in this case. On the data processing side, we see what is called Big Data. And in between, we may see data storage and transmission in the form of Cloud Computing.

This all means that Outcome Economy actually has two faces that are strongly interconnected: a business side and a technology side. At the business face, we determine the new business models in the outcome economy world. Here we determine which outcomes we want to sell to which customers under which conditions. Note that even the ‘which customer’ is not always a trivial question.

In our airplane engine example, the relevant customer may be the owner of the engines (which may be a leasing corporation that never uses the engines itself), the operator of the airplane to which the engines are attached (who may neither own the airplane nor the engines), or the parties that use the transportation offered by the airplane (such as airlines or tour operators). At the technology face of the Outcome Economy, we see the design and operation of advanced, distributed data processing facilities. These facilities should operate in a real-time fashion, should be completely trusted (as their data determine the success of the players in the outcome economy), and should be perfectly reliable.

The two faces of the Outcome Economy stress that the modern economy is one that is heavily based on a strong interplay of business and technology aspects. To harness these developments, experts are required that can oversee both aspects and that can understand their mutual influence. Therefore, it is good to see that the research project described in this magazine has its roots in the field of industrial engineering, where business and technology meet in clearly defined structures.

**Biography**

Paul Grefen is a full professor in the School of Industrial Engineering at Eindhoven University of Technology since 2003, where he chairs the Information Systems subdepartment. He received his PhD in 1992 from the University of Twente. From 1992 until early 2003, he held assistant and associate professor positions in the Computer Science Department at the University of Twente. He was a visiting researcher at Stanford University in 1994. He has been involved in various European research projects as well as various projects within the Netherlands. He is a member of the Executive Board of the European Supply Chain Forum. His current research interests include architectural design of business information systems, inter-organizational business process management, and high-level transaction and contract management in electronic business. He teaches various courses related to these topics. During the IRP, he has given advice in many ways, especially regarding the theme.
In 2016, the International Research Project visits two countries that it has not seen before; Japan & Singapore. In three weeks, the largest cities of Japan would be explored while learning a lot about the “one-of-a-kind” culture that the Japanese still pursue. Japan, the land that claims to be “the origin of the sun” (do you understand the flag now?) has multiple enormous cities, like Tokyo that including its outskirts inhabits more than 40 million people and is also known for some of the most incredible miracles of nature, like mount Fuji.

Right in the middle of all the nature and hectic that is Asia lies the well organized and urban Singapore. Cultures from all over Asia, and the world for that matter, come here together in this enormous city to learn, do business or to enjoy the wealthy life. Since there are so much different people living in Singapore the national language became Singlish (Singapore’s version of English).

We had the pleasure to visit both countries and discover what the cultures and companies had to offer us. Little that we know, we were in for a real treat that showed us Asia in multiple ways that were all equally great. In total we visited 10 companies, a Dutch embassy, a Japanese university and multiple cultural sights.

We landed, a bit delayed, in Tokyo which was our first destination. In the afternoon we had a nice tour through a part of the city and had a look at the Tokyo imperial palace. The first company visit was on the next day at the Dutch embassy located at the “Holland Hill”. Here, we had a meeting with a Dutch diplomat who told us more about the cultural differences of Japan. This immediately let us understand the country and the people better. Likewise, he told us what the company standards were. This knowledge would come in handy in the company visits that were to come.

With the always busy subway, we travelled to the building of AT Kearney. This was probably one of the most international companies we visited in the sense that people who worked there spoke good English and were for the majority not Japanese. We learned the very important basics of the 80-20 rule and with the use of it, we were able to estimate the impact of for instance the possible appointment of “president” Trump. It was interesting that the guys at AT Kearney still used the rule since in our experience, the Japanese did not like estimating. If we asked a question, they would always wanted to answer in exact terms. Something less, was not good enough.

Next up, was the biggest company visit day that in essence was the real IRP experience. We started off with an early rise to conquer the morning traffic by bus. We arrived at the headquarters of technology company Fujitsu. They showed us that they are not only focusing on the standard electronics but that they are continuously pushing the boundaries of technology. And for what? Because they think it is cool! If it is useful did not matter that much. They showed us for instance an iPad that could let you feel certain surfaces. We played a guitar where you could feel the snares, and we petted a crocodile. After that, they took us to the top floor to have a discussion on the innovations of Fujitsu. We sat there like CEO’s for an hour or so, this was not only because of the location but also because of the extreme welcoming way they treated us.

The same day, we would travel to the global headquarters of Canon. After a tour at the Canon museum we were welcomed by the global manager of innovation. He was a typical Japanese senior: gray hear, serious look and wanted everything to be perfect. He did not speak English very good, but as stubborn as a Japanese can be, he welcomed us in that language. After that, we enjoyed two presentations by Canon’s innovation department on how they create new products that are desired by their customers. Next to the 24 people that were in the room of the IRP group, a small 20 Canon employees joined the conversation. Guided by Harry Vermeulen, our Dutch contact who works at Canon for several years now the day went completely as planned. He even had a small surprise for us in terms of dinner at a Japanese barbeque joint. Multiple employees of Canon joined us for the diner that turned out to be delicious and fun. So much fun, that we decided to continue the evening in a Japanese karaoke place together with the guys of Canon. We drank and sang into the night to close of this day with so much Japanese impressions.

Luckily for us, after that experience
at Fujitsu and Canon the trip had just begun. The following days, we supposed to climb mount Fuji. Unfortunately, because of the bad weather it was too dangerous to try to conquer this massive volcano. I guess we have to come back to Japan sometime for the rematch.

After visiting Kyoto, the cultural capital of Japan, it was time to travel to Kobe where we would visit the Kobe University. Once again, we were very friendly welcomed by two professors and multiple students that received the message that it was highly recommended to come to class that day because of our visit. They gave us two presentations about recent research topics and their international University. As promised, we also presented one of our researches that was conducted in the Netherlands.

The next day, one of the biggest company visits was planned; UCC. UCC is one of the world’s biggest coffee companies and serves almost all of Asia. We had an extensive visit with a in depth look in the factory, with skype connections with engineers and coffee tasters. After that we would be put to work. We brewed our own coffee and tasted coffee until we started shaking because of all the caffeine.

After an impressive daytrip to Hiroshima another big Japanese Technology company visit was planned. This time we visited Kawasaki, known for their motorcycles but as came clear quite fast was that they did just about everything that was related to technology. From boats to trains to trucks to space rockets.

The last stop in Japan was Osaka, a modern massive city that is home to the Osaka Tigers (Baseball Team). We visited multiple cultural highlights like a royal palace that could lookout over the complete city. From here, we flew to Singapore for the last couple of days of our trip.

In Singapore, we still had planned three company visits. The first of which was a visit to the plant of Dow Chemical. A well-known company that is also based in Terneuzen the Netherlands. They showed us what the strength of collaboration with other similar companies were. After that the computer company HP had a very interesting program about the strength of personalization. A subject that linked very well to our theme: ‘the Outcome Economy’. Lastly, we had visited the shipyard of DAMEN Shipyards. They showed us that you do not only can get successful with personalized products. They did just the opposite and created a strong boat brand by standardizing the possible boats. This way, they could build to stock and reduce the lead times for boat delivery drastically which outperforms their competitors.

Next to the company visits, Singapore was discovered in terms of food, drinks and nightlife. After a luxurious final diner at the riverside in the middle of Singapore, it was time to say goodbye to the beauty that was IRP in Japan and Singapore. A once in a lifetime experience that none of us would ever forget.
The first part of the International Research Project is to conduct a research project at a company in the Netherlands. All 22 participants were assigned to projects that were offered by 21 companies. The aim of these research projects is to gain insight in how their company deals with the theme of this years’ IRP, the Outcome Economy, and additionally, to gain more working experience.

The Outcome Economy is a concept that is defined by Accenture (2015). It represents a trend in which the focus is on what customers actually want instead of solely focussing on producing and selling their products. To reach an by Accenture called Outcome-based Economy, two steps go ahead before moving towards an Outcome-based Economy, namely Operational Efficiency and New Products & Services. These steps are shown in the figure on the next page, and is presented during Accenture Techvision 2015. Each executed company project can be related to these different steps that are presented in the figure, as the Outcome Economy is a trend which companies may adapt to in the future.

The first step towards Outcome Economy is Operational Efficiency. This starts with measuring the company’s performance through defining and measuring KPI’s. Four company projects that were related to this phase were Area Wonen, Maastricht University Medical Centre (MUMC), Inalfa Rooftop Systems and Nedschroef. Area Wonen was interested which KPI’s were relevant for their sector, to be able to measure their performance usefully. On the other hand, MUMC had already defined their KPI’s, but wanted to measure them with the available data and get accurate insights through the design and implementation of performance dashboards. Lastly, Nedschroef and Inalfa Rooftop Systems had both implemented lean measurement systems, but wanted to analyze how their lean performance could be measured objectively.

Another aspect of Operational Efficiency is operational cost reduction in order to improve the performance of the company. Most projects can be put under this concept, namely Brusfood, FEI, INNO-metaal, Milestone AV Technology, Össur and Vanderlande. Each company focused on either better alignment between departments through IT systems, better information availability, better documentation and decision support, all in order to improve their efficiency. When these companies have more accurate information available and better decision support, the services offered to their customers might improve as well.

The second step in the figure is called New Product & Services. Extending their product portfolio based on the wishes of the client is a step where also many executed projects can be placed. Astrata Europa, DELA, Tokheim, Vodafone, Waarderingskamer and Wincor Nixdorf have all offered a project in which market research has been done how customers respond to new products and services, which markets were available, where the company should focus on when offering the products and how to arrange their processes in order to make the product successful and provide better services to clients.

Furthermore, Dow Chemical and Hacas wanted to improve their information visibility, to be able to provide more accurate information towards their client about the state of their products, orders and requests. This is part of a new business model in which transparency towards their clients is improved.

The step ‘Outcome-based Economy’ is the step this year’s IRP theme was focused on. The research projects that are related to this step are conducted at Brabantse Delta, DLL and Randstad Groep Nederland. Brabantse Delta was not focused on how they could offer outcome-based services or products, but focused on how their suppliers could offer products based on their functionality instead of the specifications. DLL and Randstad Holding analyzed possibilities on payment per outcome, both on different aspects. More specifically, DLL focused on the application of machine connectivity, while Randstad Holding was more interested in their future contributions in an Outcome-based Economy.

Overall, it can be concluded that each conducted research project indeed represents different stages for transforming towards the Outcome Economy. Throughout all the steps, the focus on improving the services delivered to customers and finding out what the customers actually want can be recognized in all projects, both directly and indirectly. And this is exactly what the Outcome Economy stands for.
The impact of the Industrial Internet is transformational

The two most transformational impacts of the industrial internet will be the emergence of outcome economy and the tight integration digital and human labor.

Figure 1. Development of the Industrial Internet (Accenture TechVision 2015)

References

INTRODUCTION
This project was about improving processes at the tactical level of AREA Wonen, a housing association located in Uden. Area consists of 78 full time and part time employees that are divided into five different departments: ‘Staff’, ‘Wonen’, ‘Wijkontwikkeling’, ‘Finance & ICT’ and ‘Office Management’. Every department has its own manager and this manager creates a yearly vision for its team with specific goals that it would like to achieve. This vision is based on a multiannual plan and an annual plan, which can be seen as the compasses of Area. These plans are set up by the management team and the supervisory board and consist of over 25 key performance indicators (KPI). In the past year, several issues came to the surface. Firstly, its organisation is unsure whether these KPI’s are comprehensive. Secondly, some of the KPI’s cannot be measured, which makes it hard to determine progress. Thirdly, the KPI’s are set by the management team and not by the people who will work with them, which results in a gap between strategic and operational goals. These problems will be tackled in this project.

PLAN OF ACTION
During the project, guidelines are created for the KPI’s, in order to close the tactical gap. After conduction several interviews, it was concluded that the managers all have their own way of managing their team. It turned out that some managers do try to involve the team when setting up the vision and some managers even organise small interventions in which the progress can be discussed.

With the help of the Balanced Scorecard (BSC), all the strategic goals can be translated into performance measures. The BSC is normally used for profit organisation, and as AREA is a non-profit organisation, this scorecard is adjusted to make it more appropriate for the organisation. The first steps remain the same: Create a vision and mission for the entire company. However this must be done while keeping in mind that the goal is to create public value for people.

The next steps involving the team and deriving around five KPI’s for five subjects: ‘Finance’, ‘Customer’, ‘Internal’, ‘Growth/Operational Capacity’ and ‘Expanding Support & Authorisation’. It is very important that every manager organises periodic reviews in which the progress can be discussed.

CONCLUSION
Finally, guidelines have been provided for setting up the KPI’s and a dashboard is recommended that helps AREA measure them. With these guidelines, all managers can still manage in their own way, but they will ensure that the KPI’s live among their team and that they are able to evaluate the progress of their department.

COMPANY FACTS
Founded: 1978
Headquarters: Uden
Employees: 79 (FTE)
Industry: Housing corporation
Revenue: N/A
CEO: Jan van Vucht
For over 25 years, Astrata delivers added value solutions, for more effective fleet management, for transport and logistics companies of all sizes. This is to enable them to provide safe, sustainable and cost-effective transport and logistics services. Astrata provides both vital facts needed for optimisation of fleet efficiency and cost reduction, as well as IT consultancy for seamless integration of telematics with other back-office systems.

Nowadays, the health and safety of employees is a hot topic. Therefore Astrata is searching for opportunities to include this topic in their Fleet Management System. Currently, Astrata only delivered Fleet Management Systems in order to make sure that a driver drives in the most optimal and efficient way. Now they want to offer a complete system based on all the aspects of the service they provide, for example checking the health of the drivers.

First, it is important to have a good understanding of what the customer really wants to know about the health and safety of the drivers. In order to find this out, several semi-structured interviews were conducted. From these interviews, a couple of requirements emerged. A requirement was for example to identify when a driver is behaving in a way that could indicate tiredness. These requirements were further expanded with literature. From this analysis, it has been investigated what parameters measure the requirements. An example of measuring tiredness is looking at the vehicle speed. For each parameter it is considered what actions Astrata needs to take and how to implement it. Based on these inputs, requirements and actions, an overview has been made with the main findings of this project.

Based on the interviews and the literature study, conclusions can be drawn. This was an overview of all the inputs with the specific actions for Astrata to include this into its Fleet Management System. Also the business claim/benefit and the guarantee (the goodness of the measurement) were included in the overview. For some inputs, Astrata only needs to update their system, but for others a second device is needed. It can be concluded that there is a good possibility for Astrata to enlarge their product with health and safety monitoring. Nowadays it is not only important to have a good system, but also to look further than that and look at what the customer really wants.
Brabantse Delta is concerned with managing the water within the western part of Noord-Brabant. This involves four main tasks: ensuring safe dikes, clean sewage, high quality of surface water and maintenance of the water height. When Brabantse Delta needs a certain project executed, it has to tender the project to the public market. This will lead to a certain party winning the tender and becoming the executor of the project. The tender consists of certain requirements, in which’s formulation there is a trade-off for Brabantse Delta between either standardisation or innovation. Formulating very specific and technical requirements in the tender will benefit standardisation within the water works. However, formulating the requirements in a more functional form will leave more creative space to the market party which could lead to increased innovation, or more innovative solutions.

The research project involved looking at both the process of formulating functional requirements, the knowledge required and the organisational implementation, as well as the results: what are advantages and disadvantages of the method? Does functional formulation of requirements in tenders indeed lead to innovation? Is innovation wanted? What does the market think of the new method?

The research conducted at Brabantse Delta links to our research theme The Outcome Economy. Technical requirements represent the traditional way of thinking, where a certain product is specified without specifically taking the customer needs into account. Functional requirements are more concerned with the outcome of the tender. Instead of thinking about the specific objects that you want to have, you specify the desired functionality of the project. So instead of telling the contractor exactly for instance what kind of water pump you desire, you specify the functionalities that are needed to fulfil the needs of the project: maintenance of water level. It is to the contractor to decide what is needed for this purpose, which model of water pump to use, or even a totally different solution. Using functional requirements in a tender is thus more concerned with the outcomes desired, what exactly the customer, which would in this case be Brabantse Delta or even the people living in their working area, wants.

The several research questions relevant for Brabantse Delta were researched using a combination of literature study, a survey under the employees of Brabantse Delta and qualitative interviews under employees, as well as external parties such as building partners. This resulted in a report answering these questions, providing practical do’s and don’ts for the institution on the matter.
BrusFoods B.V. is an international trading company in different types of crab. Their main customer is Johma, which makes different products like crab salad. The processes of BrusFoods were supported by an aged order and inventory management system, which was built years ago. The projects goal thus was to improve the alignment of the system with current and modern techniques, either through a new management system or an improved version of the system currently in place.

As Johma is the main and most important customer for BrusFoods, a process analysis of the order placement by this customer was performed. The old system did not allow for direct order placement by the customers, and relied on simple e-mails which were manually imported in the order and inventory management system. During the analysis of the options which Johma could offer for direct integration of order placement, it became clear that the current system could best be improved, instead of completely integrating a new system. Market research showed that no elegant solution was available which aligned directly with the processes of both BrusFoods and Johma, while the current system did.

After the analysis of the processes and requirements for the improvements, research was performed on how to actually implement the changes. Since the projects scope also required the actual delivery of a system that can replace current registration system, the development followed directly. The improved system has a direct integration with the order placement of Johma and requires significantly less manual work. It also includes improvements in the method of billing, inventory management and forecasting methods. Next to this a performance dashboard has been developed which allows BrusFoods to keep better track of their core processes. Also, it makes it easier for Johma to place orders, which provides the customer of Brusfoods the outcome which it desires.

BrusFoods B.V. is an international trading company in different types of crab. Their main customer is Johma, which makes different products like crab salad. The processes of BrusFoods were supported by an aged order and inventory management system, which was built years ago. The projects goal thus was to improve the alignment of the system with current and modern techniques, either through a new management system or an improved version of the system currently in place.

As Johma is the main and most important customer for BrusFoods, a process analysis of the order placement by this customer was performed. The old system did not allow for direct order placement by the customers, and relied on simple e-mails which were manually imported in the order and inventory management system. During the analysis of the options which Johma could offer for direct integration of order placement, it became clear that the current system could best be improved, instead of completely integrating a new system. Market research showed that no elegant solution was available which aligned directly with the processes of both BrusFoods and Johma, while the current system did.

After the analysis of the processes and requirements for the improvements, research was performed on how to actually implement the changes. Since the projects scope also required the actual delivery of a system that can replace current registration system, the development followed directly. The improved system has a direct integration with the order placement of Johma and requires significantly less manual work. It also includes improvements in the method of billing, inventory management and forecasting methods. Next to this a performance dashboard has been developed which allows BrusFoods to keep better track of their core processes. Also, it makes it easier for Johma to place orders, which provides the customer of Brusfoods the outcome which it desires.
DELA
Development of an Online Funeral Tool

PROJECT BY VIVIAN VERHAERT

INTRODUCTION
DELA is one of the top companies in funeral services and funeral insurances in the Netherlands. Its headquarter is located in Eindhoven. Currently, DELA is developing an online funeral tool which will help customers to organize a funeral. The project is now in the first phase which only contains information sharing to surviving relatives. A subsequent step in the project is to offer relatives the possibility to plan and complete their tasks. To further develop the online tool, it is important that the tool meets the requirements of the customers. Therefore, DELA is curious what customers find important aspects related to the online tool and in which way Dela could offer these.

This resulted in the following research questions:
• Which bottlenecks have to be avoided regarding the development process?
• Which decisions have to be made to bring the online funeral planner succesfuly to the market?

PLAN OF ACTION
To answer the research question, a benchmark-analysis concerning developments in online tools was done. Consideration was a very important aspect which had to be used in the online tool. Afterwards, the results were compared to the current phase-model of DELA. Besides this comparison, several interviews to partners of DELA were conducted. The questions were focused on how to integrate the varying range of products against the current product range of DELA. The bottlenecks had to be identified and subsequently, recommendations were stated.

RESULTS
According to the benchmark-analysis, it became clear that organizations are dealing in various ways with the difference in the product offerings between different regions. Several organizations provide a demographic-related assortment in their online businesses. Therefore, when one enters the link, you need to respond to your place of living to visit the web shop. Others offer clients the entire product range but make a delivery charge in respect of goods transported over long distances. Therefore, a new interview question was formulated: What is your opinion according creating a national range of products without regional differences?

During the interviews, opinions and viewpoint from several partners lead to various insights in implementing the range of products in the tool. For setting up a national assortment, a lot of research concerning logistic and financial feasibility is needed. The problems areas were mapped, after which provided recommendations were shared to DELA.

COMPANY FACTS
Founded: 1937
Headquarters: Eindhoven
Employees: 1950
Industry: Obsequies insurances
Revenue: €116 million
CEO: Edzo Doeve
DE LAGE LANDEN
Machine-to-Machine Connectivity

PROJECT BY BRAM LINDERS

By the trend that the customers of DLL are shifting from owning equipment to using equipment, a different value must be delivered to the customer. For DLL this change results in shifting from lending an amount of money, to adding more services to the ‘financial solutions’ of DLL.

The central question of the research was: How can DLL best manage/use data, gathered from machine to machine (M2M) connectivity devices, in order to use the data as added value for their customers in the forklift trucks industry? This can be done by, for example creating pay per use models or providing fleet managements services in the forklift trucks industry.

The focus of this research project is related to the delivering of solutions to customers as to DLL by implementing pay per use models instead of fixed monthly costs for the Operational Lease of forklifts, in such way that the customer will only pay for the actual use of the equipment. To create such pay per use models, information about the usage of the forklifts must be gathered, stored and processed. The approach that is central in this research is the approach of M2M connectivity with the upcoming technology development of the Internet of Things (IoT). The M2M connectivity contains the connection between networked devices and enables these devices to share information and performs actions without the manual assistance of humans. The M2M connectivity includes the sensors and software to get information, the communication link to share this information, the storage database to collect the information and the software programs to interpreting this information. These four parts of M2M connectivity are the four research topics.

With the focus on the forklift industry, the first possibility to collect data is using the vendor-channel. The fact is that the manufacturers are developing or buying in systems to collect data themselves. These systems are used to meet own needs or as extra service, including fee, to their customers. A possibility for DLL is to jump in this development and try to get the usage data collected by the vendor. The second possibility is that DLL will “buy-in” a standard product developed by a third company, which can be attached to all forklifts and will use sensors to measure the required information.

The communication link that can be used depends on the data size, frequency and the coverage of the available networks. W(Lan) networks are currently used the most, because the indoor coverage of Cellular networks is not yet appropriate inside buildings. The development of the LPwan network in the Netherland includes an indoor coverage of this LPwan network at the end of 2016. This development will bring opportunities for using this cheap solution for data transfer of small data sizes.

Using analytical tools to translate the gathered data into relevant information will result in opportunities to add value to DLL as its customers. The added value for the customer will be that they will only pay for its real usage and they get an insight in their usage and their total fleet by automatically gathering data. The insight in their usage can be used for other fleet management services like fleet optimization, by matching the fleet of forklifts with the real needs of the end customer. For DLL the added value is that it can create a portfolio round the assets they are leasing, which is beneficial for the calculations of the residual value. More value is added by the opportunity that DLL can sell a new product to their customers, which makes it more beneficial for the customers to agree with a lease contract by DLL, so DLL can improve their market position.

COMPANY FACTS
Founded: 1969
Headquarters: Eindhoven
Employees: 5400
Industry: Finance
Revenue: N/A
CEO: Bill Stephenson
This project at Dow Chemical was aimed at logistics visibility. Dow Chemical wanted to gain insight in all existing problems and possible solutions of a certain problem in the logistics field of outgoing transports of the production unit department. This included the supply chain that starts internally and ends anywhere between Portugal and India.

Different problems arise because the overhead is managed from a single location while the supply chain covers so many countries. The project was mainly focused on road transport but also a look is taken at marine and intermodal transportation.

The project was not directly linked to the subject of the IRP, Outcome Economy, but some parts did overlap. Almost all of the problems that were found can be, partially, solved by improving the visibility of outgoing transport. By improving the visibility, the customer will have better insight in his incoming orders. The better the customer knows when his orders are coming, the better he will be able to plan his own production activities. So improving the visibility of Dow’s outgoing transport will improve the outcome of the customer and therefore will increase customer satisfaction.

By interviewing people all over the continent and asking in-depth questions, it was possible to find problems that were not yet known, or not yet well known, by the logistics department in Terneuzen. More problems were found by interviewing customer service representatives (CSR) than by interviewing logistic service coordinators (LSC) because the CSR’s had direct communication with the customers and therefore knew what did and did not go well. Also interesting were the different problems that the CSR’s had that were specific for their country only, for instance the border control in Russia.

Thanks to this project, Dow Chemicals was able to identify new problems in their supply chain. Solving this problems will improve the customers satisfaction, which makes those customers more loyal to Dow Chemicals.

COMPANY FACTS

Founded: 1897
Headquarters: Midland, Michigan, USA
Employees: 53000
Industry: Chemicals
Revenue: $58.2 billion
CEO: Andrew N. Liveris
For the International Research Project 2016, a project was conducted at the company FEI, which is a manufacturer of electron microscopes. The headquarters of FEI is located in Hillsboro in the USA and the European headquarters are located in Acht, near Eindhoven. The project was done at the global supply chain department.

The mix of low volume but high value products makes the supply chain very interesting and challenging. Because of the long lead time of the complex systems, it is important to start early with production. However, because of the low volume, the risk of obsolete systems should not be underestimated. Therefore, a good sales and operations planning (S&OP) is essential.

The aim of S&OP is to align the production operations (supply side of the supply chain) with sales (demand side of the supply chain). To reach this goal, good tools are needed for the communication between the sales department, production department and executives.

During the project, the possibilities were explored to improve the tools that are used for S&OP. The performance of the currently used tools did not always answer to the expectations and requirements. Therefore, the task was to find out why the tools are not working as good as they should and to suggest possibilities for improvement.

During the first phase of the project, the possibilities for improvement for the tools that were currently used were explored. As far as possible, small improvements that could improve the performance of the tools on the short term were suggested and implemented. However, it was clear that for the longer term a more robust solution was needed. The ‘commercial off-the-shelf’ products could not meet the requirements because of the specific characteristics at FEI. A custom built solution is needed and therefore, the first steps have been made towards the design of a new custom built set of tools that will meet the requirements for S&OP.
HaCas is a logistic company specialized in the bulk transportation between the Netherlands and France. HaCas combines small shipments per truck and unloads them at locations in France. The management of HaCas is interested in more detailed information about their performance. The main issue where HaCas is interested in, is to determine which information a customer really wants to know about their delivery?

This research is divided in a few sub-questions:
- Look at progressive companies and analyse how they deal with information communication towards their clients.
- What are the needs from the clients of HaCas now and what will their needs be in the future?
- What are the possibilities for HaCas concerning the use of hardware & software to achieve operational excellence for their organisation and employees?

The scope of the project started with several directions and therefore a roadmap is created to cluster the generated ideas. The roadmap consists of ‘the Business model of HaCas’ and some questions. These questions were: What does HaCas want in the future? What is the importance of the clients HaCas is working with? How much work will this client bring HaCas in the future? and how much does HaCas want to invest in this client?

After this HaCas should start a customer satisfaction research to gather information on what the customer really wants. This research should be combined with the client order and HaCas can determine the possibilities in cooperation with the client.

At the end, it can be concluded that it is not possible for all types of clients to achieve a customized approach. HaCas should cluster the preferences in standardized service packages. The clients can choose the preferred time of transportation, the span of the arrival time interval and other different service types with the help of the roadmap that is created.
Six years ago, Inalfa decided to implement lean. Lean is a management philosophy that is focused on maximizing value for the customer while minimizing waste. With a lean enterprise, all employees are able to collaborate and work more effectively, resulting in the same or even better result for the company with less operational cost.

Since the start, multiple lean maturity assessments have been performed at different plants. During the assessments, Inalfa noticed that with the current used assessment method subjectivity occurs in grading the facilities. Therefore, Inalfa would like to know how this subjectivity could be reduced.

This project started with investigating and reviewing literature about lean maturity levels, lean assessment criteria, evaluation methods, and scoring methods. Likewise, the influences of cultural differences and differences in organizational cultures on the implementation of lean were investigated. Subsequently, the current method of assessing the lean maturity at Inalfa was investigated and compared against the reviewed literature. Further, the experiences of lean coaches, who have performed a lean maturity assessment, were discussed. These experiences of lean coaches have been gathered by the means of semi-structured interviews.

As a result of the literature research and interviews, it could be concluded that the maturity levels and lean assessment criteria used by Inalfa fit the holistic view on lean implementation. However, the choice of using semi-structured interviews as an evaluation method is not common in literature. Likewise, the determination of the score is simple in comparison with the literature reviewed.

Next to recommendations to improve the lean assessment methodology, other recommendations have been given to minimize the subjectivity that Inalfa experiences. An example of a recommendation is creating a best practice per lean assessment criteria, including evidence that should be looked for during the lean methodology assessment. This would create transparency and clarity for the lean coaches, as well as for the whole organization.

**COMPANY FACTS**

- **Founded:** 1946
- **Headquarters:** Venray
- **Employees:** 3800
- **Industry:** Automotive
- **Revenue:** €736 million
- **CEO:** Marcel Slabos
INTRODUCTION
Inno-metaal is a family business that produces and assembles metal products, both sub-parts as end products. Most of the clients are in the Healthcare Industry. Think about products such as the moving table of a MRI-scanner for instance. These products require a high safety level. INNO-metaal runs all kind of tests on their products to make sure it can guarantee a certain quality. To do so, all kinds of compliance certificates are needed to reach this certain safety level. Besides this need to achieve high safety levels for INNO-metaal its own business, there is also a need for clients to receive compliance documents attached to the products they receive. More specifically, this meant that a ISO 9001:2008 certificate had to be created out of the older available compliance documents. Also the alignment with the environmental certificate ISO 14001 was an issue that had to be taken into account.

For the project the goal was to create a general handbook that matches the ISO requirements and where new regulations can be easily complemented to.

PLAN OF ACTION
All outdated procedures were already available in an old format which was the start of the project. Each of the procedures have a certain process owner that is responsible for one or more processes. After meeting with the process owner, the processes are mapped and connected to each other in MS Visio.

There are multiply layers starting with the basic procedure which can be scoped to a detailed working instruction. The different process owners and responsible employees had discussions about how certain processes should be handled. Some of the processes have more side-steps, which basically meant that there are multiple exceptional ways in which a processes can be conducted. These exceptional processes were input for discussions that were interesting and often led to clear agreements on how to perform exceptional procedures. In general the basic procedural level is the most relevant level that should be mapped well because of the ISO report that needs to be renewed.

CONCLUSION
The manual of the processes is used for both the ISO handbook as well as internal agreements in terms of responsibility. The meetings with the process owners were interesting and the support of my supervisors were of high value. For this support and the open and friendly environment I experienced I want to thank all people that were involved in this project. Currently I am working at INNO-metaal on a project in which a new purchase planning method should be implemented.

COMPANY FACTS
Founded: 1987
Headquarters: Eindhoven
Employees: 125
Industry: Electronic and machinery
Revenue: N/A
CEO: Gertjan van den Hazelkamp & Anoek Manders
Milestone AV Technologies is a leading global provider and designer of branded audio-visual mounting equipment and display solutions for flat panel displays, projectors, AV furniture, and speakers to both the consumer and the commercial markets. Milestone’s innovative products, sold principally under the Chief, Da-Lite, Projecta and Sanus brand names, are sold through numerous channels, including Pro AV dealers, regional home theater dealers, consumer electronics retailers, mass merchants and original equipment manufacturers. The Company currently serves a broad base of over 6,000 global customers with a U.S. headquarter in Eden Prairie, Minnesota. Their European headquarter is located in Weert (the Netherlands) from where the project was carried out.

Because of fluctuating demand and currently applied policies regarding inventory levels of semi-finished products, required raw materials and applied logistic method including current inventory level were not experienced as optimal functioning.

Apart from excess safety stock, a shortage of supply (out-of-stock) can also lead to order blocking. A cost reduction can be achieved when stock (with associated inventory costs) is reduced, while the service level can rise when out-of-stock is eliminated.

The objective of the project was to develop an Excel file that is advising about the policy to be applied including logistic methods and associated inventory levels given demand and performance. This was completed using a scientific approach for stochastic inventory models and classification of different inventory models, including related KPI expressions. Alongside the Milestone Tool, an implementation plan is formulated.

**COMPANY FACTS**

*Founded: 2004*
*Headquarters: Minnesota, USA*
*Employees: N/A*
*Industry: Audiovisual technologies*
*Revenue: N/A*
*CEO: Scott J. Gill*
As part of the International Research Project (IRP) 2016 to Japan & Singapore, a research project has been conducted at the Maastricht Universitair Medisch Centrum (MUMC). On behalf of the ophthalmology specialism, several performance dashboards have been developed that have the ability to extract data from their SAP database, and provides the department with useful insights concerning some key performance indicators.

The research project has been established through the desire of the ophthalmology department, to gain more knowledge and insights regarding their internal processes. The department had already developed and defined several key performance indicators, like among others, the waiting list per specialism and the number of surgical interventions performed in a certain period per specialism, although the current way of extracting this required information from their SAP database was labor intensive and prone to errors. Therefore, with the aid of the developed performance dashboards, the department is now able to retract the required information automatically from their SAP database, and this information is then displayed in a comprehensive and uncluttered manner.

Having real time information regarding the overall performance of your internal processes, is key for your organization, since it can be used as an input to control mechanisms, dedicated to improve the performance of these processes. For instance, regarding the key performance indicator concerning the waiting list per specialism, it might be the case that your patients find the waiting time prior to a certain surgical intervention too long. With access to real time information concerning the number of patients waiting for that particular surgical intervention, actions might be considered to for instance reallocate patients to a different medical specialist with a shorter waiting list, in order to reduce the waiting time.

However, considering the example mentioned above, in order for the control mechanism to function properly, not only should you have real time information concerning the waiting list for a particular surgical intervention, you should also determine the maximum waiting time that is acceptable for your patients. Otherwise you might adapt your internal processes, whilst this is not required by your customers. This leads us to the theme of this year’s International Research Project, the ‘Outcome Economy’, which is the conception that companies should focus more intently on the customer’s needs and desires. As such, a natural next step would be to enlarge the developed performance dashboards with input from their clients.

COMPANY FACTS
Founded: 1986
Headquarters: Maastricht
Employees: 47 (at Eyecare)
Industry: Healthcare
Revenue: N/A
CEO: Prof. dr. M. van Dieijen-Visser
NEDSCHROEF

Enhancing Lean Improvements by Objectively Measuring the Maturity of Various Processes

PROJECT BY RALF UITTENHOUT

Nedschroef Helmond was founded over 100 years ago in Helmond, located just 15 km from our Technical University in Eindhoven. Nedschroef used to make only bolts, but over the past decade they integrated more fastener solutions in the company. The company has also expanded worldwide over the past years. Currently, there are 26 locations in 14 countries and to give an indication of the volumes it produces: 300 pieces of fasteners per second, which is over 9 billion pieces a year.

In order to integrate the Outcome Economy for an automotive supplier, it is important to contribute with high quality, an excellent reliability and a spot on delivery time towards its very demanding customers. If a heavy duty truck falls apart because of a cracked Nedschroef bolt, it is a huge failure for both companies.

These very demanding customers expect from Nedschroef that it has a stable production and that it improves its production continuously. However, in order to improve you have to know where your starting point is. Therefore, Nedschroef has asked to come up with a highly objective Lean Maturity Assessment Tool. This tool has to be implemented throughout the company in order to measure the lean maturity of all departments, to compare them and to help improving them towards the desired level.

Not an easy task since the tool has to be used by different departments and people. If for instance three people assess the same department the results should to be the same! In the beginning, an extensive literature review has been done on how to assess lean maturity and how to keep it objectively. Next, the assessment questions and answers were put together. And lastly, a tool had to be found that helped to easily fill in the questionnaire and to produce proper reports that were easy and simple to understand. The tool used is called iAuditor, which is a simple tool which was already used by some people at Nedschroef and therefore increases the chance that people are willing to use it, know how to use it and know how to develop new questionnaires.

In the end, it was a really good experience to learn a new company, meet new people and to be able to help this company forward in its desire to be the market leader in fastener solutions.

COMPANY FACTS

Founded: 187
Headquarters: Helmond
Employees: 2000
Industry: Automotive
Revenue: €582.4 million
CEO: Dr. M. Hüttenrauch
ÖSSUR

Optimizing Time Efficiency within the Warehouse

PROJECT BY JOOST VAN POORTEN

Össur is an Icelandic company that is the global leader in non-invasive orthopedics. Headquartered in Iceland and employing staff of around 2200 across 18 locations, Össur has extensive operations in the Americas, Europe, and Asia, with numerous distributors in other markets. The headquarters for the EMEA region (Europe, Middle East, and Africa) is located in Eindhoven. At the Manufacturing & Operations Department of this headquarters, this project for IRP is conducted.

One of the key initiatives at Össur Europe regarding M&O is focused on efficiency. As of August 2016, the headquarters in Eindhoven is moved to another location within Eindhoven. At this place a brand new office was build. The design of the warehouse, in the new building, was highly focused on more time-efficiency compared to the old warehouse. At the old warehouse, due to the fast growth of Össur in the recent years, everything was packed in a warehouse that was too small. With the new warehouse freshly build, there is enough space to arrange it optimally. For instance the positioning of the products in the shelves and walking paths of pickers are designed to optimize time efficiency.

The project is focused on these changes and the goal of Össur to optimize time efficiency. Within the warehouse, processes are studied, both from the old office and the new one. To quantify the changes and processes in the warehouse, time studies on these processes were conducted. The goal of the time studies is to verify if the changes that Össur made in the new warehouse have contributed to better time efficiency.

From both the results of the time studies and own observations of the student, a small report and dashboard of the KPIs of the warehouse regarding time efficiency is made for Össur Europe. In this report advice regarding optimizing time efficiency in the warehouse further on is also formulated.

COMPANY FACTS

Founded: 1971  
Headquarters: Reykjavik, Iceland  
Employees: 2300  
Industry: Healthcare  
Revenue: $436 million (2013)  
CEO: Jón Sigurðsson
RANDSTAD GROEP NL
The Outcome Economy for Temporary Employment

PROJECT BY GABRIELLE VAN NES

Randstad Holding NV is a Dutch multinational human resource consulting firm. It is specialized in human resource services for both temporary and permanent job, including contract staffing of professionals and senior managers as well as facilitating flexible employment and covering the varying demand of employees for season-sensitive companies. In the Netherlands, Randstad Holding NV is represented by Randstad Groep Nederland, which represents Tempo Team, Randstad and Yacht, each focusing on other educational levels of society and employment. This research is executed for Randstad.

Randstad is continuously aware that they have to continue innovating to stay competitive in its markets. When Randstad heard about this year’s IRP theme, the Outcome Economy, they were curious what this would imply for their current services. This resulted in the following research question: How can Randstad offer output-managed services?

To find out, interview questions were formulated, which focused on how companies were currently dealing with the Outcome Economy, how companies managed their employees and their performance and lastly, how the Outcome Economy could be combined with temporary employment and what this would mean for Randstad. Afterwards, it was decided to focus on a specific sector, namely the production sector. Next, seven interviews had been arranged with HR managers of production companies and with managers of the production departments. Additionally, academic insights were gathered through meetings with professors at the TU/e as the academic literature is still lacking behind.

During the interviews, it came forward that many companies are already focusing on what their clients actually want and how they can provide this. This includes new trends like build-to-print instead of build-to-spec, analyzing the entire supply chain and thus including the client’s customer in the offered services as well as including some guarantee services when delivering their products. Furthermore, it was mentioned that support activities like cleaning are increasingly outsourced and are paid based on what they deliver.

When focusing on the Outcome of employment, one can suggest that employee’s performances will be measured based on their actual output. Companies like Randstad can facilitate this measurement system, as well as that they are also paid for what their temporary employees produce and contribute to the output of the company. However, the interviewed managers were cautious how this would impact the motivation of employees, especially on the long term.

Overall, it was concluded that there is indeed potential for Randstad to focus on the Outcome Economy and adapt their current services to this trend. However, it came forward that all interviewed companies first had to analyze what their added value is of their current businesses and how they can measure their output correctly, before applying output management.

COMPANY FACTS
Founded: 1960
Headquarters: Diemen
Employees: 29,750
Industry: Employment agency
Revenue: €19.2 billion
CEO: Jacques van den Broek
Currently, Tokheim is one of the largest providers of fuel retailing solutions. Tokheim products have been associated with exceptional quality for more than a century. Providing high quality solutions is therefore deeply embedded in the culture of the organization. Their distinguishable logo, which is proudly stamped on all of their products, is even co-branded with the word ‘Quality’. An experienced team of global product marketers and engineers continue the tradition of developing innovative equipment of high quality today and in preparation for tomorrow. At the heart of their business is an unrivalled service network. They have a direct presence and access to over 40,000 stations worldwide. That means that they have access to a unique pool of real time, real life data that underpins everything they do: from new product development to project management, to after sales support and genuine service, their local presence. Backed by the intelligence and security of their global operation allows Tokheim to position themselves to be selected as the supplier of choice. The four core elements of Tokheim are Dispensers, Systems & Payment, Service and Project management.

One of the products in the Systems and Payments category is the most advanced outdoor payment system of Tokheim. The revolutionary touchscreen makes payment faster and easier for the customers. Therefore, Tokheim is interested in whether that product would also be able to successfully operate in alternative markets.

This innovative payment product was considered by Tokheim as successful in the current market. This success was the starting point of the project as the question of Tokheim was whether this product would be a success in alternative markets within Europe. To detect which market would be suitable for the product the research started with a search for markets where similar products are used, resulting in a selection of several potential markets. Regarding these potential markets, different competitors and their product assortment were studied, by answering a series of questions: e.g. which competitors are active in this market, what do these competitors offer, etc.. With the answers on these question, the final research question could be answered: What is the best strategy for Tokheim to entry these potential markets. The methods which were used to gather the required information during the project were internet, phone calls and visiting a renowned trade fair in the traffic industry.

During the project it was found out that it was difficult to find and receive information, i.e. most of the competitors in the potential markets were family or other privately owned companies which are not European based. This made it very difficult to find comparable date. However, the information which was found was useful to provide insights in the potential preselected markets. For Tokheim, this information is used as a starting point for further in-depth research in these potential markets. Overall, the project was an interesting experience with many learning points and strong support from the company for which I would like to thank Tokheim.

**COMPANY FACTS**

- **Founded:** 1901
- **Headquarters:** Paris, France
- **Employees:** 5400
- **Industry:** Metallurgy & gasoline
- **Revenue:** €643 million
- **CEO:** Baudouin de la Tour

PROJECT BY WOUTER BOERSMA

**TOKHEIM**

*Market Research for Wider Implementation of Product Portfolio*
VANDERLANDE

Analysis Multi-Projectflow Approach

PROJECT BY ROBBERT VAN GENUCHTEN

Vanderlande is a fast growing multinational. Because of this, some changes in the current way of working have to be made in order to keep up with the growth pace. Most of you know Vanderlande because of the baggage handling systems at airports. Vanderlande is indeed doing this since a long time but the most important change is that they are currently executing multiple project at once whereas, this was only a single or some project at the same time. Because of this history, Vanderlande is designing in a way that it operates on project basis. This means that all operations within the company are project depended and that people in the company only act from their own project. However, you can imagine that when you are executing multiple (similar) projects at the same time, that there may be room for some synergy in these projects. This research was about finding out if this line of thought was true, and if so, how big is the savings potential for Vanderlande if these commonalities are used?

To get this insight, an iterative process had been walked through. This was started by analyzing the first dataset that contained all procurement and manufacturing orders from 2015. This dataset was not complete however. After talking to various stakeholders, a better picture could be drawn for the required data to be able to get the best insight. Because the data was coming from different sources of multiple departments, some workarounds had to be found to be able to match all relevant information. A file was created in which the data could be entered and an analysis on the commonality would automatically be created. Since multiple loops, lookups and matches were used, this could sometimes take a few hours until the analysis was finished.

It turned out that the rumor was indeed true and that a large portion of the products that Vanderlande created or ordered were present at multiple projects at the same time. Therefore, it was possible to calculate how much money could be saved if Vanderlande wished to utilize these commonalities. Furthermore, some suggestions were given to Vanderlande about what the changes might look like and what kind of impact these changes could have on the entire organization.

COMPANY FACTS

Founded: 1949
Headquarters: Veghel
Employees: 4500
Industry: Logistics airports
Revenue: 1 billion
CEO: Govert Hamers
This research project has been conducted within Vodafone Nederland, more specifically the Enterprise department in Eindhoven. This department is occupied with serving companies, rather than individuals, which is as we most commonly know Vodafone. The project was concerned with investigating whether it would be possible to offer the flexibility that is currently offered to individual customers to enterprise solutions, or at least in some form. Moreover, the intention is to provide a starting point from where the business unit could continue developing the service.

The problem that led to this idea was that enterprise customers currently have to fix the bandwidth for the duration of their contract, which is generally a couple of years, but may sometimes encounter times in which they need more bandwidth. Currently, they would then have to create a new contract for the larger bandwidth, again for the whole duration of the contract. The idea therefore arose to investigate whether it would be possible to temporarily update the bandwidth in the case of such requests, and only for the duration thereof. This shows that Vodafone is thinking of the outcome that is delivered to the customer, rather than the service itself, which is as it was previously offered. This concept introduces Vodafone to the Outcome Economy, and will hopefully result in many more developments.

The project started by interviewing the employees involved in the process, specifically, employees from Sales, Procurement, IT and managers to see what their view was, and what the possibilities would be according to them. The impression was given that there was actually some sense to the idea, and that the study concerning the matter could be continued. This research consisted mostly of linking together the different processes and figuring out ways in which this service could be offered. Moreover, a financial analysis was performed to determine whether the options as discussed would result profitable. In the end, the results of the research were presented. More specifically, this concerned the ways in which the flexible service could be offered to enterprise customers and the financial profitability associated with it, to all parties involved. Those parties found that the results of the project were promising and Vodafone will now continue investigating the option.
This project was conducted at ‘De Waarderingskamer’ in The Hague. ‘De Waarderingskamer’ controls municipalities on the right use of the law about valuing immovable properties, which is done with the help of an IT-system. Each municipality has its own customized IT system provided by another specialized company. The IT-system for valuing immovable properties has to communicate with several other governmental IT-systems, such as specialized tax-systems and personal data systems.

However, the communication language that is currently used in this IT-system is found to be outdated as it has been used for over 15 years already. Therefore, a new IT-system is proposed, whereby they will be able to communicate with all other government related systems for the coming years. Thus, the aim of the project was to find out why municipalities have not yet implemented the new communication language and therewith the new IT-system and what can be done to convince them to do so.

To do so, interviews have been held with seven companies that were highly involved in this project. This resulted in new insights in the way the system currently communicates and how it should communicate ideally to improve to usage of the system. Based on these interviews, the first conclusions were drawn based on pro’s and con’s of the both current IT system and the proposed IT system. Those conclusions were discussed during a meeting with all the seven companies together. After that, a final factsheet was created, which included guidelines how municipalities could be convinced to implement the new IT system for valuing immovable properties.

In general, the municipalities are positive towards the new communication language, however, the main obstacle is found to be the implementation costs. The final factsheet has been presented at the tax conference in March. This factsheet includes all the advantages of implementing the new communication language and IT system, as well as the implications and possible changes for the organization which are required if they start implementing the system.
WINCOR NIXDORF

Design Guidelines and Future Innovations for Retail Solutions

PROJECT BY BRIAN BECKERS & DYLAN RIJNEN

Wincor Nixdorf is one of the world’s leading providers of IT solutions and services for retail banks and the retail industry. The research project that was conducted here consisted of two parts. For the first part, the user interface (UI) of the systems for the retail industry had to be analyzed and based on this, standardization guidelines had to be formulated. Wincor Nixdorf was looking for a design that was well documented, which should result in a standardization of the development procedure. This should include what, when and how information has to be presented to specific users (who) in the system. The second part was about the future of their systems for the retail industry. Questions like, ‘What innovations will drive retail in the future?’, ‘What should the user interactions be like in a couple of years?’ and ‘What role should Wincor Nixdorf and their customers play into this all?’ had to be answered.

HARMONIZATION OF UI
For the first part of the project, the customer segments of Wincor Nixdorf were analyzed. Before you can make a good UI for your customers, you need to know who your customers are. Wincor Nixdorf has four customer segments: the customers of the retailer (with a great difference in age), the employees of the retailer, store managers and the central admins.

After defining the customer segments and the specific needs per segment, scientific literature and some consultancy articles about user interface standardization guidelines were studied. During this search, the three golden rules for UI design from Mandel (1997) were found. These rules are the following: 1. Place the user in control, 2. reduce the user’s memory load and lastly, 3. Make the interface consistent. To these rules, several guidelines are linked that were relevant for Wincor Nixdorf. Next to these general guidelines, also specific guidelines for elderly, mobile interfaces, the designing process and customer satisfaction were analyzed and formulated. In total, 29 guidelines have been documented. Afterwards, the guidelines have been matched to the customer segments because, as mentioned, different users have different needs and thus require different guidelines.

During the literature search, Brian and Dylan had the privilege to work with the systems of Wincor Nixdorf themselves. As unexperienced users, some inconsistencies in the UI were found, as well as the experience that some buttons or functions were not intuitive. At last, some employees from a company which uses Wincor Nixdorf systems have been interviewed about the UI and the functionality of the systems. Based on these interviews, pros and cons of the systems from first hand users could be formulated. This was something which Wincor Nixdorf rarely does, so this provided them with a feedback loop from the real user to the business, one of the key concepts of the outcome economy.

INNOVATIONS IN RETAIL
For the second part of the project, an extensive research on different innovations such as Big Data, the Internet of Things, Seamless Interactions, Augmented/Virtual reality and others has been done. Using different sources such as trend reports, scientific papers and other articles online, innovations were identified that were thought to be the biggest disruptors/innovators in the industry.

After this, the gained knowledge was combined with own experiences and perspectives of what Wincor Nixdorf could do with these innovations. This resulted in recommendations of where Wincor Nixdorf could focus on next.
We strongly believe that in 2020 the main stakeholder, the patient will be in charge of his/her own health data. With an own mobile app this patient will evolve to be a conductor of his/her own healthcare and wellcare. Are all IT vendors accepting this challenge?

Mitch&Mates is an option to take into account because … this is our core business!

We are supporting this (r)evolution with solutions that ‘sync’ patients, physicians, nurses and other stakeholders and we are providing answers to cross-mural collaboration and information exchange challenges.

Care & Share IT does not have to be complicated in order to be successful.
OUTCOME ECONOMY IN JAPAN & SINGAPORE

TEXT KASPER BOSSINK

The second part of the International Research Project was the trip to Japan and Singapore. During the trip, a total of 12 companies have been visited, including the University of Kobe and the Ambassede of Japan. Through these visits, the aim was to see how the different companies and cultures deal with the Outcome Economy. In this section, some company visits will be highlighted.

During our first company visit, the Tokyo Stock Exchange, we learned about the Japanese economy, and more specifically, about the financial performance of the JPX and the establishment of the Japan Exchange Group (JEG). In the last years, the JEG had multiple synergies that led to successful integration of the cash equity market and the derivative market. For market participants the feasibility applications are growing quickly. Tokyo Stock Exchange started with very industry specific market reports in 2013 and this service to their clients is growing fastly as it continuously proved its effort for their customers. The main reason why these reports are interesting is that it contains disclosed information of JEG listed companies on their accountability, transparency and fairness. The stock exchange noticed over the years that these reports create more loyalty and cooperation between them and their customers.

Two days later Canon organized an unique company visit for us. Canon, the Japanese multinational specialized in the manufacturing of imaging and optical products invited us at their headquarters in Tokyo. They showed us their newest models and innovations. Their portfolio includes cameras, camcorders, photocopiers, steppers, computer printers and medical equipment. The first presentation was about the opportunities and issues attached to the use of IoT. Canon pointed out that almost every organisation is jumping on the “IoT bandwagon”. However only a few companies really think about how to handle the fast data lakes they are creating. It is not only a huge security issue which could easily eradicte the consumers trust and brand image on which a company such as Canon strongly relies, but these data lakes could also be missed business opportunity if the data is not leveraged. Furthermore, Canon is continuously developing new interface designs in which client experience, ease of use and technological potential are the most important issues they try to implement or improve.

A more uncommon IoT applications was found after visiting the public toilets throughout Japan. There were many options to make your toilet visit one of the best, through toilet warmers and music sounds. Additionally, there were also touchscreens that asked you to rate your toilet experience. The scale of your experience was from bad (sad face) to good (happy face). Everything in Japan and Singapore is very clean, however, in terms of bad humour it can be funny to rate the service with a sad face. If you do so, a cleaning service employee comes directly to the toilet and starts cleaning everything. This exaggerated example is something that you will not find in every culture or even in almost none, but the Japanese manners to do everything 100% correct drive them to get their service to a higher level.

Fujitsu showed us their very advanced applications regarding IoT. They created a ring which enabled you to write in the air directly to a textfile at your computer or other device. They also created eye tracking technology that changed the interface of the screen you are looking at. This made it easy to read certain files that automatically shifted down or up because it knew where you were reading at that moment in the file. It also worked in a 3rd dimension perspective, which could for instance be applied in a street view application. Even further, Fujitsu also had a technique which created a structure that you could feel on a mobile device. It resulted in a guiter application in which you could feel the strings or in an application in which you could pet a crocodile, which amazingly worked well and resulted in a realistic experience for the user. The most funny application was a teddybear which could be used to learn introvert children to be more emphatic. These interesting applications are quite the opposite of the outcome economy. They created cool stuff because they saw potential in it and which could become interesting applications or which could be
clustered into one of their devices. For the R&D department it did not matter whether there is any market demand for it at that moment in time because that would only work counterproductive on the creative development process. These techniques are slowly adapted into the products that Fujitsu brings to the market. The real implementation and decision whether or not to offer the product or technique to the market does depend on the predicted market demand for it. So for that decision the outcome is important yet the development process is totally not outcome-driven at all.

The UCC (United Coffee Company) is a famous brand in Japan, which you can compare to Douwe Egberts in the Netherlands. In the entire country, you find vending machines on the streets in which UCC coffee can be bought. They have lots of different types of coffee in which the cold ones are sold best. They have regular cold coffee or they mix it up with cacao which tastes more like chocolate milk with caffeine. Most of our group liked the hot variant better despite the warm climate in Japan, which is probably the reason for the high demand in cold coffee. The UCC is customer focussed and is always close by (really on every corner of the street). The data generated by their sales is a proper reflection of the Asian coffee market. They chose to focus on the middle and lower market segments in Asia and try to keep their position by leveraging their market dominance.

At the Kobe university, Professor Manabu Miyao let us think about his IoT case which is called Gum Play. It is an attachment for a toothbrush that measures movement by motion sensors. It connects with a smartphone by Bluetooth and sends relevant data about the cleaning performance. Currently, three apps for this tool were in the market to make brushing more fun, interactive and smart. The apps where mostly focussed on children with for instance a “mouth monsters” application in which you could destroy monsters by proper brushing. Another application is the mouth band in which one can select a music number of choice and by a good brushing performance, the music becomes more furious and better in rhythm. We received good market and pricing information and had an open discussion whether this product could possible make it to the market successfully. The product itself and business models such as the razor blade model were discussed. The funny thing was that for a discussion on a simple attachment to toothbrush the arguments were very well backed-up based on the information provided by the Kobe university. This made it an educative experience.

We visited Hewlett-Packard in Singapore at their showroom office as they called it. Walking in the building was more of a small theme park without a specific theme. All the walls were decorated with the printings HP produces with their professional printing machines. From the skyline of Singapore to small bakeries, we walked by impressive printed decorations. They showed us wedding books they made which sold up to $50,000 although decoration diamonds were not included yet. After visiting this showroom you walked directly into the machinery area where all newest printing devices are stalled. The essence of this sequence of the tour which they also walk with all their customers was that whatever you wanted to be printed or whatever you want to use the printing devices for they were able to provide it. Relief, coatings, you name it. The goal is to trigger customer demand by showing what a huge portfolio they could create.

Our last experience was at Damen shipyards that profiled itself as a quite conservative company, on purpose. However, everything placed on their ships could be customized. They have multiple shipping models in which the core of the ship is uniform. They can assemble their ships quite quickly because of the experience with building the same frames. In their presentation they told us that in terms of customization of the deck and cabin they chose to offer lots of different modules. However, their power is standardization of the core of their ships.

After three interesting weeks, different approaches to the Outcome Economy have been explained and experienced. The way the Japanese people focus on the experience of the clients, both in their daily life as in the innovation of their company processes and strategies, through connectivity and high-tech systems has been really interesting. Furthermore, visiting three large multinational companies in Singapore also gave new insights in their application of the Outcome Economy, specifically focussing on how to deliver more customized products. Overall it can be concluded that although all visited companies deal with different aspects of the Outcome Economy, also in Japan and Singapore, there is a clear trend towards offering more customer-oriented products and services.
Day Reports

TRAVELING EXPERIENCES

TEXT DR. ARUN CHOCKALINGAM

I had been on an IRP trip before, in 2013. The Industria students planned a research trip to India and approached me to participate. I didn’t hesitate in agreeing to join them. The planned company visits intrigued me. Additionally, I had the opportunity to visit places and attractions in India that I had never before visited. That trip was thoroughly enjoyable, so when I found out that the IRP board had planned another research trip, this time to Japan and Singapore, I volunteered to join the trip. Lucky for me, one of the faculty members the board had approached turned down the chance to accompany the students on the trip. Japan has always fascinated me. The people and their culture, especially the concept of ‘bushido’ and the samurai way of life. And since I grew up in Singapore, with my family still living there, the opportunity to go there as part of the trip was just a bonus!

So we set off to the Far East, my path differing slightly from that of the students’ since I had to drop off my wife and kids in Singapore before joining the students in Tokyo. Turns out that my path was the easier one, as the students faced a long delay before arriving in Japan. When I arrived in Japan, I was a bit surprised to find that I had to make my own way to the hotel. I was under the impression that the hotel had a shuttle service. Eventually, I made my way to the hotel and our visit to Japan began in earnest.

The country, its landscape and architecture were amazing. I knew before-hand that Japan was a scenic country, but seeing everything up close was an eye-opening experience. The helpful nature of the Japanese people blew me over. Most could not speak English. I would sometimes struggle at the cashier with picking out the appropriate small change to pay for my purchases. The helpful people at the cashier would indicate that they would select the required coins, and they proceeded to do so with a smile on their face. I had heard of Japanese hospitality, but personally experiencing it was a treat.

A large part of the trip revolved around company visits, and there were quite a few, all over Japan! The disciplined work ethic of the Japanese people was evident at each of these visits. Trips to companies like Canon and Kawasaki showcased the diversified approaches the Japanese companies were taking. In addition to companies, we also visited the Tokyo stock exchange (which was great for me, given my research interests!) and Kobe University. Along the way, we learned a great deal about how coffee is made (fascinating stuff for an ardent coffee lover like me).

Interspersed between company visits were fabulous cultural visits, such as visits to a baseball game, a sumo wrestling tournament and a number of Japanese temples and gardens.

The cancellation of the planned trip to Fuji was a bit of a downer, but this just means that I’ll have to go back to Japan again!

Having completed the Japanese leg of our journey, we then made the long trip to Singapore. This trip back home was a welcome one for me after not having visited my family for close to two years. The stay in Singapore was (naturally) shorter. We still managed to squeeze in three company visits. I gave the cultural visits in Singapore a miss in order to spend more time with my family and to catch up on some pending work. The Singapore leg of the visit was therefore completely different for me, compared to the experience of the students’, as well as my Japanese experience, but enjoyable from a personal perspective.

I truly enjoyed the entire IRP visit, and must commend the students on an excellent job in planning everything, from accommodation, to traveling and company visits and thank them for letting me tag along, and for the great companies they provided on the trip!
In the early eighties (at the time ABBA fell apart as a group) I joined for the very first time a group of students Industrial Engineering on a trip abroad to visit companies. Now, in 2016, it was the 12.0th time I participated as a supervisor and I can tell you that it was again a fantastic experience.

This year our destination was Japan and Singapore. That choice was not a big surprise to me because earlier I recommended Japan to the IRP-board. For me personally, the destination was new and much more special than just any other trip to far away countries. In literature about organization and management (my field of study), Japanese approaches in the seventies and eighties have been dominating. To get to see them with my own eyes, that inspiring environment would become reality. Also in Singapore, center of excellence in high-tech and financial businesses, lots of interesting companies are found. Surprisingly Japan (with its rich history and culture) nor Singapore were ever chosen as destination for an IRP by Industria. And yes in 2016, my dream to visit Japan and Singapore came through!

The 2016 IRP focused on ‘the Outcome Economy’ which might be considered as a major topic within the Industrial Engineering field of study. Nowadays, a stronger focus on customer needs to drive companies towards innovative systems, structures and market orientations. The challenge was to explore the Japanese and Singaporian approaches from that perspective to get a flavor of the ways organizations are coping with that issue. In order to do that, we visited a wide range of companies and institutions active in different markets.

After the research projects in the Netherlands and the trip to the far east I was asked several times (as an experienced supervisor) to judge which IRP was the best. Of course in the world of Industrial Engineering comparative analysis and benchmarking are part of our work, but that does not mean that the answer to that question is easy to give.

Which criteria should be applied and how should they contribute to a valid, reliable and fair judgment? The only thing I dare to state is that I am convinced that all those who joined the IRP’s (at least those I have joint) have learned a lot. The mix of impressions from different cultures and countries as well as the recognition of the relevance of industrial engineering knowledge elsewhere, made these trips both unforgettable and unique experiences. Maybe the tastfulness and the variety of food we got during the trips to China was most impressive! Maybe the entrepreneurship we saw in the poorest slums in India, the rainforests and Salsa in Brazil, the manufacturing facilities for 50.000 employees in Puebla (Mexico) in the automotive industry, or to walk on the holy ground of Silicon Valley. Incomparable!

A few impressions from Japan and Singapore I shall give. It is amazing how tidy and clean public places over there are. Tourist are recognisable in Japanese streetview from a miles distance, because usually they do not line up in rows and produce significantly considerable more noise. The visit to Hiroshima was to me impressive and unforgettable. I cannot remember any IRP we walked that much and used public means of transportation (tubes and trains) that intensively. The hospitality and kindness of as well the Japanese as Singaporian people was overwhelming. Too many positive impressions to mention them all.

Compliments to all the students of IRP 2016 because they organized an unique event in harmony and with great team spirit. No doubt this IRP is to be considered by me as one of the best IRP’s ever!
TOKYO

CITY OF CONTRASTING BEAUTY

Tokyo is the biggest metropolitan city in the world with an astonishing 36 million people in an area just a little bit smaller than the Netherlands. Tokyo has one of the most complicated public transport systems in the world. It consists of trains, subways and busses. Each track is used heavily and the busiest station in the city, Shinjuku Station, is used by more than three million people each day.

Tokyo was the first stop of the study tour. We stayed here for one week, before travelling on towards Kyoto. We stayed in a hostel in the Kasai district, south east of the city centre. We used the train and subway to travel around the city and prefecture, because many companies we visited were situated outside the city centre.

We had a pretty busy schedule at the start of the study tour, so in total we had one free day to enjoy the scenery of Tokyo. We started our programme at the 5th of July with the Tokyo Stock Exchange. The next day we enjoyed the culture at Yoyogi park, Takeshita street and had visits to the Dutch embassy and AT Kearney. The 7th of July, we visited Fujiitsu and Canon, known for their IT ventures and pioneering innovative imaging products respectively. On Friday we had a day off to visit the Senso-ji temple and had a nice time in the Akihabara district. The next day we had a visit to the Tsukji Fish market. Afterwards the group was splitted up. Some had an experience at the traditional onsen while others visited the Government Building. On Sunday morning, we took the bullet train to our next city: Kyoto.
The 3rd of July was the day we all had been looking forward to for almost a year: the start of the trip of the International Research Project 2016. Unfortunately, our flight to Japan (via London) did not go as planned. There was a suitcase too many in the plane in Amsterdam, causing a two hour delay which led to us missing our connection flight. After some stress, running around and rebooking we finally arrived in Tokyo about 5 hours later than originally planned.

After checking in at our hotel, some of us ate their first sushi. Unfortunately, it was from a 7/11 supermarket, which can be compared with getting a pizza from a supermarket in Italy.

Due to our earlier delay, the five hours city tour through Tokyo was reduced to a 2 hour tour. Tour guide Renée Albers gave us our first impressions of Tokyo. Among the sky-high buildings, there were nice parks, crowded streets and nice temples. We walked by the empirical palace and after that we had our first dinner in Japan. Noodles, chicken, shrimps, vegetables and all eaten with two chopsticks.

After dinner, we visited a Japanese gaming hall. Well, not really a hall but a six floor building completely stuffed with arcade games. Dancing, singing, DJ-ing, playing Mario kart, doing some air hockey. They had everything! After enjoying ourselves here for about an hour, it was time to go back to the hotel and take a good night rest because the next day, the first company visit was planned.
Tuesday consisted of three major activities: a cultural activity, an educational activity and a recreational activity.

Let’s start with the cultural activity. On this day we travelled to Shinjuku station which is serving as the main connecting hub for rail traffic in Tokyo. An estimated 3.5 million people pass through Shinjuku station every day, making it the world’s busiest train station. And then, from there, we walked to the Shinjuku Gyoen National Garden. This beautiful park in the heart of Tokyo is home to Japanese- and Western-style gardens. During our visit we prepared the cases of AT Kearney because next day each group had to present their ideas to the company.

In the afternoon we had a company visit at the Tokyo Stock Exchange. The company gave an interesting presentation about their history. They also gave a tour through the building. A notable fact was that the building was very empty as there were only very few people.

Back in the day before the internet existed, the Tokyo Stock Exchange was the place to be for traders and sellers, but nowadays, most of the transactions are executed over the internet by people sitting at any possible place. Last but not least, they let us play a trading simulation. The simulation was both fun and educational.

In the evening we attended the baseball game between the Yomiuri Giants and the Hanshin Tigers. This game is an exciting derby which can in some ways be compared to our own Ajax versus Feyenoord with the Tigers being Feyenoord. The match was very exciting and the crowd was cheerful.

**Funfacts**

- The Tokyo Stock Exchange uses red-coloured figures for stocks that increased in value and green-coloured figures for stocks that decreased in value, which is opposite of the way that we are used to in Europe.

- Supporters at sport events are very well-mannered. When the home team is batting only the home supporters sing and the others are quiet. When the away-team is batting, their supporters sing and the home-supporters are quiet.
6TH OF JULY
- TOKYO -

TEXT WOUTER BOERSMA

Today, there was a fully planned day on the program. On the original schedule we had planned free time. However, we changed this because we missed a part of our sightseeing tour on the first day. We started our day with a visit to the Dutch embassy in the Minato district. In this part of the city, many embassies are located. At the Dutch embassy, we were welcomed by Jan-Hein Chrisstoffels. He initiated an interactive discussion in Dutch with the students about working and living in Japan. This was a very interesting session where students could ask all the questions they had.

After the visit of the embassy, we went to Harajuku Station to visit Takeshita Street. Harajuku is the center of Japan’s most extreme teenage cultures and fashion styles, but also offers shopping for adults and some historic sights. The local point of Harajuku’s teenage culture is Takeshita Dori (Takeshita Street) and its side streets, which are lined by many trendy shops, fashion boutiques, used clothes stores, crepe stands and fast food outlets geared towards the fashion and trend conscious teens. Everyone had a few hours of free time here to explore this area and to lunch.

For the afternoon, Meiji Jingu temple and Shibuya crossing was on the schedule. Before going to Shibuya crossing we did a quick visit to the Meiji Jingu. Meiji Jingu is a Shinto shrine. Shinto is called Japan’s ancient original religion, and it is deeply rooted in the way Japanese live. This shrine is dedicated to the divine souls of Emperor Meiji and his consort Empress Shoken (their tombs are in Kyoto). After the nice views in Meiji Jingu we went to Shibuya crossing. Rumored to be the world’s busiest, this intersection in front of Shibuya Station is famously known as ‘The Scramble’. It’s an awesome spectacle of giant video screens and neon, guaranteed to give you a ‘Wow – I’m in Tokyo!’ feeling. People come from all directions at once – sometimes over a thousand with every light change – yet still manage to dodge each other with a practiced, nonchalant agility. After experiencing the busy Tokyo feeling, it was time for us to have an early dinner, because in the evening we had would have a company visit at AT-Kearney.

For the students who already got a bit homesick, a dinner in an Italian restaurant next to the office of AT Kearney was arranged. With our stomach full of Italian food we...
went to the AT Kearney office, which was located on the 32 floor with a beautiful view over Tokyo. During the visit by AT Kearney we had a discussion over the 3 cases they gave us. After the discussion we had a drink and take a group picture.

Our last visit of that day was planned at the Tokyo tower. Standing 333 meters high in the center of Tokyo, Tokyo Tower is the world’s tallest, self-supported steel tower and 13 meters taller than its model, the Eiffel Tower. A symbol of Japan’s post-war rebirth as a major economic power, Tokyo Tower was the country’s tallest structure from its completion in 1958 until 2012 when it was surpassed by the Tokyo Sky tree. In addition to being a popular tourist spot, Tokyo Tower serves as a broadcast antenna. The sky tower gave a good overview of Tokyo. Especially, the darkness and the lights of the city center gave beautiful pictures of Tokyo. When we finally arrived home after this exhausting day, almost everyone got to bed immediately because the next day an early wake up call was planned.
After a very, very early wake-up call we all hopped into a nice cold air-conditioned coach that would bring us to the innovation headquarters of Fujitsu. After a nice trip through Tokyo we were welcomed by Fujitsu and received a very interesting lecture about the different innovative projects Fujitsu is currently working on. After we got the chance to ask some question, the projector board magically opened and we got a chance to play with the various products Fujitsu has developed over the years. And that was not all! After everyone was finished playing we were taken to the board room were we got a presentation about the different strategies for innovative products that Fujitsu works with, while enjoying the view of the city.

From Fujitsu we went straight to Canon, another worldwide known company where we were welcomed by Harry Vermeulen who is working as an Interaction Designer at Canon and is an alumni of the Eindhoven University of Technology. What is the first thing you do at Canon? You get a group picture taken by one of their cameras! We were given a tour through their showroom where Canon got the chance to present their history and the various products they have developed over the years.

After this interesting tour it was time to go to the presentation room. The design team of Canon prepared two presentations, how Canon applies customer thinking in their product development process and what customer data they use when the Canon products are designed. Also, our chairman Kasper Bossink gave a nice presentation about our theme the Outcome Economy for the Design department of Canon (24 designers attended this presentation!). After some very interesting presentation about the design team and the user interface design team, it was time to try all kinds of cameras ourselves. For the second time that day, we showed how much we like to play with things.

Fortunately the day had only just begun! Together with some Canon employees we hit the grill. After industrial quantities of beer and sake and lots of good meat we went to the karaoke. Herewith I would like to close this day report...
8 July was the day that should be remembered as the day we climbed Japanese most popular mountain, Mount Fuji. Unfortunately, the weather forecast only included 12 hours of rain from the planned start of our trip to the top of Mount Fuji. Therefore another program had to be made for this day.

The program started at 12 pm to give everybody a chance to recover from the exhausting first week in Japan. The cultural afternoon started with a visit to the Senso-Ji Temple located in Asakusa. It is one of Tokyo’s most colorful and popular temples. A shopping street of over 200 meters, called Nakamise, leads from the outer gate to the temple’s second gate. Alongside typical Japanese souvenirs such as yukata and folding fans, various traditional local snacks from the Asakusa area are sold along the Nakamise.

After buying some nice souvenirs, like flip flop socks with sushi patterns, we continued to the Akihabara district. Here we played some video games, visit anime shops and had dinner.

After this visit, we went to Iriya Asagao Matsuri (Morning Glory Festival). This street festival is known from a large street full of food stalls and of course of more than its 100 stalls selling the morning glories. The morning glories are sold with the meaning to honor Iriya’s goddess of childbirth and children. The day ended in the local bar, where we have played many card games, table football and enjoyed the cheap cocktails.
As a good alternative of climbing Mount Fuji, we decided to visit the famous Tokyo Tsukiji fish market. Early as 3 o’clock in the morning fishers will auction their fish, in which tuna is the most important item. Since visitors are not allowed to attend these auctions, we arrived at 9 in the morning to watch the aftermath. We visited the gigantic hall filled with merchants selling a great variety of creatures from the see, dead as well as alive. Despite the smell, it was impressive to see the size of the fish market and watch the merchants do their jobs. As the Tokyo fish market is known for the freshest Sushi you will ever experience, most of us decided to try some at one of the restaurants. We can definitely say that the legends are true. Especially the Broiled Fatty Tuna Sushi, or ‘aburi-toro’, made us shiver with delight. The Japanese are a bit cruel though: there was a big aquarium with fish overlooking the sushi conveyor belt filled with their ready-to-be-eaten friends.

After the Tsukiji fish market, half of the group decided to head off to a famous Japanese Onsen, which is essentially a (nudist) spa. The rest of the day at the Onsen was all about relaxing and recovering from the busy first days of the trip. The other half decided that they did not see enough of Tokyo yet and visited the famous Government Building, where a big part of the Japanese government is located. They had a cup of coffee at 250 meter height overlooking the skyline of Tokyo. As Japan is also known for their many car manufacturers, the Toyota museum was visited afterwards. They ended the day with a few rounds on one of the many race simulators.
The second stop of our journey was Kyoto. The name ‘Kyoto’ literally means ‘capital’, which it was until Tokyo received the honour in 1868. Kyoto has a population close to 1.5 million and the Kamo River flows through it. Kyoto is known for its rich cultural sites: all 1600 Buddhist temples and 400 shrines are listed as UNESCO world heritage. The most famous Geisha district, Gion, is also situated in Kyoto.

We stayed in the Amenity hotel that had very comfortable cabin beds. After arrival we visited some nice cultural sites starting at Kiyomizudera, the Pure Water Temple. Kyoto has a very nice environment with waterfalls and lots of zen gardens. In Kyoto, we had one company visit, namely Hosoo. This company produces high quality fabrics for high end customers in the fashion industry. The products, including shoes and furniture were all made with very old classic weavery machines. In the past, they produced for the emperors of Japan but nowadays they produce for brands like Chanel.

In the centrum of the city, there is a nice riverside where we spend most of our evenings. A lot of people in Kyoto were also at this riverside so there was always something to do. Close to the river, there was the district Gion. In Gion there is a small street where all kinds of restaurants and bars are located. On one of the days, we cycled through the city which was a very good choice because of the beautiful sightseeing and relaxed transportation between all kinds of different sites. Instead of seeing the metro under Kyoto, we were now able to experience the city above the ground. After three days in Kyoto, we travelled further to Kobe, knowing that we will be back in Kyoto for one more day to see the famous Gion-festival and walk the Fushimi Inari.
10TH JULY
- KYOTO -

TEXT NINA KIEMENEIJ

On the 10th of July we travelled from Tokyo to Kyoto with the Shinkansen. This was the first time we travelled with this high-speed train. It was a long trip to our hotel. After we arrived at the hotel, we went for a city tour under the guidance of Jasper Smit. Kyoto is a really nice city which was formally the Imperial capital of Japan. It is also known as the cultural capital of Japan. This can still be seen by the many old temples the city possesses.

The first stop of our city tour was at the Kiyomizudera (literally ‘Pure Water Temple’). This is one of the most celebrated temples of Japan. It derives its name from the fall’s pure water. The Otowa Waterfall is located at the base of Kiyomizudera’s main hall. Its water is divided into three separate streams. Each stream has a different benefit, namely to increase longevity, success at school and a fortunate love life. You may drink a cup of the streams but you have to choose, because drinking from all three streams is considered greedy. The second temple we visited was the Kodaiji temple. This temple belongs to the Rinzai sect of Zen Buddhism. It has beautiful zen gardens with an bamboo grove.

After visiting the temples, we went for something to eat in small groups next to the water. A nice fun fact is that in the past a restaurant has to pay taxes based on the width of the restaurant in front. So all restaurant are very small. After the dinner we relaxed next to the Kamo river.
The 11th of July was a day that included both a company visit and a lot of culture. In the morning, we were welcomed by the small but very impressive textile company HOSOO. In the afternoon, we discovered the cultural highlights of Kyoto the Dutch way: by bicycle.

HOSOO is a textile company based in Kyoto that manufactures high quality fabrics for high-end customers in the design and fashion industries. Their products are used for a wide range of products categories, including clothing and shoes, but also furniture and even wall decoration. Some of their largest customers include Dior and Chanel, who use the fabrics worldwide in their boutiques. Other clients include interior designers and fashion designers.

The visit to HOSOO differentiated itself from the other company visits during the trip in many ways. It was interesting to see a small company, compared to the multinationals that we visited earlier. All manufacturing facilities of the companies are located in a large house that was turned into a small factory!

Even though it is just a small company, HOSOO was still able to differentiate itself from competitors. This was possible by the experience of centuries that the company has; it was founded in 1688. This means that the company is over 300 years old by now! I barely know any company that old. And even though it is an old company, it has not lost its innovativeness as they are experimenting with the DNA of jellyfish to make their products glow in the dark!

After the serious morning activity, it was time for some fun. In the afternoon we hired bicycles to discover Kyoto the Dutch way. A bicycle is the perfect way to discover the beautiful city. From the city center it is possible to cycle over a nice path along the riverside. This will bring you to an area of the city where many old temples are located. The beautiful zen gardens in which the temples are located, are the perfect place to rest during a busy trip like this one.

Funfacts

- The fabrics produced by HOSOO are used in Lady Gaga’s shoes.
- If you want to meet Dutchies: go cycling!
Today we had to be ready at the lobby at 8.30. With our luggage, we took the bus to Kyoto station. You can imagine that after we entered the bus was completely full. Unfortunately, we took the wrong bus which resulted in a delay of ten minutes at the train station. At the train station we discovered that our beautiful IRP-shirts were still at the hotel. Luckily, there was just enough time for Wouter and Kasper to drive back to the hotel to get the shirts.

After a train ride of an hour we arrived in Nagoya. In Nagoya a hotel room was booked to store all the luggage. After, the luggage drop in the hotel and a quick lunch at the local supermarket, it was finally time to head to the sumo-wrestling tournament.

Outside the stadium we could see wrestlers arrive over a red carpet. They got welcomed as true heroes! The stadium of the wrestling was very big with in the middle the ring (just 4 by 4 meters) where the wrestling show was. Around this ring, the wrestlers who did not fight yet were sitting. Of course, we checked the internet for the rules of sumo wrestling. Unfortunately, there were still many aspects we did not understand. Luckily, some local Japanese were happy to explain those rules to us. During these battles we made different bets on the winner of the games.

At one moment, one of the wrestlers was even launched into the front row of the audience. Luckily, no injuries happened although it looked very painful. At 18.00 the final round of the tournament was starting. The result was that the favourite lost the match, which resulted in the throwing of all the pillow seats to the wrestling ring.

After this fantastic tournament we had dinner at the restaurant called Bulan Bali. After dinner, we took our luggage again and went to Kobe by the Shinkansen. At 22.30 we arrived in the hotel Sunroute Sopra in Kobe. Unlike the previous hotels, we were blessed with big rooms in and even three suitcases fitted easily in the room.
The best BI (Business Intelligence) approach...

Think BIG

act small !!!
KOBE

After Kyoto, we went to Kobe. Kobe is the sixth-largest city in Japan and is the capital city of Hyôgo Prefecture. It is located on the southern side of the main island of Honshú, on the north shore of Osaka Bay and about 30 km west of Osaka. With a population around 1.5 million, the city is part of the Keihanshin metropolitan area along with Osaka and Kyoto.

However, before we arrived in Kobe, we made a little detour via Nagoya to visit a Sumowrestling tournament. These tournaments only occurs six times per year and it lasts for fifteen days.

After this, we arrived in Kobe where we stayed in Sunroute Sopra Kobe hotel, which is one of the most fancy hotels we stayed in during the trip.

In Kobe, we visited three companies. The first one was the UCC (United Coffee Company), a Japanese company which makes coffee for all over the world. During this visit we had a nice tour through their factory and learned how to make the perfect coffee. Nobody had to fear that they would fall asleep thanks to the numerous number of coffee we were allowed to taste.

The second company we visited is not really a company, since this was the University of Kobe. We had a great time exchanging experiences with the Japanese students and professors. The last company was Kawasaki Heavy Industries at which we had a nice presentation and a tour through the Kawasaki museum.

The last day left in Kobe, we spent in a city 300km away. This was the city of peace, Hiroshima. During this day, we had a guided tour by one of the Hiroshima peace volunteers and visited the memorial museum which made really heavy impression on us all.
Day Reports

IRP 2016 - MAGAZINE
13TH JULY
- KOBE -

TEXT DYLAN RIJNEN

After travelling in Japan for nearly two weeks with significant less coffee consumption than we were used to at home, most of the students almost got rid of their coffee addiction. It was therefore very fortunate that on the 13th of July we visited the coffee producer UCC to get our fixes. UCC brings among other brands the Bio+, Jumbo Huismerk and Fair Trade coffee to the Netherlands and is one of the greatest coffee producers in the world. Our visit there can therefore easily be described in a single word: COFFEE!

The day started with a visit to the coffee factory at Rokko Island where we were immersed in the different processes required to both grow coffee and process it into the coffee we drink every day. Accompanied by our tour guides and translators we were shown a brief movie showing the origin of coffee, this all on benches made of coffee beans. We were instructed on how to properly taste coffee by a certified coffee taster and he told us how UCC handles its quality control. Then it was our time to taste some of the black gold. The first tasting (of many more to come, as we would find out later) was to show us the impact of different roasting techniques on the taste of the coffee. By batching and separation of the different sizes of coffee beans before roasting, UCC enables itself to get a more homogenously roast of coffee beans, which in the end results to a better coffee drinking experience. The latter of course being the desired outcome!

Next we were taken to the place where the beans were processed further and through the means of a live-stream, engineers explained the different machinery used and different process steps taken to get to the end product. This concluded the morning session of UCC and after a nice lunch provided by UCC it was time to become coffee making experts ourselves.

For this we went to the coffee academy, an institute were UCC also trains their baristas. In an interactive workshop, we learned how to prepare coffee in a traditional Japanese manner. This showed the importance of different pouring techniques on the eventual taste of the coffee. We were encouraged to try these techniques ourselves and compare them to standard made coffee and coffee made by the experts. Our inner baristas spoke and many good cups of coffee were created that day. Of course many of these delicious coffees also disappeared in our bellies resulting in a slight coffee overdose when we reached the last official part of the day, the coffee museum.

In the coffee museum, we were shown the history of coffee as well as different aspects of the coffee culture. One of the surprising outcomes was that the very famous Dutch coffee in Japan (cold water dripped coffee) was completely unknown to all the Dutch IRP participants. After getting our Dr. Coffee certification by doing the museum quiz we thanked UCC for an amazing, and above all coffee filled, day.

Several employees of UCC and our translators offered to join us during dinner and they knew just the place to go. This is how we ended up in a very nice all you can eat (and perhaps more importantly drink) dinner place on the top floor of one of the skyscrapers of Kobe, which was a perfect way to end this long but exciting day. I did skip the coffee at the dinner though.
14TH JULY
- HIROSHIMA -

TEXT CHARLES DEBATS

On Thursday the 14th of July, we followed Obama’s footsteps and travelled from Kobe with the Shinkansen high speed train to Hiroshima, the first city in the world that suffered from a nuclear attack. At first, we were taken on an impressive tour through the Hiroshima Peace Memorial Park, guided by survivors of the horrible events on August 6 1945, and who are now working as peace volunteers.

The Hiroshima Peace Memorial Park is located at what once was the city’s busiest downtown commercial and residential district, and today there are a number of memorials, monuments and museums, not only to memorialize the victims of the terrible events, but also to establish the memory of nuclear horrors and to advocate world peace. One of the monuments, at which you stumble on upon entering the memorial park is the ‘A-Bomb Dome’, the skeletal ruins of the former Hiroshima Prefectural Industrial Promotion Hall, and which is the building closest to the hypocenter of the nuclear bomb that remained at least partially standing. Furthermore, the guided tour brought us to among others, the ‘Children’s Peace monument’, the ‘Peace Bell’, the ‘Atomic Bomb Memorial Mound’, the ‘Cenotaph for Korean Victims’ and the ‘Memorial Cenotaph’, a saddle-shaped monument that covers a cenotaph, holding the names of all the people killed by the bomb.

After our guided tour through the Hiroshima Peace Memorial Park, we visited the Hiroshima Peace Memorial Museum, the primary museum in the park, dedicated to the education of visitors concerning the nuclear attack. The museum entails exhibits and information regarding the buildup of the Second World War, the role that the city of Hiroshima played in the war prior to the nuclear attack, and extensive information and memorabilia on the actual bombing and its effects.

At last, we concluded our attendance to the city of Hiroshima, by having dinner at a traditional Japanese restaurant, specialized in ‘Okonomiyaki’, a savory Japanese pancake, and where we could share and reflect upon our impressions and thoughts regarding this impressive visit. Looking back, now that our trip to Japan & Singapore has ended, I think I can speak for the whole group, that the visit to the city of Hiroshima was one of the most special and impressive cultural events that we have attended.

Give back my father, give back my mother;
Give grandpa back, grandma back;
Give my sons and daughters back.
Give me back myself.
Give back the human race.
As long as this life last, this life,
Give back peace that will never end

Miyao Ohara
15TH JULY
- KOBE -

TEXT JOOST VAN POORTEN

Today the wake-up call was quite early, 6:30 AM. After our breakfast, we had an hour to get to Kobe University. The journey consisted of 30 minutes with the train and a 20 minute walk up the hill to the university. At the train station, it was the first time some people missed the train and the group got separated. Bart, Jasper and Joost missed the call for entering the train and when they looked around everyone was gone. Luckily the trains in Japan ride very often so five minutes later they took another train and were just in time. After the reunion at the train station near the university it was a 20 minute walk. The university is situated on top of a hill with a beautiful view over Kobe.

At the university we visited the Faculty of Business Administration. In one of the rooms we got an opening speech from the Dean of the University. After the short introduction, Associate Professor Manabu Miyao presented an IoT Case study about GUM PLAY. GUM PLAY is an attachment for a toothbrush. It measures the movement of the toothbrush by the motion sensors. The attachment is connected with a smartphone by Bluetooth and sends data to it. Using this data it is possible to do three different games on your smartphone by brushing your teeth. Summarizing GUM PLAY is very nice and innovative of Internet of Things in real life. Especially for younger people it makes brushing their teeth a lot more fun.

After a small discussion session about the case, it was our turn to present about the IRP in general and the projects that we did for companies in the Netherlands. First Kasper Bossink held a presentation about the IRP in general and Eindhoven University of Technology. After that, Robbert van Genuchten presented his end presentation of the project he did at Vanderlande. After a small lunch break, with really nice food, the last presentation was given by Alfred Taudes from Vienna University of Economics and Business. His presentation was about sensor network, what is in fact quite similar to IoT. Sensor network is used to link sensors attached to machines, social infrastructure, and people, to collect massive data, analyze them, and provide useful solutions to people, companies and the society.

After the last presentation we made a group picture at the front of the faculty building and left. With some of the students of the University, we visited Kawasaki in the afternoon. After a small presentation we visited the Kawasaki Good Time World. This is a museum of everything that Kawasaki does. It was interesting to see that however everyone will probably know Kawasaki from their motors, Kawasaki is engaged in many other industries. For instance Kawasaki also manufactures things for Aerospace, Rolling Stock, Ships and Offshore structures and Industrial Plants. It was very interesting to see the past activities and present activities of Kawasaki.

After the tour we made a group picture in the harbor of Kobe. At the harbor most of the group ate something at the mall, some people went somewhere else to eat the famous Kobe Beef. After dinner we went back to the hotel to get our stuff and transfer to the next city, Osaka. After a delay due to people arriving too late at the hotel, we managed to board a Shinkansen train to Osaka.
After Kobe, we took the train to Osaka, the last city in Japan after which we will fly to Singapore. Osaka is the capital city of Osaka Prefecture and the largest component of the Keihanshin Metropolitan Area, the second largest metropolitan area in Japan. Osaka has also been known as the “nation’s kitchen” and has served as a center for the rice trade during the Edo period.

In Osaka, we had no company visits due to the fact that we were there during a national holiday and the weekend. Due to this, we had a lot of time to make some cultural trips and see some nice places in Japan.

The first day “in” Osaka, we went to Nara. In Nara, there are eight temples, shrines and ruins and these form together with Kasugayama Primeval Forest, the “Historic Monuments of Ancient Nara”, which is a UNESCO World Heritage Site. Next to the fact that there are beautiful gardens and an immense Buddha statue, there are more than a thousand wild sika deer walking around.

The next day “in” Osaka, we went back to Kyoto. In Kyoto was the yearly Gion Matsuri (Gion festival). This is a festival where very big and high vehicles are build and the main act to see is how 20 Japanese men make a turn with these vehicles because they can only move in a straight way.

The area becomes most exciting in the evenings when the streets are closed for traffic and the area swells with food stands, drink vendors, and other festival hallmarks.

The last day in Osaka, we actually spend in Osaka. This was the 18th of July, which is the national marine day. To honor the sea, we first went to the aquarium. This aquarium is a bunch of small aquariums build around one big water tank, where for example a whale sharks swim around. After the aquarium, we took the aqualiner to Osaka castle. Osaka castle is one of Japan’s most famous landmarks and we were even allowed to take a look inside. After this day, we needed to pack our bags because we were about to fly to Singapore!
This morning, we left the hostel to go and visit the city of Nara. The wake-up was quite early, so everyone was falling asleep on the train, which lasted about one hour. Although Brian and Ralf were officially our day leaders, Jasper was responsible for the visit to Nara, so he helped our day leaders to guide the group. Did you know that Nara used to be the capital of Japan? This was the case from 710 to 794 AD. Moreover, Nara is home to the “Historic monuments of Ancient Nara”, which has been listed as a UNESCO World Heritage site, and comprises eight distinct places.

Once we got to Nara train station, we took our time to buy some food and drinks, before continuing our way to the places we were going to visit. We then first walked to Isui-en garden, which was half-way between the train station and Nara-koen park. This was a nice, small garden with a nice pond in the middle and a pretty view. We took our time walking around the park in small groups, and then found a nice place to take pictures, both individual and of groups. After finishing here, we continued towards Nara-koen park. This is the park of the famous Nara deer, which are considered national treasures. These deer are pretty accustomed to being around people, and are thus not as shy as deers normally are. Logically, everyone wanted to take a picture with the first deer we saw, but after a while we got used to seeing so many of them. The park is home to more than 1,200 deer! Nara-koen park houses several of the places listed under “Historical Monuments of Ancient Nara”, of which we first visited the Todai-ji temple. This was a beautiful temple, and surprised me in its size. Although it does seem quite large on pictures, it is even larger in person. Moreover, the temple is home to the world’s largest bronze Buddha statue, Daibutsu, which is 15 metres tall.

The group then split up to see the rest of the park in smaller groups. Our group went to walk around the park, and after having lunch, reached Kasuga-Taisha Shrine. Although we did see another groups going in to see the shrine from the inside, we decided to continue walking around. The part of the park we had visited until then was quite open, but the nature was beautiful. Afterwards, we walked into the part of the park that was more like a forest, which was also lovely to see. For a second, we thought of taking the off-road track up the hill, but then decided to continue on the paved roads. Finally, we had seen the majority of the park and decided to sit somewhere and seize the opportunity to relax in such a nice environment. Finally, we had dinner in Naramachi, which is the district where all the shops and restaurants are, before returning to Osaka. We ended the day with some drinks on our hostel’s rooftop, although a few went to party late into the night.
The 17th of July, in contrast to the other days, everyone was allowed to do whatever he or she wanted to do. Originally we would have visited the Gion Matsuri parade in Kyoto, but due to some planning issues, visiting this parade was no longer obligatory.

Most students did get an early train to Kyoto though, but some chose to stay in bed after they visited some museums (read: awesome night club) in Osaka the night before.

However, Gion Matsuri, the festival of Yasaka Shrine, is the most famous festival in Japan. It takes place over the entire month of July. There are many different events, but the grand procession of the 32 floats on July 17 is particularly spectacular. The 32 floats known as “Yamaboko” consist of 9 big floats “Boko” and 23 smaller floats “Yama”. Some of the “Boko” floats can weigh up 12 tons and are 25 meters high. It was a great experience to see such a traditional Japanese festival.

The rest of the day everyone had some free-time to see some highlights of Kyoto or to do some souvenir shopping. Those who stayed in Osaka went to a public swimming pool together.

Since we had not been to a real night club with all students together, we went out in the same area as some did the night before. After getting a good entrance deal we entered an international club and partied till late in the night.
18TH JULY
- OSAKA -

TEXT GABRIELLE VAN NES

After a short night, today’s plan was to see the highlights of Osaka itself. One of the main touristic hotspots is the Osaka Aquarium Kaiyukan, which is the largest aquarium in the world. In this aquarium, many types of fish were found including a whale shark. This is the largest known extant fish species that has an average length of 10 meters. Apart from fishes, also dolphins, penguins and seals have been spotted. At the end of the aquarium, some interesting jellyfishes were shown and there was a chance to touch some rays in a basin, which was enjoyed by the few that could actually find a ray near the edge. Overall was visiting the aquarium a relaxing start of the day, while enjoying the many species that are unique for the pacific.

The next stop was the Aqualiner: a touring boat that would show us the highlights from down the river Yodo. Although many high, modern buildings were passed by, combined with some parks and older historic places, some of us took the opportunity to use this hour for some relaxing and to recover from the short night of sleep. A moment to remember was the crossing of low bridge, which caused the roof of the boat to lower, scaring our tall man: Mike Brom. Since some time was left, we quit the Aqualiner one stop earlier, to visit the Osaka Castle. This castle is also called the Osaka-jo and is located at the delta of the river Yodo and is thus surrounded by the river on three sides. It can be said that it is one of the well-known castles of Japan and one of the most powerful forts of the 16th century. There was not much time left to visit the castle, so some decided to go through the highlights of the building while others just enjoyed the view from the high walls of the fort.

Afterwards it was time for the last dinner in Japan. Many decided to enjoy Sushi for the last time, while others preferred to have some noodles and grilled meat. Then it was time to go back to the hostel and pack our bags for the next flight: off to Singapore!
It was the 19th of July, the seventeenth day of the study tour and our last day in Japan. On this day, we left the hostel and took the train to Kansai Airport. When we arrived at the airport, everybody checked in without any troubles and could relax at the airport.

It was about midnight, after an eight hour flight with a short stop in Taiwan, when we landed at Singapore Changi Airport. Finally we could stretch our legs again! Yes we got all our bags. Unfortunately the custom officers asked Allard to open his suitcase which results in his following story:

“They found an illegal weapon that I tried to import. I thought the ninja star was just a souvenir for my grandson. I was taken apart from the group and some administrative work had to be done. The custom officers needed to call the police and after half an hour three officers arrived. Copies were taken from his passport and I had to sign several documents. After 1.5 hour I got the message I could leave and join the group and I got the warning that next time I definitely would go into prison. Welcome to Singapore!”

After a twenty minutes transfer which brought us to the Orchid 81 hotel, everybody quickly went to bed to get some much needed sleep.
The last days of the IRP 2016, we spent in Singapore. Singapore, often referred to as the Lion City, the Garden City and the Red Dot, is a global city and sovereign state in Southeast Asia and the world’s only island city-state.

In Singapore, we had the last company visits on the program, namely Dow Chemicals, Damen Shipyards and HP. Firstly we went to Dow chemicals, which is located at Jurong island. At Dow, we were allowed to see their production factory where they make their chemicals. Next to that, we had a visit at the external warehouse where Dow stores the major part of their inventory.

The other two company visits were on the same day due to the fact that these companies were close to each other. At HP, we had a look at their design center. We were able to see how HP uses the wishes of their customers to be ahead of their competition. They make their products as personal as possible, a good example of the outcome economy. At Damen Shipyards, we had a nice presentation about the way of working at Damen and we were allowed to see the docking where the ships are manufactured. After this, we had a nice drink with some of their employees.

If you think that Singapore has a leak of cultural hotspots, than you are completely wrong. We visited marina bay sands where we had a great view of the Singaporean skyline and had a relaxing day at the famous gardens at the bay. On one evening, we visited the night safari. This was a fun experience where you see a lot of animals in their natural habitat, namely the night. These animals are much more active at night than when you see them in a normal zoo.

On the last day in Singapore, we took the boat to Pulau Ubin. Pulau Ubin is an island off eastern Singapore and often considered the last ‘kampung’ (village) in Singapore. Here, we rented some bikes and rode through what can be seen as the last jungle of Singapore. After this amazing last day, we all had our last IRP dinner together and had some drinks together, thinking back about an amazing three weeks.
The next day started off well. Sleeping until 10:00 was a welcome change from the previous days. Everybody took a quick breakfast from next door’s 7-Eleven and we took the tube to the headquarters of Dow Chemical where we were picked up by employees of Dow. During the 30 minutes trip to the plant of Dow Chemical we got a short overview of the day program. Upon arrival at the plant of Dow Chemical, each visitor was going through several security checks which led to another story of Allard:

“It was announced that cameras were prohibited during the company visit. I thought we could drop cameras and cellphones at the company entrance and pick them up later. I was mistaken; cellphones were allowed (as long no pictures were taken). My camera however was considered as a kind of explosive. The memorycard and battery were registered and many forms had to be filled in and again some copies of my passport were taken. After 20 minutes, these items were placed in a locker and we could start the company tour.”

Our first stop was at the plant. The introduction started with a general safety lesson for behaving at the Dow plant. After the presentation, the group was split in three, and we received an extensive tour through labs where much research was done. Also the employees showed us the room where chemical processes of the plant were monitored.

After getting back in the bus, we drove to the warehouse of Dow Chemical. When the presentation was finished we enjoyed a tour through the company, including a tour through the warehouse. From the top of the warehouse we got an excellent view over the Island and its petrochemical industry.

After this visit we went to the Newton Food Centre where you can have many different food options at an affordable price. In general, Singapore has many eating places which are frequented for local delights.

After enjoying the dinner, we went to the hotel to change clothes and get ready for “Ladies Night”. Since a few participants were not on time to take the metro, we split into small groups and went to the city centre by metro or taxi. Our night of Singapore’s adventure had just begun, as the Clark Quay bridge was nearby and all of us would visit club Zouk later that night.
After several hours of sleep, we jumped into the metro to visit Marina Bay Sands that had cost $8 billion euros and is the most expensive stand-alone resort property ever built. This enormous skyscraper is famous for its infinity pool which is 200 meters above ground level. Next to the pool is a small coffee bar that allows people to enjoy the same view, while not having to book a room into this way too expensive resort. As we enjoy the terrific view and jealously saw people swimming in this pool, we all drank some coffee at this nice bar.

Behind Marina Bay Sands, there is a large park with supertrees, lakes and many different flowers. With small groups, we visited the park and enjoyed the sun.

We had a nice dinner at Lau Pa Sat, which is one of the most popular food markets in Singapore, and gathered for the evenings program: Night Safari. This is known to be the number one evening activity of Singapore and famous among young families. Surrounded by kids and frozen from the cold bus we entered the park. The park had a walking trail and a tram safari. As the queue for the tram safari was over an hour, we decided to start with the walk and take the tram after.

The safari park included The Big Five which are the lion, elephant, buffalo, leopard and rhino, and many of the animals that sleep during daytime were now very awake.

Funfacts

- Something Jasper taught me: otters sleep hand in hand to make sure they do not lose each other while floating on the rivers!
- Singapore’s public traffic system is not only the cleanest one in Asia, it is also the coldest one.
Today, the wakeup call was at 6.00 to visit the last two companies of our trip, namely HP and Damen Shipyards. In this early morning, we went by metro and bus to the industrial area of Singapore were HP and Damen were located.

HP welcomed us at their conference room, and gave an interesting presentation and movie about their core business and how customer influences are integrated in their production/designing process. After this presentation a tour around the ink/printing facilities was given. This gave us the insights about everything that was possible with printing. The awesome visit ended with some personal printed goodies from HP.

On the original planning of this day a walk from HP to Damen was on the schedule. However, during our lunch, it was starting raining. Luckily we found a taxi driver who was able to drive 4 times from the food court to Damen, to let us arrive dry at Damen Shipyards.

Damen, our last company visit of this trip! Since, Damen Shipyards is a Dutch company, we were welcomed with a presentation in Dutch. We learned about what kind of boats Damen was building and especially which kind of boats in Singapore are built. It was amazing to see Damen build such big ships in their yard. To end the day, and also our last company visit, Damen organized a drink with some typical Singaporeans snacks. You can imagine that after a 3 week trip such a drink was well appreciated by all the students.

After this busy day we enjoyed a nice dinner at another food court and went to marina bay sands afterwards to enjoy the daily lightshow at Marina Bay Sands.
23RD JULY
- SINGAPORE -

TEXT ROBBERT VAN GENUCHTEN

The last day that we were all together, we enjoyed in Singapore. And if it was not for Bart and Bram, this day turned out to be great. We did not have that many relaxing hours during our 3-week trip, but today we would go to a more laid back place in Singapore, namely the island of Pulau Ubin.

There was room to relax on this island but of course, our group chose to rent mountain bikes to discover the island. Like always, Allard was in for the fun and joined the whole group mountain biking. However, after the first 5 minutes of cycling, the road was getting dirtier and steeper. Allard made the wise decision to turn around and head for a bar for a well-deserved beer. Meanwhile, the rest of our group was in search of a place to take the first dip of our trip. After half an hour cycling and some dirty clothes we finally found a place where you could (but shouldn’t) enter the water. We did so for half an hour and then continued our trip on the island.

The locals helped us shower by aiming their high pressure washer at us. It was not that comfortable, but it worked against the mud of the island. We returned back to the hotel on a self-made party boat to dress up for the final diner at a fancy Singaporean place. The dinner was awesome and the IRP committee got deserts with candles as a gesture of thanks from all the IRP participants. It was a truly awesome experience, and without the hard work of Kasper, Brian, Gabrielle, Wouter and Vivian it would never be possible. Some more nice words were said and of course Allard gave a nice speech.

After the diner it was time to say goodbye to Robbert van Renée since they would be leaving early in the morning to their next destination: Laos. Everybody drank their grief away in the clubbing night that followed which created a lot of nice stories that you should ask some participants about.

Funfacts

- The island is also known as the fruit island and therefore you are ‘obligated’ to eat a piece of fruit while visiting (and so we did).
- According to Allard, this was by far the best IRP that he had attended.
CONCLUSION

The Outcome Economy is presented as a concept in which one decides its real value for the customer, resulting in customer-oriented, outcome-based strategies, business models and economies. During the International Research Projects, we have been studying this theme through a masterclass, research projects and finally, the study trip to Japan and Singapore.

The masterclass by Prof.dr.ir. Paul Grefen gave us some first insights in the important questions that are related to this theme: Who is exactly the customer and what is the output that this customer is looking for? These questions need to be answered before adapting the companies strategy and processes towards output-based management.

Through the research projects, each student was assigned to a project at a company in the Netherlands that was related to the Outcome Economy. When these company projects are compared, it is clear that each company is in different phases and working on different aspects of the Outcome Economy. Knowing what to measure, what your outcome is and what the wishes are of the customers are steps that have to be clarified before moving towards customer-oriented services and products, and that is exactly what most projects were about. Only a few company projects focused on the possibilities of the Outcome Economy, for example pay per outcome and more connected platforms, but for most participating companies, this is still a bridge too far.

The last part of the Outcome Economy was the study trip to Japan and Singapore. Both are well-developed countries with innovating companies. Especially the Japanese are very service –and customer oriented, which was shown through the experience tablets at the toilets and the large number of employees that were present during the company visits.

Although the Japanese are quite focused to keep all knowledge and information within their company and their country, they are very innovative and working towards more machine-connectivity, the Industrial Internet and also focus on providing more services to their customers.

Singapore is much more internationally-oriented and as a consequence, we visited many multinational companies. These companies were more focused on how to deliver more customized products, while still producing large quantities.

Thanks to all the research projects in the Netherlands and company visits in Japan and Singapore, we have all seen the different aspects of the Outcome Economy and the way both companies and cultures deal with a world that becomes more and more customer –and service-oriented. It is important to always first check for whom you are working and who will actually profit from the products and services that you offer. Based on this knowledge, companies can change their business models, strategies and processes in order to serve their customers even better.

Lastly, we would like to take this opportunity once more to thank all participants, sponsors, supervisors and participating companies in the Netherlands, Japan and Singapore for their contribution to the International Research Project 2016. We hope you enjoyed and learned as much from this project as we did.

Best regards,

IRP Board 2016,

Brian Beckers
Wouter Boersma
Kasper Bossink
Gabrielle van Nes
Vivian Verhaert
Op zoek naar jong hoogopgeleid talent?

Business Talent Network (BTN) brengt bedrijven groei en innovatie door hen te voorzien van hoogopgeleid talent en helpt dit talent aan een carrière waarbij zij zich maximaal kunnen ontwikkelen.

Business Talent Network garandeert bedrijven hun recruitment doelstellingen met betrekking tot hoogopgeleid talent te realiseren en hun Employer Brand duurzaam te laden. Daarnaast biedt BTN, met 36 carrière websites, het meest volledige overzicht van de carrière mogelijkheden voor jong hoogopgeleid talent.

Wat kan BTN voor jou betekenen?

1. Marktinformatie & kengetallen
2. Campagne & materiaalontwikkeling
3. Employer Brand strategie & campagne uitrol
4. Wervingsstrategie & campagne uitrol
5. Outsourcing Talentpool & selectieproces
6. Ontwikkeling Traineeship programma
7. Garanties op doelstellingen

Multi Channel Strategie

Het succes van een krachtige recruitment- en employer brand campagne zit in de combinatie van de juiste kanalen. BTN is eigenaar van de belangrijkste kanalen die jong hoogopgeleid talent gebruiken in hun oriëntatie- en sollicitatieproces. Maandelijks maken bijna 100.000 jonge talenten gebruik van het platform van BTN.

Het recruitment platform van BTN bestaat uit de volgende databases:

- Online
- Sociaal
- Events
- Talenten
- Campus
- Games

Ook direct gegarandeerd succes boeken?

Bel ons
+31(0)20 42 15 118

Ben je student? Check dan ook eens: Inhousedagen.nl of TraineeshipsOverzicht.nl

www.businesstalentnetwork.nl