



Innovation Resource Moderating Tool

INNOVATION

CREATIVITY

SERVICE DESIGN

RITA RAUVOLA (ED.)

A Creative Spark to the Maritime Industry

THE IRM-TOOL PROJECT PUBLICATION 2019



Innovation Resource Moderating Tool





better. These encounters have been very meaningful to local business ecosystems especially in Turku and Pietarsaari, in Finland. The publication introduces also the experiences and results in testing the Innovation tool to maritime innovation challenges and concludes with the applicability and significance of the creative industries' knowledge for the future innovations. The publication ends with boosting the reader to find his/her own innovation flow.

IRM-Tool project team would like to thank all the workshop participants, artists, experts, students, companies, and other project stakeholders for participating and contributing to the project.

Hope you enjoy your reading and find new ideas for your work!

Rita Rauvola,
Project Manager,
The IRM-Tool Project

University. Meyer Turku acted as a strategic partner. Project was co-financed by the European Social Fund. The IRM-Tool project has been innovative and agile project that has been able to make a lot of initiatives, boost new co-operation and even create new jobs. The project has made the innovation more accessible for companies and experts despite of the company size, field of expertise, and prior experience of innovation work. Innovation knowledge within both maritime and creative fields has increased.

In this publication, the reader is first introduced to the IRM-Tool project journey to provide the idea of the whole. Then, Design Thinking requires its own chapter as it has been the baseline for project implementation. Following, the reader gets an understanding of the development of the Innovation tool, which is the main result of the IRM-Tool project. Next follows a deeper look into the several encounters between maritime and creative professionals that the IRM-Tool project has arranged. Many creative professionals, such as writers, visual artists, game developers, musicians and service designers were interested in learning about the maritime industry. Similarly, many maritime experts such as architects, designers, engineers, HR professionals, quality managers, R&D managers and CTO's took part in the project to explore how they could innovate

We are on the edge in several ways. Climate change poses severe threats, and fast digitalization provides new solutions. Our culture changes, and our roles at work change. As robots are better than humans at many things, the skills to create by hand, think creatively and analytically, as well as work as part of multidisciplinary teams becomes more important in the future. It is easy to presume that soon comes a day when artists and creative experts are needed as consultants for various projects as members of organisations. Combining knowledge in a new way is the key to next generation innovations. But how can an engineer co-create with an artist, and how do artists adjust to industrial fields? At least the participants of the IRM-Tool project, both in maritime and creative fields, think that there should be more creative starting points for the R&D projects.

This publication brings forth implementation and results of the innovation project that explored preconditions and obstacles of maritime innovation and combined creative knowledge with maritime challenges to boost problem-solving of the companies. The IRM-Tool project was implemented during 2017-2019. It was coordinated by the Aboa Mare Maritime Academy of the Novia University of Applied Sciences. Other partners were the Turku University of Applied Sciences and Åbo Akademi

Published by: IRM-Tool Project / Novia University of Applied Sciences,
Juhana Herttuan puistokatu 21, Turku, Finland

Chief editor: Rita Rauvola

Editors: Päivi Katajamäki, Teresia Othman and Elina Vartama

Editorial board: Catrin Sandvik, Marianne Fred and Mirva Salokorpi

Texts: Rita Rauvola, Elina Vartama, Päivi Katajamäki, Peter Björkroth, Milla Järvipetäjä, Ann-Charlott Hästö,

Marja Rak, Anu Perttunen, Elina Rebers, Tommy Nyman, Teresia Othman

Pictures: Kim Frilund, Teemu Nurminen, Teresia Othman, Milla Järvipetäjä, Maarit Vähäkangas,

Johanna Naukkarinen, Leena Ketonen, Carina Virkama, Elina Rebers, Rita Rauvola

Illustrations: IRM-Tool project, Creative Finland and Maarit Vähäkangas

Graphic design: Maarit Vähäkangas

Rita Rauvola (ed.), A Creative Spark to the Maritime Industry – The IRM-Tool Project Publication 2019

Novia publication and production, serie R, rapporter 09/2019

ISBN 978-952-7048-65-8 (print)

ISBN 978-952-7048-66-5 (online)

ISSN 1799-4179

Vi står vid ett vägskäl inom flera områden. Klimatförändringen utgör ett allvarligt hot och den snabba digitaliseringen ger nya möjligheter. Vår arbetskultur och våra roller på arbetet förändras. Eftersom robotar är bättre än människan på flera saker, så kommer det bli allt viktigare i framtiden att kunna skapa, tänka kreativt och analytiskt samt samarbeta tvärvetenskapligt. Det är lätt att tänka sig en framtid där artister och andra skickliga hantverkare behövs som konsulter i olika projekt. Att kombinera olika typer av kunskap på nya sätt är nyckeln till nästa generations innovationer. Men hur kan en ingenjör skapa tillsammans med en konstnär, och hur kan konstnärer anpassa sig till industrin? Åtminstone vill marina och kreativa industrins deltagare i IRM-Tools projektet se flera kreativa utgångspunkter för FoU-projekt.

Denna publikation ger en inblick i ett innovationsprojekt som har utforskat villkor och hinder för marina innovationer och kombinerat kreativ kunskap med marina problem. IRM-Tool projektet genomfördes mellan 2017-2019 och koordineras av Yrkeshögskolan Novias träningscenter Aboa Mare Maritime Academy. Övriga partners var Åbo Akademi och Turun Ammattikorkeakoulu. Meyer Turku var strategisk partner. Projektet samfinansierades av den Europeiska Socialfonden. IRM-Tool projektet har varit ett innovativt och dynamiskt projekt, som har lyckats göra flera initiativ, hitta nya samarbeten och

t.o.m. hjälpt till med att skapa nya jobb. Projektet har gjort innovation mera tillgängligt för företag och experter, oberoende av företagets storlek, expertisområde och tidigare erfarenhet av innovationsarbete. Kunskap om innovation inom marina industrin och kreativa branschen har ökat.

I denna publikation introduceras läsaren först för IRM-projektets resa, som gått ut på att leverera idén om en helhet. Temat Design Thinking, får ett eget kapitel, eftersom det är baslinjen för projektets implementation. Till följande får läsaren en förståelse för utvecklingen av innovationsverktyget, vilket var en av projektets målsättning. Till följande fås en djupare inblick i de flera möten mellan marina industrin och kreativa professionella som arrangerades av projektet. Flertalet kreativa professionella så som skribenter, visuella konstnärer, spelutvecklare, musiker och tjänstedesigners var intresserade av att lära sig om den marina industrin. Tillika, var det många marina experter så som arkitekter, designers, ingenjörer, HR-expert, kvalitetschefer, utvecklingschefer och IT-direktörer som deltog i projektet för att undersöka hur de kunde bli mer innovativa. Dessa möten har varit väldigt meningsfulla för lokala företags ekosystem, speciellt i städerna Åbo och Jakobstad i Finland.

Publikationen presenterar erfarenheterna och resultatet av att testa Innovation tool i innovativa utmaningar i marina industrin

och sammanfattar användbarheten och betydelsen av kunskap inom den kreativa industrin i framtiden. Publikationen avslutas med att hjälpa läsaren att hitta hans/hennes innovationsflöde.

IRM-Tool projekt tackar alla workshopdeltagare, konstnärer, företag, experter, studenter och andra partners för deltagande och insats till projektet.

Hoppas du har nytta av publikationen och hittar nya idéer för ditt arbete!

Rita Rauvola,
Projektledare,
IRM-Tool projekt

Olemme reunalla monella tavalla. Ilmastonmuutos aiheuttaa vakavia uhkia, ja nopea digitalisointi tarjoaa uusia ratkaisuja. Kulttuurimme muuttuu ja roolimme työssä muuttuvat. Koska robotit ovat monissa asioissa parempia kuin ihmiset, tulevaisuudessa tulee entistä tärkeämmäksi käsin tekemisen taito, luova ja analyttinen ajattelu sekä monialainen ymmärrys. On helppoa kuvitella päivä, jolloin taiteilijoita ja luovia asiantuntijoita tarvitaan konsultteina erilaisissa projekteissa osana organisaatioita. Erilaisten tietojen ja taitojen yhdistäminen uudella tavalla on avain seuraavan sukupolven innovaatioihin. Mutta kuinka insinööri voi yhteiskehittää yhdessä taiteilijan kanssa ja miten taiteilijat mukautuvat teollisuuteen? Ainakin IRM-Tool-hankkeeseen osallistuneet meri- ja luovien alojen asiantuntijat ajattelevat, että tulevaisuudessa projekteilla pitäisi olla myös luovempia lähtökohtia.

Tämä julkaisu tarjoaa kurkistuksen innovaatiohankkeeseen, jossa tutkittiin merialan innovaatioiden edellytyksiä ja esteitä sekä yhdistettiin luovaa osaamista meriteollisuuden haasteisiin. IRM-Tool hanketta toteutettiin vuosina 2017-2019 ja projektia koordinoi Novia Ammattikorkeakoulu. Muita yhteistyökumppaneita olivat Turun ammattikorkeakoulu ja Åbo Akademi. Meyer Turku toimi strategisena kumppanina. Hanketta on osarahoitettu Euroopan sosiaalirahastosta. IRM-Tool hanke on

ollut innovatiivinen ja ketterä projekti, joka on pystynyt tekemään paljon aloitteita, vauhdittamaan uutta yhteistyötä sekä luomaan uusia työpaikkoja. Projekti on tehnyt innovaation saavutettavammaksi yrityksille huolimatta yrityksen koosta, osaamisalueesta ja aiemmasta kokemuksesta innovaatiotyöstä. Innovaatiotaidot sekä meri- että luovilla aloilla ovat lisääntyneet.

Tässä julkaisussa lukijalle esitellään ensin IRM-Tool hankkeen kulkemaa matkaa yleisesti, jotta kokonaisuus alkaa hahmottua. Sitten esitellään Design Thinking periaatteena, sillä se on ollut lähtökohtana projektin toteuttamiselle. Lukijalle esitellään myös innovaatiotyökalun kehittäminen prosessina, sillä innovaatiotyökalu (www.innovationtool.fi) on IRM-Tool hankkeen yksi tärkeimmistä tuloksista. Sitten tutustutaan tarkemmin meri- ja luovien alojen ammattilaisille järjestettyihin työpajoihin, joita projektissa järjestettiin useampia. Useat luovat osaajat, kuten esimerkiksi kirjailijat, kuvataiteilijat, pelikehittäjät, muusikot ja palvelumuotoilijat, olivat kiinnostuneita tutustumaan meriteollisuuteen. Samoin monet meriteollisuuden asiantuntijat, kuten arkkitehdit, suunnittelijat, insinöörit, HR-ammattilaiset, laatupäälliköt, T&K- ja teknologiajohtajat, osallistuivat projektiin tutkiakseen, kuinka he voisivat innovoida paremmin. Nämä kohtaamiset ovat olleet erittäin merkityksellisiä paikallisille yritysekosysteemeille,

erityisesti Turussa ja Pietarsaareissa.

Lopuksi julkaisu esittelee innovaatiotyökalun testaamisen kokemuksia ja tuloksia merialan innovaatiohaasteissa sekä pohtii sen soveltuvuutta ja merkitystä luovalle teollisuudelle tulevaisuudessa. Julkaiseminen päättyy lukijan rohkaisemiseen löytää oma innovaatioflownsa.

IRM-Tool-projektiryhmä haluaa kiittää kaikkia työpajoihin osallistuneita, taiteilijoita, asiantuntijoita, opiskelijoita, yrityksiä ja muita sidosryhmiä osallistumisesta ja panoksesta IRM-Tool hankkeeseen.

Toivottavasti nautit lukemisesta ja löydät uusia ideoita työhösi!

Rita Rauvola,
Projektipäällikkö,
IRM-Tool hanke

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1 THE JOURNEY OF THE IRM-TOOL PROJECT

Written by Rita Rauvola

Welcome to the journey with the IRM-Tool project. In this way, at the beginning of the publication, it is important to illuminate what kind of map the project has had, what kind of landmarks it has encountered, and how it navigated to the end harbor through it all: beautiful summer days, storms and gorges, and the Pacific Plaque. This will help to understand the process and results of the project, and the contents of this publication.

The Innovation Resource Moderating Tool, or the IRM-Tool, started out with the need to make innovation more accessible to small maritime businesses. The difference in innovation processes and practices between the creative and maritime industries was acknowledged, and therefore it was thought that the industries could learn a lot from each other. However, it was also seen that it would be beneficial for both industries to learn about innovation in order to provide a nutritious soil for co-creation that the project aimed to boost.

The aim of the project, simply and shortly, was to bring the fields together and to attract experts in both fields to joint development; thus, to find tools to create a common ground and thereby create new creative job opportunities in the maritime industry.

To this end, workshops were organized to include both fields. The topics of interest of the maritime industry were introduced and addressed through service design and creative methods. At the same time, the Innovation tool (www.innovationtool.fi) was compiled through theory, study cases, creative methods and other contents created in the project.

Port of departure

Initially, the project sought to update knowledge about where the maritime industry is going and the level of understanding of the creative industries. Maritime cluster reports were studied, and project's own background research was conducted. Similarly, the project started with a service design, reviewing the needs of the target groups; both maritime industry and creative experts.

The project plan, or the map in used, told the project team to proceed in modules: innovation theory, creative skills and service design for each innovation theme, which poses a practical business challenge. In practice, project first explored the needs that were acknowledged by its strategic partner Meyer Turku Shipyard, and then proceeded with other companies interested in the project. The needs were explored by service design students who interviewed Meyer Turku Shipyard's subcontractors. According to them, communication and the transfer of needs from one level to another and

understanding of the whole, were the biggest challenges that required an "innovation tool".

Project implemented also another kind of interview study that asked the maritime industry representatives about "how innovations are made". Here, both opportunities and challenges in innovation work were revealed. However, from the point of view of the creative content production for the Innovation tool, the project had a desire to pick up things that cause conflicts; thus, to find creative ways to find solutions to those conflicts. The findings of this study can be read in this publication. These findings also provided inspiration for example making of the short films and animations for the Innovation tool (www.innovationtool.fi).

At the same time, Professor Alf Rehn put together the easy-to-read innovation theory that could be used to increase innovation skills. Professor Alf Rehn was involved in planning of the project and part of the IRM-Tool project team in the beginning of the project before his new position in the University of Southern Denmark's Faculty of Engineering, autumn 2017. Similarly, practical texts about innovation were written by the IRM-Tool project team and the ideas were illustrated with inspirational media contents, such as animations and canvases. The innovation theory was used as a basis for the tool and workshop design in the project.

The first workshop that was arranged addressed the questions of what the creative

industries can or cannot offer to the maritime industry. The idea of this workshop was more to update the project team's understanding of the creative experts' needs at the specific time when the project started. The other workshops were designed to match the specific themes arising from the maritime industry. In this publication, information about all the workshops organized by the project, including regards from specific participants, are provided.

Navigating and exploring the landscapes

The IRM-Tool project organized workshops for companies in the maritime and creative industries about current topics such as modular construction, ship recycling, communication, ecological design, digital innovation, the role of women in the marine industry, future expertise and customer-driven product development.

In the end, the project organized 21 workshops (including 10 workshops, 5 test workshops with Innovation tool, and 1 process with 6 workshops) and 4 company visits, with a total of 300 participants. Of these, about 52% represented maritime, 34% creative, and 14% other fields.

All the workshops had participants from both the creative and maritime industries. The workshops tested the suitability of service design methods for the joint development as well as investigated the factors promoting and hindering multidisciplinary cooperation.

Process

1. Theory and research (9 months, 2017-2018)

1.1 Alf Rehn: Seannovation

1.2 Background research

2. Workshops (18 months, 2018-2019)

2.1 16 workshops with different themes

2.2 Creative industries and maritime companies: User Insights

2.3 Service design: Co-creation

3. Innovationtool.fi (18 months, 2018-2019)

3.1 Content creation: Visual design, infographics, shortfilms, service design

3.2 Five test workshops: artists, service designers, teachers, students, companies

3.3 Application opportunities

3.4 Marketing, launching, user support

Through the workshops and company visits, more people in the creative industry are now interested in working within the maritime industry, and some have also started working in the maritime industry either for a single project or longer-term employment. The tested methods included Backcasting, Six thinking hats, 635 with five points voting, and Double reversal. These methods are described in the attachment 1. Also storytelling, live visualization, future scenarios and online methods were used.

In addition to applied art, the project also involved the core of the art, exhibiting artists, to the project activities. The project aimed also addressing the challenges of individual companies more concretely. This developed into a unique collaboration with the Arts Promotion Center Finland. In the process, seven professional artists designed art concepts to meet the challenges identified by three maritime companies. In this process, a more open atmosphere was achieved. The concrete challenges provided structure for the artistic work while process still provided artists the artistic freedom. Ten art concepts were designed by the artists, and at least three of the

concepts have proceeded in the organizations in the time of writing this publication. The feedback of the process was also very inspiring, and in the end, everyone should remember the importance of the intrinsic value of art and creativity, not just as purposeful activity, even though art has great potential for that, too.

Based on the theory, research and workshops, the content of the Innovation tool was then developed. The tool includes tools, methods, infographics, short films, animations, service design, and cases. The tool content was co-created with project team experts, students from the fields of media, leadership and service design, as well as the experts and influencers in the maritime and creative industries.

Terminal port

It is often discussed if one workshop can make any change. Not necessarily immediately, and there might be difficulties to hear the results afterwards, too. IRM-Tool project has had many happy news after a few months, or even a year. With the help of the organized workshops, a few creative professionals have got jobs in the maritime industry and been considering starting

a new business. Also new creative projects within and between the participated companies have started. Finally, at least five persons have been employed, three companies have been established and at least five new development projects have started from in collaboration that has begun in the IRM-Tool workshops.

The most significant result of the project, however, is the Innovation tool, published at www.innovationtool.fi. The Innovation tool makes innovation more accessible to all because it is well-suited to different users and scalable to various needs; regardless of initial knowledge and training about innovation.

The purpose of the Innovation tool is to help developing innovation skills and to act as an agitator for the multidisciplinary co-development, which requires finding a common language and playground to be able to utilize the diversified expertise. More information about the purpose and application opportunities of the Innovation tool can be found in the end of this publication. Also, the Innovation tool test workshops with Auramarine, Baltic Yachts and WISTA (Women's International Shipping and Trading Association) are all shortly described in this publication.

Picture 1: Innovation tool includes innovation theory, practical cases and creative content. It can be applied based on the company needs. Picture: Johanna Naukkarinen



2 SERVICE DESIGN

Service design brings the end user's perspective to the centre of the service development process. In the world of service design, people discuss about the customer and understand the customer, the users and users' knowledge. Service design starts by understanding the human actions, needs, feelings and motivations. New service innovations can be created based on the user knowledge. (Miettinen, 2016)

Service design is closely connected to innovation. Service Design was one of the "ingredients" in the process and a guide throughout the project. For example, service design was applied in the workshops, and the web-based Innovation tool developed in the project is based on service design thinking.

Service design methods for enabling interaction between the maritime industry and creative field

Written by Päivi Katajamäki and Elina Vartama

Utilising the service design approach was one of the starting points of the project. Service design refers to developing new services or improving existing ones by involving different stakeholders in the work. Service design aims to take customers or users into consideration, by involving them

in the process in different ways, so that their needs, desires, hopes and expectations are considered. The development work continues until an optimal solution is found. The new solutions are first tested on a smaller scale in order to avoid unnecessary costs.

It's typical that the process is not linear, but iterative; which means that it is possible to return to an earlier phase for further research, test prototypes one or more times and create alternative solutions until the best possible service is developed.

For example, the contents of the Innovation tool were tested in several phases with the potential users. At the end of the project, concrete cases for utilization of the Innovation tool were provided by Auramarine Ltd, Baltic Yachts and WISTA (Women's International Shipping and Trading Association).

Design Thinking

Service design is based on design thinking, which refers to a human-centred approach for answering to different development challenges regarding the effort required for understanding the user, as well as all circumstances affecting the phenomenon. It is also a mindset; thinking outside the box and finding new ways to approach issues, rethinking by questioning the conventional ways, brainstorming and co-designing. (Humantific 2019)

In design thinking all problems are approached from point of view of design. It is important to have a holistic approach in order to understand the connections between people, matters and systems, by looking at the issue from both near and far, as well as from the different perspectives. The idea of understanding the experiences and feelings, and finding the real needs is essential in design thinking. Fast experimenting in practice (prototyping, "fail fast") is a fundamental starting point for design thinking. (Humantific 2019)

Design thinking refers to, in addition to the design function itself, a company's ability to act creatively and proactively, adapt its operations in order to change and provide tools for change management. Design thinking is part of a company's or organisation's capability to produce new content and develop the business by anticipating and prototyping, as well as to carry out the development work across sectoral and organisational boundaries. Design thinking enables problem-solving activities that take advantage of multidisciplinary expertise by using creative, visual, functional and concretising methods.

Design thinking and design methods enable new solutions and practices from the perspective of the entire staff, not just from the point of view of the educated designers. The goal of design thinking is to scale and produce a lot of innovations. (Miettinen 2014, p. 11)

Service Design Principles

According to Marc Stickdorn (Tuulaniemi, 2011, p. 60), service design is an interdisciplinary approach, a process, that combines different methods and tools from various disciplines, from design to engineering sciences and from leadership to social sciences. All areas of expertise can use this paradigm for developing successful services.

The six principles of service design according to Stickdorn et al. (2018, p. 27) are following:

- 1. Human-centred:** Considering the experiences of all people affected by the service.
- 2. Collaborative:** Stakeholders of various backgrounds and functions should be actively engaged in the service design process.
- 3. Iterative:** Service design is an exploratory, adaptive and experimental approach, iterating towards the implementation.
- 4. Sequential:** The service should be visualised and orchestrated as a sequence of interrelated actions.
- 5. Real:** Needs should be researched in real life, ideas prototyped in real life, and intangible values ensured in a physical or digital reality.
- 6. Holistic:** Services should address the needs of all stakeholders sustainably throughout the service provided and across the whole business.

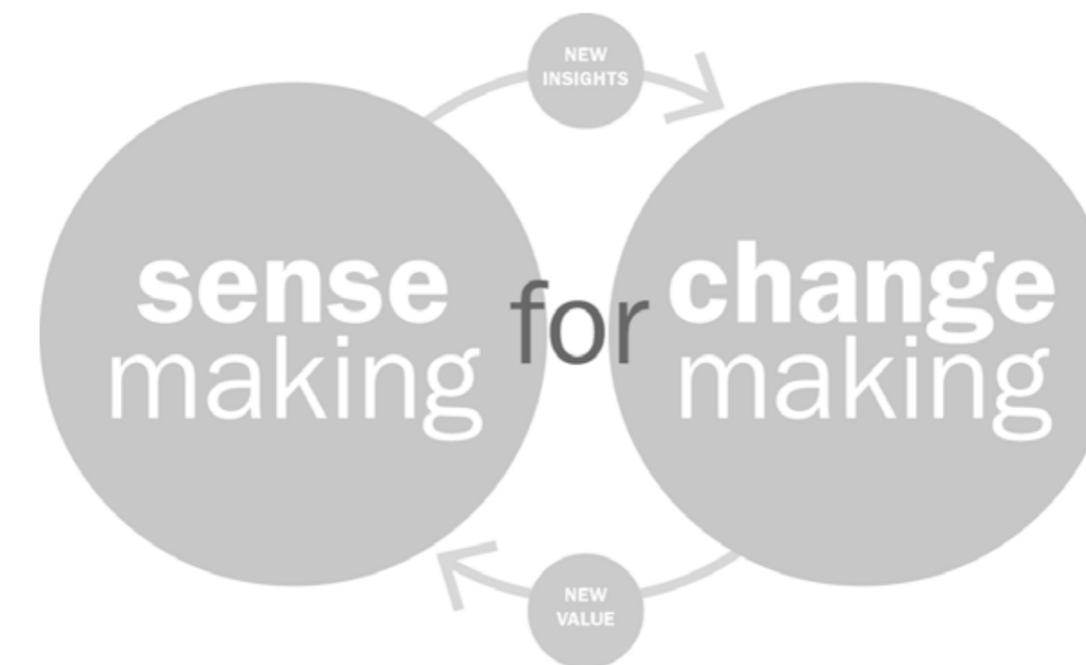


Figure 1: Sense making for change making (Humantific 2019).

Service Design Process in the IRM-Tool Project

Written by Päivi Katajamäki and Elina Vartama

As mentioned before, one of the main outcomes of the IRM-Tool project is a web-based tool, published at www.innovationtool.fi, which is for helping companies to develop their innovation capabilities. The tool is developed from the perspective of the maritime industry by utilising case studies, innovation theory, service design, media expertise, and other creative knowledge.

An iterative service design process is depicted by The Design Council in the UK as a double diamond. The service design approach and the following methods have been used during the different phases of the IRM-Tool project. They are presented in this section thought out and applied according to the double diamond model.

Discover. The first quarter of the double diamond model covers the start of the project. The goal is to look at the phenomenon from a new perspective, discover new things and gather insights. During the initial phase the stakeholders were mapped out by means of online ethnography, interviewing stakeholders – especially representatives of the maritime industry – and surveying maritime companies' representatives. Early prototypes of the future Innovation tool were

ideated and visualised e.g. as customer journey maps and service blueprints.

Define. The second quarter represents the definition stage; and thus makes sense of all the possibilities identified in the Discover phase. Asking questions like “Which matter the most?”, “Which should we act on first?”, “What is feasible?” might help define a clear development goal and provide a briefing in order to frame the fundamental design challenge. During this stage the potential needs of the tool were gathered and mapped out, and ideas were generated in the various workshops, where representatives from the maritime and creative industry were involved. Several workshops were facilitated by the students from the Leadership and Service Design Master's degree programme at Novia University of Applied Sciences and Turku University of Applied Sciences. Gradually the understanding of the contents of the tool started to shape.

Develop. The third quarter is a period of development, in which solutions or concepts are created, prototyped, tested and iterated. This process of trial and error helps to improve and refine the ideas.

The contents of the tool were built by brainstorming in the workshops and working together with mind-maps, other visualisations and digital tools in groups. Various workgroups consisting of students from the Master's degree programme and TUAS Arts Academy began generating ideas as well as designing

infographics and workshop instructions for the tool together with the IRM-Tool project team. Design was based on the previous research and innovation theories. The user personas of the tool were created and tested.

Deliver. The final quarter of the double diamond model is the delivery stage, in which the resulting project (a product, service or environment etc.) is finalised, produced and launched. The instructions of the workshops were based on the tested workshop formats. Representatives of the maritime and creative industries tested the comprehensibility of the contents of the tool before the work with the web page started. The contents and usability of the tool were tested with different stakeholders several times during the development process until the ideal solution was discovered.

Co-creation in the workshops

One of the main goals of the IRM-Tool project has been to create encounters between the creative and maritime industry. These meetings have been arranged mainly through different types of workshops. Various workshop methods were implemented in the project and tested in cooperation with mixed groups of the maritime and creative field representatives regarding the themes related to the maritime industry. For instance, the following workshop methods were tested during the project: Brainstorming, Double reversal, Backcasting and Six thinking hats (see attachment 1).

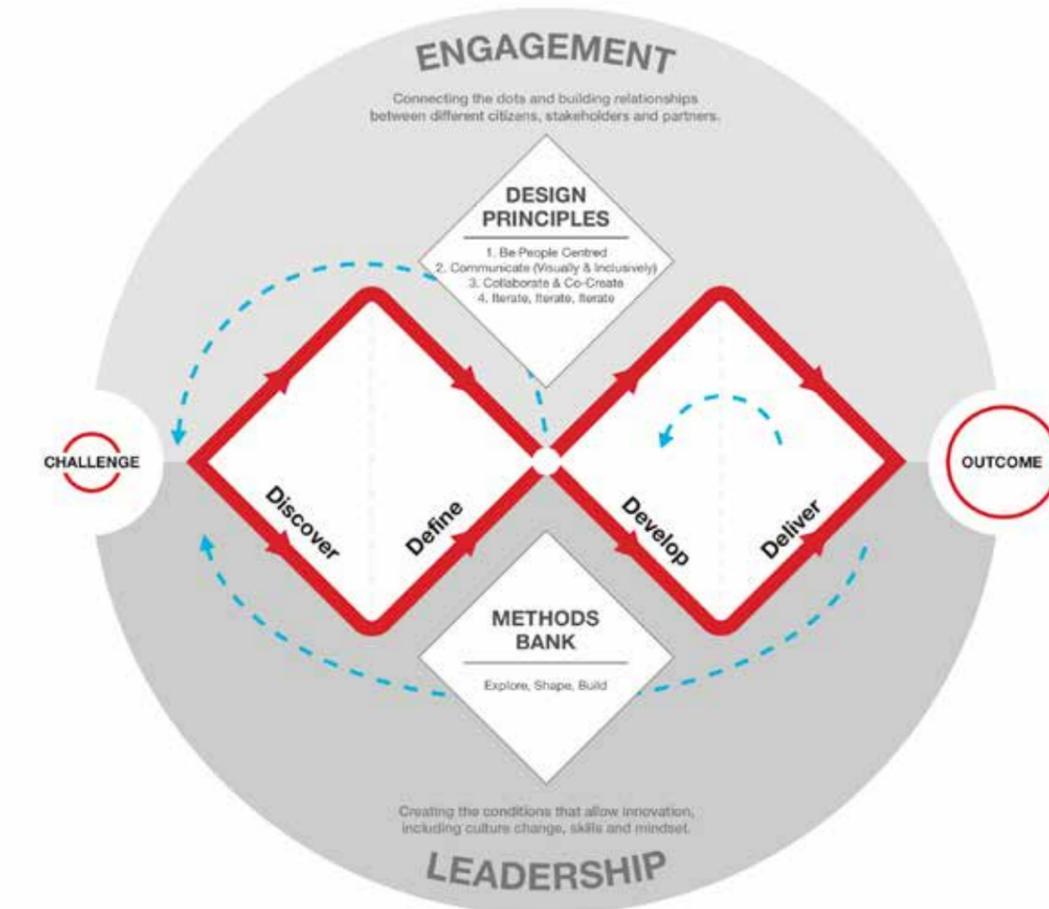


Figure 2: Double Diamond Model (Design Council 2019).

3 MARITIME INNOVATION

The maritime industry is considered a rather traditional and old-fashioned industry, although the industry has various examples of game-changing innovations. Engineers are very creative at solving technical problems. However, is it always a technical problem that needs solving? And can R&D projects be based on creative problems instead? This question was asked more than one time one in the IRM-Tool workshops.

This chapter introduces the reader to the maritime industry, open innovation in the maritime industry as well as the potential innovation conflicts within the maritime industry.

Gathering insights on the maritime industry

Written by Rita Rauvola and Päivi Katajamäki

Service design students from the Master’s degree programme of Leadership and Service Design of both Novia University of Applied Sciences and the Turku University of Applied Sciences prepared a background study for the project during the summer of 2017.

The students’ task was to map the innovation challenges of maritime companies and their needs for developing the collaboration with

the shipyard, as well as the subcontractors. The insights were gathered by performing interviews and surveys, which were presented with different visualisation methods.

The study also showed that one challenge is knowledge management. For example, Meyer Turku Shipyard has 1,700 employees, and it is estimated that over 40,000 people work in a maritime cluster network (Meyer Turku, 2019). According to the findings knowledge is shared inside the Turku shipyard network as in Figure 4.

Transparency and confidentiality were the issues which should be solved in order to enable knowledge sharing between the stakeholders. Even though co-operation between the suppliers and the shipyard exists, companies have a challenging business culture with an atmosphere of protectionism of the ideas as everyone is considered as a competitor.

In order to enable co-creation for new innovations, more openness in idea and knowledge sharing between the stakeholders is needed.

Some companies experienced that, at the time of the bidding phase, the requirements of the recipient of the bid are so precise that they cannot provide all the expertise they possess nor alternative solutions.

In the case of subcontractors, previous co-operation between different suppliers can

enable higher-quality and more cost-efficient overall solutions. Smaller subcontractors expressed that, to be able to provide better solutions, more information from the shipyard and collaboration with the other suppliers of the subcontractor network are required.

Open innovation and the maritime industry

Written by Rita Rauvola and Teresia Othman

The markets in the maritime industry are highly competitive. The competitive advantage of many companies has already changed due to increasing costs or changed demands, but also because of novel and tempting opportunities in the market waiting to be captivated. However, taking advantage of new opportunities requires renewal of business models, if income potential is not a direct match with the core business or the core expertise of the company.

On the other hand, the existing competitive advantage needs to be protected, too. This means that creating an “agile strategy” that requires both strengthening the existing core, but also capturing new technologies and markets and creating value of them. For the latter, if managed carefully, outbound open innovation could provide a tool for the maritime company. (Rauvola, 2015, p. 58)

Sharing knowledge

Transparency



Education



Confidentiality / Protectionism



Shipbuilding business culture Resistance to change?



Figure 3: Findings in knowledge sharing inside the Turku shipyard network (Aromaa, Routti, Önsöy, Chun and Munkthar 2017)

The nature of the projects in the maritime industry makes open innovation an attractive form of R&D. One of the main social features of the maritime milieu is “everybody knows everybody”. The community is rather small even internationally and social links are rather tight. This means that the role of social networks in forming alliances is significant (Solesvik, 2017, p. 154).

Innovation derives from the verb “to invent”, which refers to creating something new, for example new articles, objects, items or concepts that solve a technological or scientific problem (Hansén & Wakonen, 1997) or responds to a need in the market, also including the adoption or use of the new creation (Rogers, 1983) and its commercial exploitation (Schumpeter, 1934).

Innovation can be either open or closed. Table 1 presents the contrasting principles of closed and open innovations.

Closed innovation is a situation where all the products and services of the company are produced and sold by the company itself, thus the company needs to invest in machines, personnel and legal services to keep up with the competitive advantage. Therefore, the company is very cautious and considers with whom it can be open. Such a company prioritises old customers and co-operates with companies that are known to them. The opposite of this closed system is a very open one, where all the products and services

are outsourced to other companies, and the products and services are then also sold by other companies. In this case, the company is more of a project coordinator, intermediary or assembler. These kinds of companies have no patents and need less investments. Their business innovation is in providing services and coordinating the entirety. The partnerships are changed and renewed as needed. There lies a big risk, though, that some of the partners decide to do business without the company.

The word “open innovation” is often used as a synonym for crowdsourcing new ideas and knowledge in the company. This is only a fracture of what open innovation really is, though. Chesbrough, the one who initially came up with the open innovation concept, defined open innovation as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.” (Chesbrough, 2011)

There are two facets to open innovation: inbound and outbound. Inbound open innovation is about acquiring expertise from outside the organisation by scanning the external environment for new information in order to identify, select, utilise and internalise ideas.

Outbound innovation is the purposive commercialisation and capturing of internally developed ideas for the organisation’s external environment. Outbound innovation has two

goals: value creation and value capture (West & Bogers, 2014; Chesbrough, 2003).

Outbound open innovation activities vary from revealing a product to for example journalists and reviewers to selling, out-licensing and creation of spin-off companies. Free revealing refers to providing knowledge to external parties with no direct financial compensation. Free revealing can be used by a company for learning from the first impressions, questions and interests from its networks towards a product or service. Similarly, value is created by increased reputation and improved company image. Thus, free revealing also increases inbound open innovation opportunities, as networks become more interested in the company. Some partnerships are already built in the negotiation stage, which is when the real co-creation begins. Formal or non-formal agreements are prepared for the co-operation. This may result to licensing agreements or the recognition of the potential for spin-offs. If co-creation collaboration evolves to spin-offs, providing organizational support is essential in order for the new company to succeed. The success is equally important since the original inventor’s reputation is at stake, regardless of which company introduces it to the markets. Value is thus captured through successful out-licensing deals and successfully launched and commercialised products or services. (Rauvola, 2015)

For businesses, open innovation is a more profitable way to innovate, because it can reduce costs, accelerate introduction time, increase differentiation and create new revenue streams for the company (Chesbrough, 2011). However, openness has different meanings depending on the cultural, organisational and situational aspects, which influence managers’ decision on what they refer as open, how open and to whom it is open (Paasi et al., 2013).

In addition, industry-specific differences are acknowledged. Take for instance the shipbuilding, which is a gigantic project. Internal communication can be challenging as a human can handle only a limited amount of information. It is critical to choose the right information for the right recipient at the right time. Significance of networks grows. Without good partnerships the personnel have hard time to stick to the project’s timetable and budget, and at the same time be open to creativity and new ideas.

Table 1: Closed Innovation vs. Open Innovation (Chesbrough & Eichenkolz, 2013).

Closed Innovation	Open Innovation
The smart people of our field work for us.	Not all of the smart people work for us, which means that we must find and tap into the knowledge and expertise of bright individuals outside our company.
In order to profit from R&D, we must discover, develop and ship it ourselves.	External R&D can create significant value: internal R&D is needed to claim a portion of that value
If we discover it ourselves, we will be the first to introduce it to the market.	We don’t have to be the ones who started the research in order to profit from it.
If we are the first to commercialise an innovation, we will win.	Building a better business model is better than getting to the market first.
If we create the largest number of best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.



Innovation conflicts in the maritime industry

Written by Rita Rauvola

IRM-Tool project explored innovation practices in companies in order to collect inspiring innovation stories, including challenges and success stories. As a part of the IRM-Tool project, **Alexander West** from Åbo Akademi University wrote his Master's thesis "From Artisan Work to Automatization – Innovation in the Finnish Maritime Cluster". The study by Alexander West can be found in full in the thesis publication series of the Åbo Akademi University (see references). Interviews were implemented between November 2017 and May 2018. The interviews were in-depth semi-structured interviews describing individuals' thoughts regarding the wider study question "How are innovations made?". The resulting stories were used as a resource for inspirational videos and other media production implemented by the media producers of the Turku University of Applied Sciences during the project.

A total of 38 different companies were contacted in the Turku region, Uusimaa, Ostrobothnia and Åland. A total of 11 companies were eventually interviewed, 2 of which were large companies, 5 medium-sized companies, 2 micro-businesses and 2 organizations. According to the study, there are six main themes that describe the innovation

conflicts in the maritime industry. Interviewees described the field e.g. quite old-fashioned and traditional, hierarchical, and they felt that improving communication between various stakeholders would support innovation work.

According to the study, typical conflicts in innovation work in the maritime industry are, for example, the following themes: 1) traditions vs. new ideas, 2) different time frames of projects in the corporate network 3) investment decisions take time and are challenging 4) engineers vs. others 5) internal hierarchies and 6) communication as a power tool. (West, 2018)

The findings based on the interviews:

1. Traditions vs. new ideas

Companies are being cautious about adopting new ideas. It seems that all people working in the maritime industry know each other. Long-lasting work relationships are typical for the maritime industry, and changes are common between suppliers and shipyards, or inside the supplier network. Trust is important, and it enables collaboration. However, sometimes conflicts between individuals or companies can disturb development.

2. Time frame of the projects in the shipyard vs. in the supplier network

The time frame in which the ships are built is rather long. For example, a typical cruise ship project lasts 1 to 3 years and a shipyard

may have 1 to 3 simultaneous ship projects. However, shipyards' projects are longer than those of SMEs in the supplier network who only perform a specific part of the ship. These projects may vary from 2 weeks to several months. When economic ups and downs are measured in years for shipyards, smaller companies experience monthly, or even weekly, fluctuations in their economy. Different durations of projects and economic cycles cause conflicts and challenges for the collaboration in the supplier network.

3. Why invest? In what? Who should invest?

Companies are struggling with choices between making profits and making ecological solutions. Currently, customers are increasingly informed and demanding. The solutions can be profitable to the company and nature-friendly, but especially smaller companies struggle to estimate the payback time of investments for developing better solutions.

4. Engineers vs. others

Have you ever heard somebody starting a speech by saying "I am an engineer", "I think like an engineer" or "We engineers..."? Engineers value their education and are proud of being engineers. They repeatedly want to tell you that they are engineers and that they want to work with engineers. Also, they think that engineers understand each other. The industry values engineers and pays them well when compared to other lines of work. Engineers

are remembered in jokes as well, but they are usually failed attempts from jealous people, and they have probably made the engineer communities even stronger. A non-engineer among engineers is considered an outsider.

5. Internal hierarchies

Education and long work histories are appreciated. Work histories are valued more in some companies than in others. Those who have worked for a long time have built their career with hard work, slowly improving their position and role in the industry. The same is expected from the younger, less-experienced workforce, as well as from people from other lines of work. Many maritime organisations and networks are strongly hierarchical and thus it can be challenging for newcomers to bring out new ideas in the organisations with a strong hierarchy. The industry is also considered relatively manly. It can be argued that gender discrimination exists in the industry, but there are many women working there, as well. In one of the IRM-Tool workshops, it was interesting how one male participant representing other than maritime industry commented that it was not visible that so many women participated in the event. He had felt it should have been affected some way the workshop that so, surprisingly, many women participated. One interpretation might be that it is a proof of the fact that gender doesn't matter, that knowledge is the only thing that matters in the industry. In fact, there are some woman entrepreneurs in the maritime industry, as well

as women working in high positions. They also have their own professional organisation. Indeed, two of the IRM-Tool workshops was designed with collaboration with WISTA, Women's International Shipping and Trading Organization. WISTA is boosting women's careers in the maritime industry and developing the industry internationally, as well as locally.

6. Communication as a power tool

Shipbuilding projects are enormous. The networks consist of dozens or hundreds of companies with a total of thousands or tens of thousands of people with varying cultures, languages, lifestyles and working styles. The communication between companies and people plays a crucial role, and it is challenging to choose the right information to the right channels at the right time. Communication, or rather, the control of it, is also used as a tool for taking predominance.

All in all, it is evident that the Finnish maritime cluster is more and more dependent on IT. It is probable that boundaries of maritime industry and hi-tech industry are blurring in the future. Almost all of the interviews included topic of automatization and how it can come to affect the Finnish maritime industry. IRM-Tool project team visions that this kind of development enables more job opportunities for the creative experts, too, as companies need to innovate new business models.

Some quotes of interviews in the study:

"Managers with no technological background tend not to last too long in the maritime industry, because technological skills are needed for understanding the projects and processes that are being carried out in organisations."

"You should have good technical knowledge, but you should also have practical experience. The more you have seen during your career, the better it is. That might be the reason why there are several older persons working in the industry."

"It needs to be black-on-white assured to be profitable. Also, at best they require 2-year-long payback periods for the investment. It is hard to make improvements during such a short period of time. Because innovation is always more expensive than continuing with the old product."

"It is commonly heard that the maritime industry is conservative, and I have seen it myself. I think it's easier to introduce a new product to the IT market than it is to the maritime market. But it is also quite logical, as new technology might also endanger the safety of ships. It makes sense that the technology is more conservative."

"If something is working, they will start using it. However, we are not going to be the first ones to try new solutions."

"When you sit down in a meeting, you often see the same men sitting there, and I say men because the industry is largely dominated by men."

4 THE CO-CREATION WORKSHOPS

In this section, the purpose, methods and results of the IRM-Tool project workshops are presented. 21 workshops were arranged during 2017-2019. Ten workshops tested the creative methods and the co-creation opportunities of the maritime and creative fields in maritime related topics. Process with artists and maritime companies included three pre-workshops and three co-creation workshops. Additionally, five workshops tested the Innovation tool contents and workshop concepts in developing maritime challenges.

The aim of the workshops was to test creative knowledge and different methods, and ensure their applicability in real maritime industry challenges, as well as to gather ideas and needs and provide information regarding the usability of the Innovation tool. The first workshop processed the creative industries' needs about their knowledge applicability in maritime industry. The other workshops processed topics such as modularization, reasonable ship demolition, and sustainable interior design. All the workshops aimed for multidisciplinary collaboration between the creative and maritime industries.

According the feedback from the workshops, participants felt that common values (such sustainability or safety), common knowledge (such understanding materials), identity or

vision (such by region or company network) and learning new things together (such creative methods, innovation theories, digital tools) helped them in co-creation between the creative and maritime fields. The common language for collaboration between the creative and maritime representatives was best found in more universal themes, such as sustainability, which was a shared value and interest.

Some challenges occurred in co-creation, too. For example, a challenge for future development mentioned by creative participants was the unopen atmosphere of the maritime industry, i.e. how can added value be brought and expectations be met, if the true problems are kept secret? In the future, new modern methods are also required for enabling the maritime companies to seize the innovation opportunities, for example online co-working methods, and a need for developing innovation knowledge and capabilities in both fields exists.

All in all, at least five persons have been employed, at least three companies have been established and at least five persons new development projects have begun in collaboration that have sparked from IRM-Tool project workshops. One maritime company also applied financing from Business Finland for a new digital development project with a gaming company and several persons from the creative field consider making an offer of their services for the maritime companies.

Workshop: Creative job opportunities in the maritime industry

Written by Rita Rauvola

What can and cannot the creative field offer the maritime industry?

First the maritime industry was introduced both in theory and in practice. The introduction in practice was a test drive with ship simulators containing ten ships at the Aboa Mare Training Centre. One of the two groups navigated the new cruise ship "Viking Grace" through chilling weather along the icy Baltic Sea. The second group navigated a cargo vessel through a busier fairway in international waters. Some of the more courageous also tried out virtual reality (VR) glasses and tried their skills in surviving in emergency situations in a cruise ship, for example a fire.

In the workshop part, the participants first conceived ideas for what the creative field could offer the maritime industry. The results were obvious: arts and visualisations, entertainment and design of services. However, participants continued by reversing the starting point; what can the creative field not offer the maritime industry. Then the most impossible outcome was selected. After a discussion regarding what cannot be offered, the groups discussed how the aforementioned impossibilities could be provided to the

maritime industry. Navigating the vessels, is the only thing seen that could not be provided by the creative field. Long work experience and empirical knowledge gained from it were considered crucial, especially regarding safety matters. However, the difficulty of coming up with cases where creative skills would be unsuitable for the maritime industry was surprising. The creative field seemed inspired and full of ideas and concepts of their own. But still, it is apparent that many, both factual and fictitious, presumptions exist in both fields.

As a result, several obvious and not so obvious co-operation opportunities were found (see Figure 4). The participants felt that creative knowledge can be utilised for several functions, for example for improving co-operation processes in multidisciplinary design, problem-solving and exploring new business models. In addition, the discussions regarded topics, such as various ways to improve customer experiences, accessibility of different kinds of users, improving safety, exploring more environmentally friendly solutions, logistics solutions and personnel training in new situations and environments. The latter is probably increasingly important in the future due to autonomous vessels. By utilising multidisciplinary co-creation in earlier phases of the design processes, the processes themselves could become more cost-effective and faster, as well.

The challenges (see Figure 5) identified in

the workshop included attitudes, problems in understanding the bureaucracies, norms and professional vocabulary. However, there seemed to be quite effortless solutions for the challenges. There might be a need for reviewing the regulations concerning the shipping industry from other perspectives. Especially now that we are living the fourth revolution of the shipping industry. As in other industries, the maritime industry also recognises opportunities and threats concerning digitalisation and autonomous transport options. Participants from the creative field considered themselves

to be of great help for identifying the facts and developing new services for new needs. It was discovered that the greatest challenge was that the influences of the creative input cannot be measured in money, at least not directly. It might take time to even recognise the effects. It was seen crucial that all design tasks involve several suppliers as early as possible in order to provide better solutions for the needs and improve the end result by co-operation. The discussions also brought up the topic of whether shipyards even know all of their suppliers and their capabilities.



Picture 2: Groupworking 16.11.2017. Picture: Milla Järvipetäjä.

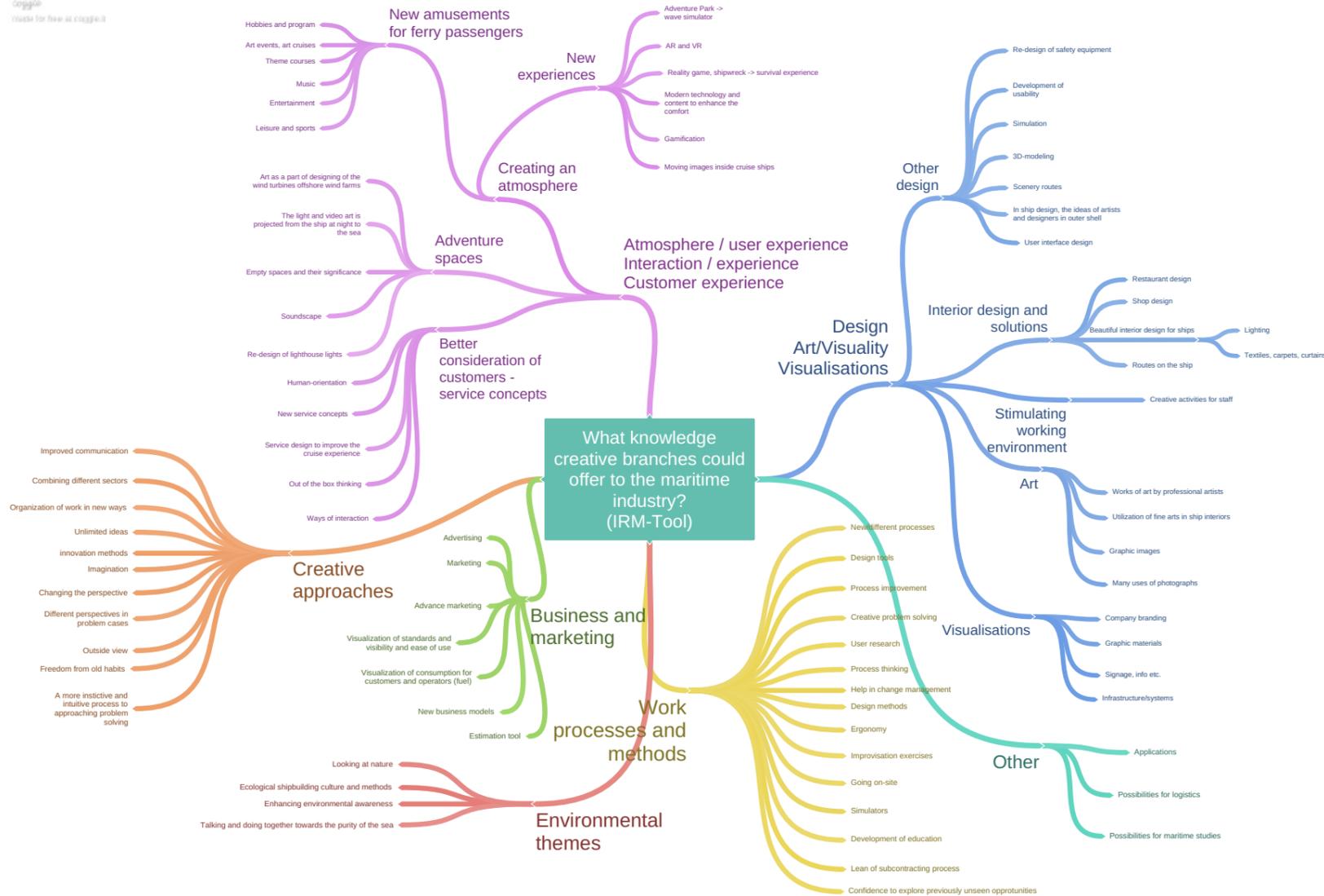


Figure 4: Mind map created by Elina Vartama, Novia University of Applied Sciences and Päivi Katajamäki, Turku University of Applied Sciences. (IRM-Tool project 2017).

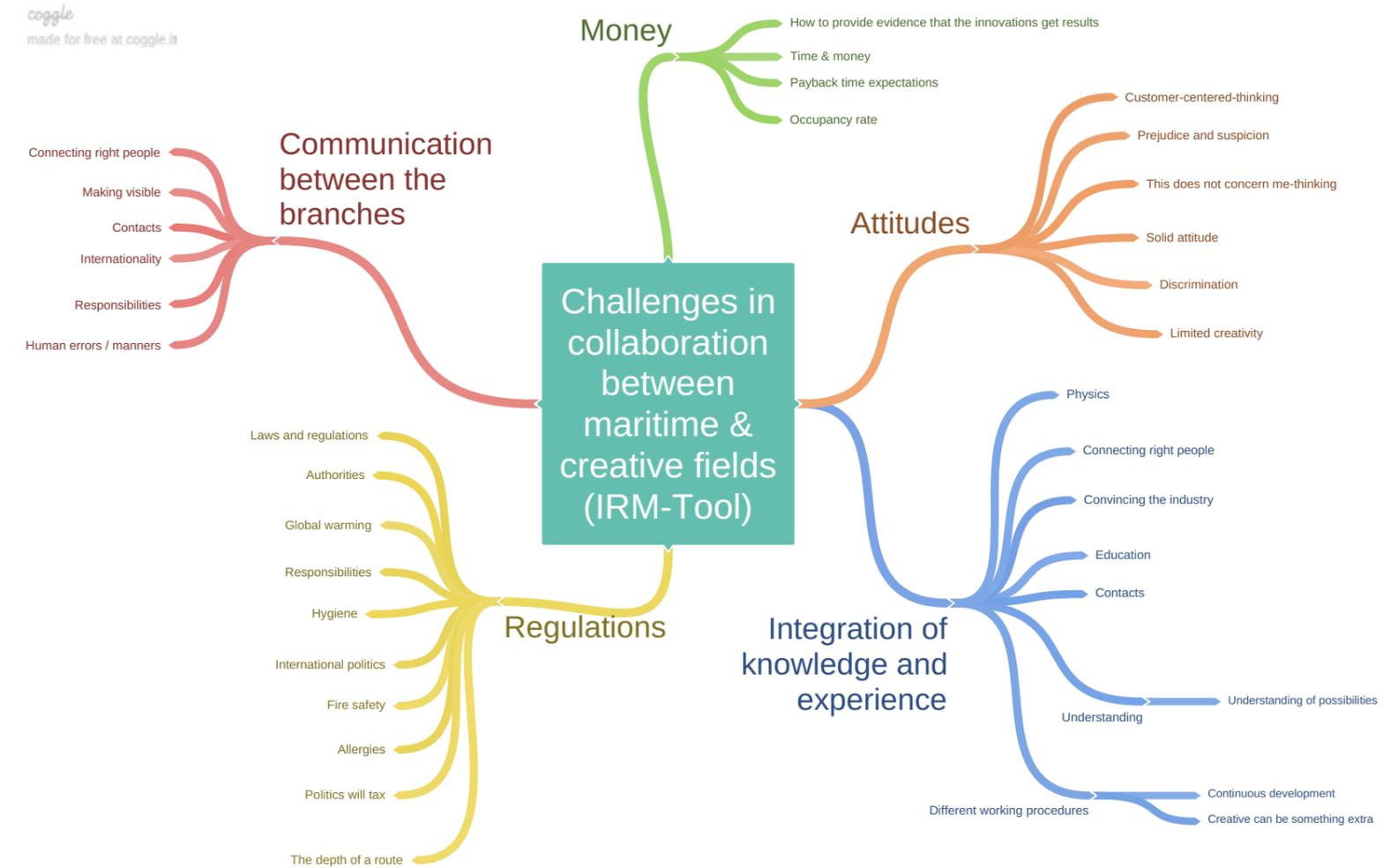


Figure 5: Mind map created by Elina Vartama, Novia University of Applied Sciences and Päivi Katajamäki, Turku University of Applied Sciences. (IRM-Tool project 2017).



Picture 3: Groupworking 16.11.2017. Picture: Milla JärviPETÄJÄ.

Workshop: Creative and technical solutions in shipbuilding projects

Written by Rita Rauvola

Matching creative and technical solutions in shipbuilding projects

The workshop was designed together with Meyer Turku shipyard. The background for designing a workshop was the feedback from smaller subcontractors regarding the need to get more information earlier from the shipyard and other suppliers of the subcontractor network, in order to provide better solutions. Some companies experienced that, at the time of the bidding phase, the requirements of the recipient of the bid are so precise that they cannot provide all the expertise they possess or alternative solutions. From the perspective of the subcontractors and the suppliers, previous co-operation between different suppliers could enable higher quality and more cost-effective overall solutions.

On the other hand, the workshop also dealt with the creative field participants' feedback regarding their need for receiving more information about the marine industry and its practical processes, in order to provide their knowledge better at the right place and time.

On the basis of this, Meyer Turku and the IRM-Tool project came up with a concrete challenge, where creative methods could

be tested. In addition, a demonstration tour to the shipyard was arranged.

Modularization

The main challenge handled in the workshops was about modularisation projects in shipbuilding. The participants got familiarised with the modular design process and its development needs in adapting creative and technical solutions, especially in interior design solutions. Based on the amount of questions the keynote speakers **Kari Sillanpää** and **Ilari Graf** received, modularisation was rather a new thing for most of the participants, surprisingly not only for creative fields' participants. Modularization refers to the assembly of various parts, modules. There can be various modules in a big "block" or a "grand block". Modularisation is not just about standardisation and cost-efficiency. Successful modular construction requires involving the whole supplier network in co-design and collaboration between different units at the shipyard. And that requires not only common language and understanding, but probably also novel ways of co-operating and organising the working processes. Better coordination of creative and technical solutions can develop the concept much further.

Safety is a priority in ship design

Safety defines a lot in the shipyard development projects. The workshop started by opening the design processes to provide participants

an overview what kind of technical and creative problems the shipbuilding projects include. Also the different stakeholders of the shipbuilding projects were introduced.

The ship owners look at brand value, onboard revenue, operating costs and capital costs. The shipbuilders look at hull form, machinery, structure, safety and reliability. The passengers on the other hand look at offered experiences, cabin standards, onboard service, safety and reliability. From ship architect's point of view the most important thing in shipbuilding is safety. Every material, joint and even the smallest part must withstand movement, sound and vibration. Everything must withstand different weather conditions outboard. All changes in design affect the unity and may cause the need for further changes to keep unity safe and usable.

Backcasting and designing modular spaces

The workshop participants were introduced to two different methods in the workshop. The creative methods of the two different parts was led by **Leena Ketonen** and **Kati Routti** from Solidabis Oy. The first method, the **Backcasting method**, first outlined the successful outcome, then identified important stages and events along the way and later created short-term goals along the way. Serviceability and changing the interior design afterwards as needed seemed to emerge as important parts of the discussions.



Picture 4: Ilari Graf introducing modular construction in Meyer Turku.
Picture: Leena Ketonen.



Picture 5: Group working with Backcasting method 7.2.2018.
Picture: Leena Ketonen.



Picture 6: Group working 7.2.2018. Picture: Rita Rauvola.



Picture 7: Group working with Backcasting method. Picture: Leena Ketonen.

In the second phase, various modular spaces were designed, utilising the spectrum of competence by the multidisciplinary groups. At the end, the groups presented their results as success stories. Some results described timelines, network and process development, and some perhaps managed to even turn the whole process on its head. The biggest question seemed to be: how can we be open enough so that we can enable the creativity and novel combinations of knowledge, but keep the projects on schedule and budget, as well as keep the “core” hidden from the competitors?

Workshop: Competitiveness, safety and sustainability in ship demolition projects

Written by Rita Rauvola

New perspectives on ship demolition in Finland

Approximately one thousand ships are demolished annually. The demolition usually happens in Asia due to the low labour costs. Safety issues, sustainability and ecological recycling have not been considered enough. An EU regulation stipulates that ships owned by companies of member countries must be demolished in a safe and sustainable way. This regulation will be completed by 2020. Participants got insights on the topic from two keynote speakers. This workshop started by providing perspectives to the group

sessions from an innovation management perspective. Participants were encouraged to benchmark solutions from different fields and turn the discussion from costs to income and from risks to opportunities by utilising value creation. The fact is that the technology and knowledge exist, but the potential is not yet discovered. Therefore, the discussion needs new participants.

Business ideas and action plans

Six thinking hats and Backcasting methods (see attachment 1), were both applied. The Six thinking hats method was applied so that all group members joined the same hat (i.e. the perspective and attitude regarding the topic or question), one by one. This created an atmosphere of trust and made all perspectives richer, as everyone concentrated on the same perspective. Backcasting was implemented by using a wall, so that two groups were able to see and reflect on each other’s results continuously. To sum up the discussions, more consideration should be put on the whole life cycle of the ship, from design to demolition and beyond, all the way to reusing the material. In addition, a few wild ideas (or maybe not that wild?) came up: how can one module or block be removed and used in somewhere else? Furthermore, one artist mentioned that parts of a ship are valuable decorative items in the archipelago and that a lot is paid for items from old ships. Artists were hoping for a visit to the repair yard together with

architects in order to possibly discover the market potential for the waste materials, as well as to design processes for recycling.

It was mentioned that the biggest risk is whether any European ship owners exist after the regulations get tighter and costs higher in Europe. Can we afford not to make the after-sales markets effective and demolition processes competitive? Participants believed that cost savings are possible to achieve by reorganising activities and working together with different fields. However, it requires collaboration instead of “working separately all in their own corners”, as one participant put it. With Finnish knowledge, technology and a joint multidisciplinary network the future scenario could be that acting responsibly creates added value to the ship owners. How about working together with Greenpeace or other powerful organisations? On the other hand, what if shipbuilders could provide discounts when building the next ships if the old ones are delivered to a strategic partner for recycling? What other strategic partnerships can be created?



Picture 8: Backcasting method in use.
Picture: Rita Rauvola.



Workshop: Sustainable development in ship interior design

Written by Rita Rauvola

The competitiveness of Finnish design and how sustainability can be cost-efficient

This workshop continued from the earlier workshop results with the theme of modularization. The creative participants were considered more, and the technical theme of modularization was changed to include sustainable issues, still not forgetting the challenge of matching the creative and technical solutions in design.

Participants were first introduced to ship interior design and sustainability by the case of FCR Finland, a company founded in 2009 focusing on ship refurbishment. CEO **Mikko Varjanne** pointed out that there will be a lack of ship interior designers in the upcoming two years. Nevertheless, he thinks that formal education, such as a degree programme in ship interior design, would not be a fast-enough solution for meeting the demand. This was followed by a discussion regarding the challenges in previous newbuilding projects between architects and designers, as well as the differences between interior design in newbuilding and refurbishment.

FCR Finland's projects, from interior design to implementation, generally takes 2 months,

whereas in newbuilding it might take up to 2 years. In addition, a participant in the earlier workshop pointed out that according to an interior designer of a shipyard, customers (ship owners) want foreign design due to its lower price, but most of FCR Finland's customers are still foreign, and many of them appreciate Finnish design. In their perspective Finnish design has its place in the market. However, FCR Finland imports parts from other countries as well, for example from Italy. Approximately 70% of the components and materials are imported, and 95% of their products and services are exported.

A practical example of sustainability in FCR Finland was the new flooring component. Mikko Varjanne told the audience that cabins are the most important part of the design, as it brings the most revenue to the ship owners. In addition, as cabin design starts from the sanitary spaces, FCR Finland started a new R&D project.

The new flooring component developed by the company is 30% lighter, provides better fire safety and does not get mouldy. The used material is completely recyclable. In addition, the used materials do not produce toxic gases when heated. Due the lighter product, FCR Finland can offer a more sustainable and cost-saving product to the ship owner. A good example of a win-win solution for all parties; the ship owner, the end-customer and the environment.

Matching sustainability, creativity and practice - what is sustainable after all?

The 635 brainstorming method was used to bring ideas for the sustainable interior design. Participants were surprised when they realised how different ship interior design is from regular interior design. The ideas were mostly too creative and not sustainable at all.

For example, one of the alternative ideas for the changing needs in interior design was to use lights that change colour. However, using that much electricity is not sustainable. Also illuminated fishes were considered a bit too unethical and thus not suitable. All groups agreed that the nature itself should be valued as such and that the interior design should not disturb the calmness and landscapes of nature. In addition, nature conservation and knowledge of materials should be presented to the end users in a fun way, for example by using gamification.

Luckily, two of the participants had the practical experience from being part of a cruise crew. It is important to note is that if the furniture becomes dirty, it is more sustainable to be able to wash, maintain and apply fire safety spray by the ship personnel at sea than it is to send it somewhere and wait for the furniture to be sent back to the ship. It was agreed that the use of good-quality, washable and easy-to-use fabrics is the best solution in many cases. This raised the importance of user-oriented design.

Picture 9: Six thinking hats method in use. Picture: Maarit Vähäkangas.

Also, creativity and the best ideas can be right in front of you. In this case, it was the cruise manager who came up with the most ecological and cost-effective solutions for cruise interior design and materials. Participants concluded that sustainable solutions mean focusing more on different users and the length of the logistics chains, thus providing added value to the end customers. However, it is difficult to find solutions that consider both the valuable knowledge of the users, as well as the cost-oriented minds of the ship owners. Things that may attract and provide value for the cruise customers may be considered as extra cost by the ship owners. Still, small issues in design might boost sales and marketing, such as the round widows of Viking Grace. Many customers like to sit there, look at the sea and take photos for social media.

The existing issues could be resolved better by building new strategic partnerships as well. For example, a campaign where taking a specific photo means that the person donated money for preserving the nature. This brings value to the customer, boosts the appreciation of nature and provides visibility to the ship owner. FCR Finland's new floor material for the sanitary spaces of ships is an ecological solution that is also more cost-effective to ship owners. Thus, a sustainable solution can add value to the ship owner as well, not only to the cruise personnel or the customers. Recyclability of materials will especially have an even more important role in the future, as the new regulation for ship recycling in the EU enters into force in 2020.

Picture 10: participants and organizers after the workshop 23.3.2018 at Aboa Mare Maritime Academy. Picture: Maarit Vähäkangas.





Workshop: Identity and creative knowledge in boat industry network of the Kvarken region

Written by Rita Rauvola and Ann Charlott Hästö

Unique knowledge of luxury boats in the Kvarken region

The narrowest part of the Gulf of Bothnia is called Kvarken. Kvarken divides the Bothnian Bay in the North from the Bothnian Sea in the South. The Kvarken region in Finland is famous for handicrafts and luxury boats, Baltic Yacht and Nautor to name the biggest companies. The network also consists of smaller companies that build, for example, traditional wooden rowing boats. The boatbuilding industry in the region has its roots deep in the history – it started as long as 200 years ago. Many small companies have stories about their entrepreneur parents. Entrepreneurs of the region value trust, good reputation and self-made products, which they are very proud of. The creative field is broad; for example, Novia University of Applied Sciences provides education in photography, graphic design, interior design, fine arts, music, and performing arts there.

Customers of the luxury boats are usually families buying the boat together. Buying a boat is a process with a long list of smaller decisions that the whole family takes part of. It is a dream come true, and everything needs to be perfect.

Many customers have their own designers with them, so that they can be sure the boat reflects their identity and wishes. Companies stay competitive, because they always say “yes” to the demanding customers, and leave the problem solving to the engineers, architects and designers. Thus, every single workday of carpenters and sowers include new problems in need of a solution. Finally, the yacht is a unique piece of art consisting of a huge amount of creative problem solving and unique solutions. All yachts are one of a kind – everything is self-designed and self-made, such as handles, doors, and even fridges on bigger yachts. Therefore, the price tag is quite remarkable as well. Still, for example, when asked what the core knowledge of the company is and how it differentiates from the competitors, one of the local entrepreneurs shrugs and smiles, and mentions that they “sometimes work for their competitors as well” and continues that the competing company “perhaps just needed something they cannot do themselves”.

Better communication by doing something everyone knows well

Ann-Charlott Hästö, CEO of ACH Architecture facilitated the workshop by applying a **contextual thinking** model she has developed for business development purposes. She believes that local companies need to recognise their skills better and use it for business development and growth in order to

create a common language and shared values for a regional identity. She also believes that the common language can be found in the materials: “They all know the materials, they work with them every day. They know what the materials feel like and how they function, and they are comfortable with working with them”. Ms. Hästö also says that collaboration at an earlier point between companies is required for enabling the common language that saves all parties’ time and money. This is also the goal of the contextual thinking method.

In the workshop, the creative experts and experts from boatbuilding companies worked together to design keychains that reflect the values, beliefs, knowledge, history and stories the companies are based on. The purpose of this was to help the companies understand who they are and why they exist. Creative participants then expressed their comments on whether the companies reflected on the right things in the finished keychains, and it led to a deeper discussion. While working and analysing, the participants also learned from each other’s knowledge and got ideas for future collaboration and future growth. Making keychains provided a needed focus to bring up the right questions, in order to identify and acknowledge the core expertise and skills the companies possess. The keychain symbolises the core skills as metaphors. After the workshop, all participants shared at least one common goal - to embed the creative branches as part of the boatbuilding network.

Picture 11: All participants knew the materials, which helped co-creation between experts from different fields. Picture: Kim Frilund.



Workshop: Digitalization in the maritime industry in the upcoming 10 years

Written by Rita Rauvola

Oily hands on the touchscreen - a dive into maritime companies' digitalisation needs in the next 10 years

At first, participants first tested AR and VR tools for a metal factory, a space station and sports. ADE has also developed many tools for hospitals. Then, keynote speakers Dr. **Mika Luimula**, Head of Turku Game Lab, and **Pasi Porramo**, CEO of Ade, provided insights on the digital development in the region. The speeches answered the beforehand provided questions such "How can the new AVR Turku Innovation and Competence Factory support digitalisation needs in the maritime industry?" and "Methods for improving the installation works and quality onboard the vessel by using digitalisation". The aim was to explore the needs, challenges and opportunities in digitalisation in the maritime industry in the upcoming 10 years.

The roundtable discussion was facilitated according to the needs and key interests. Primary interests included 3D models for exhibitions and training needs, cabin mock-ups to get first-hand approvals and save money on R&D. Communication tools between architects, designers, turnkey suppliers and their suppliers were also brought up. Small changes in one

place can lead to several delays and extra work in the process, as the documents are not up-to-date anymore. Transferring the data in digital format presents several challenges, such as confidentiality issues and software update problems. For example, companies might have different versions of Cadmatic and therefore files cannot be opened. Some standardisation or unified design and data platforms are needed for data sharing as well. These might be problematic due to the amount of metadata included in the company's own systems.

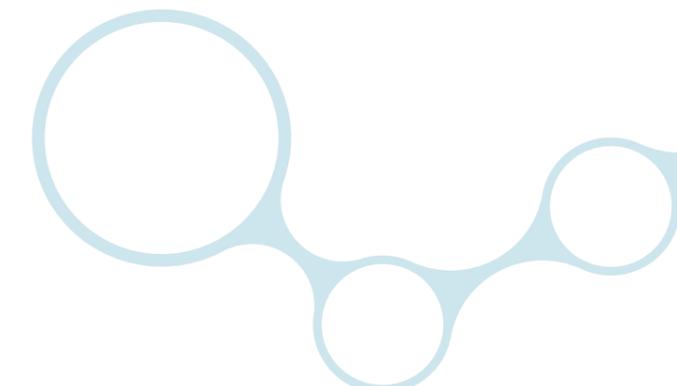
Digitalisation was also seen as a good way to provide ecological and cost-efficient solutions. With good digital clones of the ships, the ship crew would be able to perform some of the installations and maintenance onboard the ship, eliminating the need for long flights. In addition, with remote control and AR data, problems and failures could be investigated from a distance as well. There was a lot of discussion regarding future needs in augmented reality, Internet of Things, artificial intelligence, digital clones and so on.

It seems that the list of digital solutions available in the future is endless, but companies face challenges to enter the era of digitalisation. Digitalisation is becoming an important part of several aspects of the maritime industry, but the development speed of the industries versus expectations of utilising digital solutions do not match. In addition, some digital solutions still require

improvements in order to fulfil the needs of the company. The current situation is that companies struggle to share enough information in order to develop digital solutions. It takes time to get the financing in place for the development project. In the meantime, new technologies are already being launched. Technology develops faster than companies can commit time and money. Therefore, the risk is that great concepts emerge, but none are implemented.

Companies cannot be left alone; guidance is needed for the entire marine ecosystem. It is important to gain broader collaboration between the creative and maritime industries, and it is a potential topic for co-development. Perhaps it allows for a new digital era in the maritime industry to be discovered and innovated.

Picture 12: Digitalisation helps in innovating more ecological solutions. Picture: Teresia Othman.



Workshop: Work stories and Wista's Fall gathering

Written by Rita Rauvola

Women discovering problems and opportunities in organisations through work stories

It was not only sunshine stories, but rocky wills and strong skills that emerged when women from the maritime industry and creative field gathered to connect and tell about their career experiences. All participants had prepared the preliminary assignment for the workshop and were very open to tell about their experiences. It shows that the field has a need for sharing experiences among women.

The goal of the workshop was to recognise knowledge through **storytelling** situations in which the participants had succeeded and felt appreciated but also failed or felt underappreciated or misunderstood. This is a way to acknowledge for example barriers for innovation in the organisations.

During the workshop, a live illustration was used to make stories concrete and to visualise the processes. Live illustrations can be used in many ways in organisations, instead of long meeting memos. Feelings are remembered better than words or writing, therefore it can be much more effective. Besides visual arts, experiences can be conceptualised

also with word-arts (poems, short stories, metaphors, song lyrics), theatre (performing in scenes oneself or by using a third person, as improvised theatre), drawing cartoons, creating music, doing handicraft or building Lego bricks.

The workshop was organised in collaboration with WISTA (Women's International Shipping and Trading Association), which is a network for women. Wista is active in over 40 countries and has over 3,000 members in the shipping and logistics industry or related industries.

In Finland, the network has around 130 active members from shipping companies, ports, insurance companies, legal agencies, commerce, government and logistics. Wista's goal is to persuade more women to apply for leading positions in the shipping industry

Many women have faced situations where they have been underappreciated and not listened to

The workshop was facilitated by **Janne Junttila** and **Anni Linko**. The women's stories were illustrated by visual artist **Salla Lehtipuu**. The participants were divided into two groups, and both groups had one story picked for visualisation. In addition, live illustrator Salla Lehtipuu produced a mind map for the themes that existed in the stories.

Women shared funny stories and success stories, but also stories of difficult and

challenging situations that they have experienced during their careers. It is possible to recognise problem solving techniques and survival strategies by sharing experiences. The stories demonstrated that women have special strengths to get over tough situations, to be flexible in rapidly changing situations and to prioritise the common good. For example, sometimes someone else takes the thanks they deserve.

In one case, even the general safety was compromised due to a colleague not listening or not caring about the other person's expert opinion. It was a little surprising that so many of the women felt that they were not taken seriously or were treated unequally in different work-related situations, some just because they happen to be women. It was noted, however, that there has been a lot of activity in the maritime industry over the past ten years, in a positive sense.

Nowadays, an increasing number of women are working in fields related to shipping, also in leading positions.

The feedback after the event was positive, and the participants hoped that similar events would be arranged in the future.

Women are important for the industrial change we are living in – in fact, many participants considered women more adaptable to change than men. Is it so?



Picture 13: Live illustrations can be more effective than long written texts. Picture: Teemu Nurminen.



Workshop: “Together we work, together we shall learn” - future oriented workshop

Written by Rita Rauvola

Together we work – together we shall learn

A future focused strategy starts by creating a view of a common future and a dream of the future. What will happen in the future and what do we want to happen?

The IRM-Tool project agreed to this workshop with FCR Finland due to earlier workshop feedback which indicated that there was always someone missing from the network when development was discussed. Especially smaller companies think that they have more to offer as co-developers than just by being the last link in the tendering process. In this event it was possible to reach out to one complete network, and make its members work together.

This workshop was part of an existing network event in which FCR Finland had invited supplier and customer companies from Finland, the Baltic region and other countries in Europe.

From FCR Finland’s perspective, the goal of the whole day was to deepen participants’ insights on the company. For example, some companies are familiar with a 10-30-day project, even though the company works 12 months a year. FCR Finland’s message to its network is that

they are doing well, and that it is good to be in the network, as together they are even stronger

Futurists and business consultants Niko Herlin and **Kirsi Kostia** from Great Minds Ltd facilitated the workshop. Kirsi Kostia and **Niko Herlin** are futurists with extensive experience in consulting companies and running future related workshops and trainings.

Many potential alternative futures and scary dreams

The participants were given some insights on what the future practically means, and how it should be related to in order to be able to not only be prepared but to shape it as well. Firstly, there are many possible alternative futures; there is not just one course of action that can happen, but rather several outcomes, which may even happen simultaneously. Secondly, the future is in the things we say; when we talk, we influence.

The words we use, the feelings we have when we express ourselves, the choices we do – they all have reactions and counterreactions, which again influence somebody else.

The more we talk about something, the more familiar it becomes, which is when it becomes today instead of the future. This is the reality in the autonomous shipping boom as well. Several companies shape their business, and education changes to meet their needs, although this

concept was resisted a lot at first. Thirdly, it was reminded that dreams should be a little bit scary in order to become great business ideas.

For example, adequately long-term and followed by a continuous process of dreaming. Regarding the network, dreams should also be shared; crowdsourced, even. Additionally, dreams shouldn’t only be owned by leaders, but the whole company and its network should be engaged as well.

A sneak peek into the future by a multicultural ship refurbishment business network

The participants in the workshop worked with iPads and a special online tool in which the facilitators had chosen a relevant field some wild cards as topics.

The topics included both rising and descending trends that are updated daily at www.futuresplatform.com.

The task was to choose seven topics that the groups thought will have a strong influence on their work in the future, and some that they think will not influence their work.

After a while, the topics were discussed together. The five most influencing phenomena to ship refurbishment business, as seen by the participants, were 3D printing, ageing population, big data applications, identifying everything and development of nanotechnologies.

Picture 14: Sharing experiences is empowering. Picture: Teemu Nurminen.

The phenomena that got votes for both influencing and not influencing were for example data security, new pensioners and shipping containers as homes/floating cities. As biggest threats were seen a collapse of the world economy, immunity to antibiotics and changes in industry and manufacturing.

Why is a changing industry a threat then? Answers included for example space travelling. However, after discussing it for a while, a lot of opportunities were found from this "threat". A collapsing world economy was also an interesting theme, as many felt that they had kind of experienced it already, and some of the businesses had been launched a year or two years after the financial crisis in the US. Thus, it was also considered an opportunity. One big issue was robotics.

A good question was that "if 90% of the work is done by robots, who has the money to pay for all the products?" and one participant answered that "at least somebody needs to start hiring robots then".

The general mood and atmosphere were good, and some groups had very intensive discussions. In some groups, however, it seemed that different cultures had difficulties to orientate for the future. One of the facilitators' pointed out that some of the participants who had difficulties talking about the future chose very difficult topics to discuss about, therefore making it even harder.

The last part of the task was to find more concrete actions on how to utilise the opportunities and threats that were discovered. Half of the groups discussed threats and the other half of them discussed the surely influencing phenomena. In the concluding discussions, participants were already more active and positive about all the phenomena. The task was to choose seven topics that the groups thought will have a strong influence on their work in the future, and some that they think will not influence their work. After a while, the topics were discussed together.

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Picture 15: Facilitator from Great Minds Ltd advising how to use the futuresplatform.com. Picture: Teresia Othman.

Workshop: Customer-oriented product development and perspectives for innovation

Written by Rita Rauvola, Marja Rak and Elina Rebers

Unrealised customer needs and unused resources

Local boatbuilders and boat industry companies gathered in the IRM-Tool project workshop to deepen their understanding of product development and the importance of different roles, for example, between the designer and customer. The goal in the workshop was also to provide interaction and discussion between different actors in the creative field and the boat industry in the Kvarken region. The participants told each other about their own special skills, and they had a chance to get acquainted with the experts of different fields in the region.

Designer **Marja Rak** (founder of the sustainable lifestyle brand Noolan) facilitated the workshop. Participants were first to consider why design is needed and how different choices in the process can affect the product outcome. Participants were encouraged to see new opportunities in their business: customer orientation, changing needs, added value, seasonality, refining your own product etc. Marja Rak's introduction to the topic included, among other things, the impact of values and choices on the product and thus on the corporate image,

the designers role in product development, innovation and added value, preparedness for change in the fast working environment, and how to develop problem solving skills.

The **ME-WE-US method** was used during the workshop. The participants first mapped out the needs of their own field for the coming 5-10 years. Then the participants were divided into four groups and the task was to think about the following aspects: what is the product or service that the customer does not yet know they need? The ideas were evaluated with points and the ideas that got the most points were developed further in the groups. Finally, the groups introduced their best ideas for all the participants. In the end one concept of each group was developed further.

The four concepts - customers want to have more choices

The groups worked intensively and enthusiastically. As a result, they presented four new concepts. The first concept was associated with a new type of luxury boat experience. The indoors of a boat completely excludes the awareness of being at sea. Internal sounds come from the engine and other devices. With the help of new technology, the group wanted to have the sound of the sea and environment inside, thus making the experience more holistic. Thus, the sea would also be experienced inside the boat, visually. Another concept "**Elikontfabriken**" is

an environmentally friendly container house consisting of recycled materials. It is simple and configurable. Each container is unique because it is made of reusable components. The living space can be enlarged by building upwards and the sides can be opened if the weather is appropriate. It can also be moved from one place to another because it's mobile.

The third concept "**Real-time interaction**" builds real-time intelligence through virtual technology. The customer can immediately see and experience if the plan is appealing and thus excludes the cost of "fake solutions". The technology also increases the process on both sides. (The need for this solution has also been highlighted by companies within the shipyard network in several workshops organized by the IRM-Tool project. When will it be possible? The technology exists.)

The final concept of "**Choose Home**" allows you to customise your home according to your mood. For example, the colours or patterns on walls, ceilings and floors can be easily be changed via the remote control to match your current mood. You can also see live pictures on the edges. Others also came up with the idea that a resident's mood could be read immediately upon arrival, and the decor automatically adjusts to it. This proposal received the most points in the final qualifying round. A similar concept was discussed during the workshop with the shipbuilding industry on April 5, 2018 in Turku.



Picture 16: Groups designed four concepts at the workshop. Picture: Tomas Olsen.

Process: Developing the maritime industry through arts

Written by Rita Rauvola

Professional artists and maritime companies

During 2018, the IRM-Tool project started a co-operation with the Art Promotion Center Finland. The aim of the process was to create interesting examples of arts concepts through cooperation, which are in line with the real challenges presented by maritime companies. The project opened a new kind of interaction between arts and the maritime industry, as well as enables different forms of cooperation in the future.

Rita Rauvola, project manager of the IRM-Tool, acted as an intermediary for the maritime industry participants, and regional artists **Krista Petäjärvi** and **Annika Dahlsten** from Arts Promotion Centre Finland worked as art counsellors in the process. They facilitated the creative process from artistic perspectives. The IRM-Tool project has also evaluated the process from a service design and innovation perspective.

The maritime companies Meyer Turku, Wilhemsen Ships Service and Arctech Helsinki Shipyard provided challenges in which known Finnish artists **Heini Aho**, **Jukka Hautamäki**, **Sini-Meri Hedberg**, **Sampo Kerola**, **Oona Tikkaaja**, **Ville Pirinen** and **Tobias Zilliacus**

engage with their artistic knowledge and creative problem-solving process. Clap Ltd. was also involved in the cooperation by analysing methods to boost the utilisation of artistic interventions in traditional industries as an intermediary company.

Challenges and Solutions

The challenges presented by **Meyer Turku** were related to the development of the work culture, the coherence of the ship concept, both interior and exterior design, as well as sustainability and environmental awareness in concrete everyday jobs.

For example, do projects start in different ways? Maritime companies recognized that usually projects start from technical problems to be solved, so they it was wondered if creative problems could also start a project. There was a lot of discussion about a change where workers do not have only an engineering background, and how interdisciplinary expertise is increasingly important. However, the fact is that technical background is more appreciated in maritime companies.

The art concepts that answered these challenges were Heini Aho's scientific laboratory **Tiedelaboratorio** on board, Jukka Hautamäki's digital space concept **Matka matkassa** which also provides an experience of the sea to the environment inside the ship, Sini-Meri Hedberg's drawing workshop **Viva la Viiva!** where

participants can learn from each other and remove various obstacles from collaboration, Sampo Kerola's Dream Model **Unelmamalli** concept where projects would start from any problem or skill, thus creative problems can be solved in a technical way and technical problems can be solved in a creative way, and Oona Tikkaaja's art game **Yhteispeli** that brings employees together through various tasks.

Artist Oona Tikkaaja's idea for a game for Meyer Turku was considered the most surprising concept by all company representatives, whereas Sini-Meri Hedberg's work called Viva La Viiva! was the easiest to implement right away, requiring only few investments and little time.

Arctech Helsinki Shipyard presented challenges that discussed internal and external company identity, and e.g. how strong the professional pride is and how to use it in marketing. Tacit knowledge was also discussed due to the shipyard have many workers aged 30+ and 60+, but not so many in between. Arctech also raised an issue of boosting sustainability at the shipyard in everyday work.

So, how should companies retain important professional experience in the company but also motivate new employees to get new ideas and their knowledge conveyed. It was interesting to discuss how the shipyard could be more visible and acknowledged in the urban environment and become more recognized.



Picture 17: Tobias Zilliacus was one of the seven artists designing art concepts to maritime companies. Picture: Teemu Nurminen.

The art concepts that answered these challenges were Jukka Hautamäki event concept **Laivan aika**, which brings together the shipyards and citizens with the help of art and science, Sampo Kerola's company musical **Yritysmusikaali** that responds especially to problems with the continuity of tacit knowledge in different ways, and Sampo Kerola's *mural art* that strengthens the company's identity for both employees and city dwellers including e.g. historical events in artistic way. Also, the concept of Tobias Zilliacus was **Bulkhead**, which included a lot of methods from his and his colleagues' knowledge in improving the interaction.

Leena Vedenpää, Kirsi Auvinen and Saara Suvela from the Arctech Helsinki shipyard were especially happy about Sampo Kerola's musical and wall mural concepts, as well

as Jukka Hautamäki's concept *Laivan aika*, which combines learning from history and inspiration from something new. Musical might be implemented later.

Wilhelmsen Ships Service provided challenges related to safety, quality and health at work. For example, how to strengthen leaders' understanding and commitment for quality work? How to motivate workers to report errors and problems in different processes? For example, would visualization of standards help everyone understand how a small change in how they work affects the whole process and why it is important?

The only art concept that especially responded to these challenges was Ville Pirinen's cartoon drawing concept **Sarjakuvitus** where comics are used in different ways to visualize processes and their meanings and

create a unified spirit. Anita Åkerlund from Wilhelmsen Ships Service was inspired by the use of cartoon characters to motivate and commit people in safety and quality matters. Thus, concept has been developed further in the Wilhelmsen Ships Service company and seems to be implemented. Finalised concepts included, for example, expertise of gamification (Oona Tikkaaja), neural networks (Jukka Hautamäki), music, dance, light art (Sampo Kerola), drawing (Sini-Meri Hedberg), comics (Ville Pirinen), a combination of science and art (Heini Aho), and art and theatre (Tobias Zilliacus). All concepts provided communal solutions to the challenges that dare the employees of the companies to learn from each other, share their expertise and not only commit to common values and rules, but also to innovation and development. *Process is described in more detail in attachment 3*



Picture 18: The IRM-Tool project and Arts Promotion Centre Finland visiting Meyer Turku on 25 October 2018. Picture: Arto Kunnola.



Picture 19: The artists presented the art concepts 5 February 2019 at Aboa Mare in Turku. Picture: Teemu Nurminen.



Online workshop: The autonomous shipping concept and its effects on business

Written by Rita Rauvola

How do autonomous ships affect the business?

The workshop focused on the impact of the autonomous ship concept on business operations. The theme was selected due to the fact that several companies still experience that the autonomous ship concept or even the new possibilities of remote control do not affect their business in any way. However, new digital solutions will enable new business models for shipping, as well as for other industries. This means that the impacts will come sooner or later, at least through the network companies, even though a completely autonomous ship will not be sailing in the near future.

The topic was initiated by project manager, researcher and sea captain **Johanna Salokannel**, who coordinates the new research platform MAST! at the Institute of Maritime Software Technology. The institute aims to answer the needs arising from maritime digitalisation and autonomous shipping trends, especially related to remote operation of vessels. One of the projects ongoing in MAST! Institute is MasterSIM, which develops a remote operation simulator for use as a research and educational platform related to remote operations.

In the beginning of the workshop, Johanna Salokannel explained the current situation of development of the autonomous shipping concept:

“It has been estimated that the first autonomous vessels will sail the seas before 2030, but it is acknowledged that an autonomous vessel does not necessarily mean an unmanned vessel. Removing humans from the vessel operation process is not necessarily the aim, nor is it possible, and successful visions about the autonomous future will be designed for human-machine collaboration. Autonomous systems can enhance safety and effectiveness, but they also change the nature of human-performed tasks, which results in a need for changes in the whole maritime infrastructure and logistics.

There are no clear guidelines for remote operations. The legislative framework is expected to be finalised in the near future. A high level of automation in future shipping will decrease the needed amount of humans, but at the same time there are challenges to implement all human-performed tasks through algorithms, artificial intelligence and machine learning, such as “Good Seamanship” and ensuring the seaworthiness of a vessel without any crew to do the final check.”

Increasing automation will enable many functions to be supported with different levels of automation still keeping humans in the loop, from manual remote manoeuvring of a vessel

to monitoring, as well as fully autonomous vessels with no human intervention at all during operations. But as things go wrong and systems fail, humans are expected to intervene and manage the situation. This has an impact on the skillset required from a future seafarer.

The strengths of humans lie in their ability to be creative, innovate and especially, in complex systems, improvise and adjust performance according to situational needs.

These resources cannot be ignored. Humans do have a vital role in ensuring safe and sustainable shipping in the coming autonomous maritime world as well.

Online workshop as a process and suitability for co-development

The online workshop concept was developed in response to the needs of maritime industry companies working together in an agile way and in line with the spirit of time. In this online workshop, **Google Hangouts** was used for topic initialisation, workshop tutorials and communication.

Then the free online tool **Miro** was applied to do the SWOT analysis. The language of the workshop was English.

The online workshop was attended by 10 participants from different fields. Experts were invited, especially from the maritime industry and creative field.

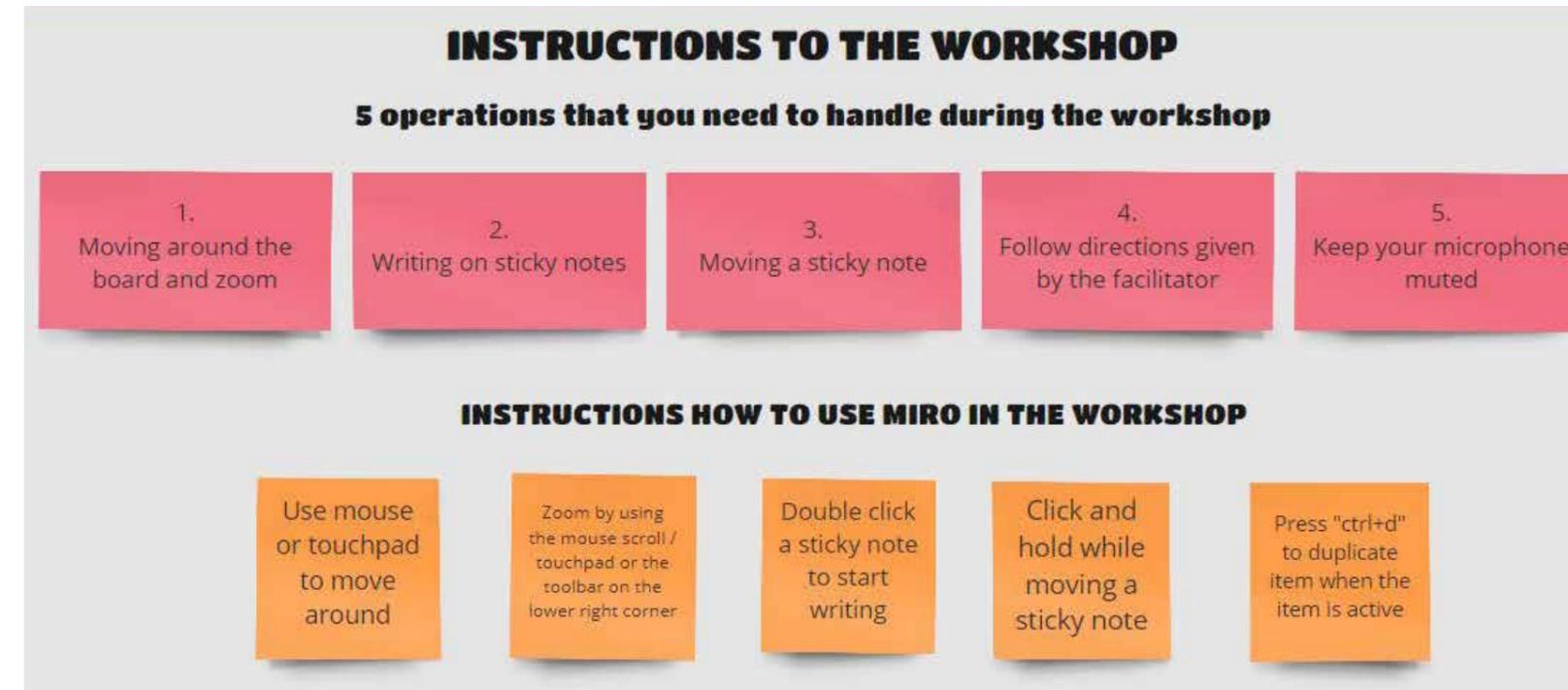
Picture 20: Ville Pirinen introduced an art concept which utilised his expertise as a comic-strip artist. Picture: Teemu Nurminen.

The workshop received positive feedback and the online workshop concept showed great potential for future use as an ecological and agile alternative to co-development.

“The impact on the business of an autonomous ship and remote control was a well-chosen topic for an online workshop. The topic is

both topical and challenging at the same time, so there were views and development ideas from all participants. Implementing the workshop with the online tool was also a success. The biggest challenge was to listen to the instructions when I wanted to rush into the innovation work.

The tool worked well and created a credible experience for doing things together”, said **Ilkka Rytkölä**, Technology Director at Auramarine Oy, who was one of the workshop participants.



Picture 21: Online workshop 9.4.2019 as a process (IRM-Tool 2019).



Picture 22: Online workshops can be time-efficient, flexible and environmentally friendly as they do not require travelling. Picture: Elina Rebers.

Online workshops matching future co-creation needs

Written by Rita Rauvola, Peter Björkroth and Milla Järvipetäjä

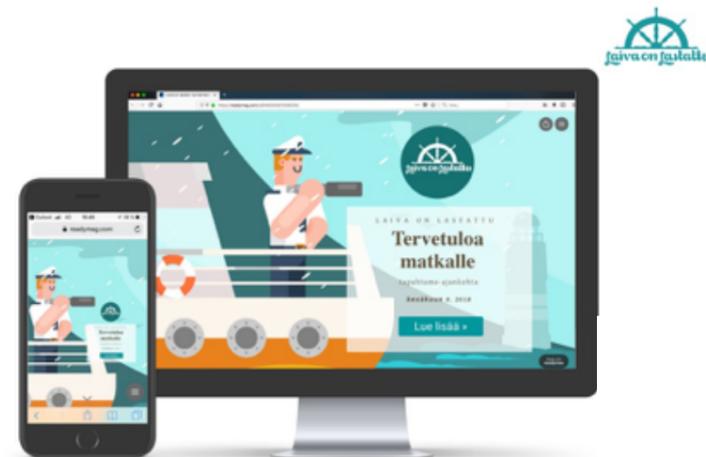
Working life becomes more and more international, i.e. projects often involve participants from many different countries. There is thus a need for tools and methods enabling interaction online, complementing physical meetings. Co-creation workshops online are time-efficient, flexible and environmentally friendly, because they do not require travelling. Working online also represents a modern way to combine knowledge, creativity and initiatives. It is important though, to consider whether trust, openness, communicativeness and a relaxed atmosphere can be achieved and facilitated online.

Media producer students from the Turku University of Applied Sciences designed several online workshop concepts during spring 2018 for the IRM-Tool project. The concepts, in the students' opinion, would be suitable for enabling co-creation between participants from the maritime industry and the creative field. The assignment to design the concepts was part of a course on concept creation and online event management. The assignment focused on designing an online event concept that would allow a goal-oriented and creative online working environment for professionals.

The group of media producer students participating in the concept creation was already familiar with online-oriented work. Their studies - courses, counselling and meetings - are implemented online. For this reason, we decided to arrange the concept creation course with online methods, tools and practices as well. Representatives from the IRM-Tool project discussed the assignment with the students in an online meeting. The students worked online in smaller groups. During the course, the theoretical background of concept creation, event management and online working were introduced. Teachers, students and project participants also discussed challenges regarding the assignment, and brought up different ideas for realising it. We decided to give the students feedback on

their first drafts by using video recordings. The concepts created by the students provided platforms for expressing certain moods and amusing, as well as committing to the co-development professionally.

The ideas included competitions, fairs, 3D design platforms and Habbo Hotel-type ideas. Some ideas required software programming for creating a new platform and some were designed for Skype for Business. The most feasible concepts used already existing online platforms or tools. They would therefore have been relatively easy to realise and develop further. For example, media producer students **Marju Aavikko** and **Pia Gardberg** used **The ship is loaded** concept utilising the proofme.com and mentimeter.com platforms.



Picture 23: Visualization of Laiva on lastattu- online workshop concept (Marju Aavikko & Pia Gardberg, IRM-Tool 2018).

Creative visits to maritime companies

Written by Rita Rauvola

As encounters between the creative and maritime industry were arranged, many creative experts wished for maritime company visits in order to see the industry in practice and thus gain a better understanding of the needs and necessities of the field. The first visit was at the Aboa Mare Maritime Academy and its maritime simulators on November 16, 2017. Training Director **Micael Vuorio** introduced the centre and how the education of sea captains has developed during the years. **Ossi Westilä**, Manager of Simulator Training, let the participants have a try at piloting Viking Grace and a cargo ship.

The second company visit was after a workshop, on February 7, 2018 at Meyer Turku Ltd. The visit provided information about shipbuilding, modular construction and the differences between architect designing on land and an architect designing at sea. After the workshop, participants circled the outside of the shipyard and some production facilities in order to see the blocks and modules, among other things. The participants had several questions, because many of them visited a shipyard for the first time. One interesting observation during the tour was the text on the welding wall of the shipyard. It says, "Together we are stronger". A common opinion of the

representatives of the maritime companies after the workshop was that joint development is needed in the network. The third creative professionals' visit to a maritime company was at FCR Finland on May 29, 2018. CEO **Mikko Varjanne** welcomed the participants for a visit after the workshop on April 5 about sustainable interior design at sea, which partly continued the challenge of combining technical and creative solutions in shipbuilding projects. As FCR Finland works mainly in the refurbishment

business, participants also learned about the differences in ship newbuilding and refurbishment projects. According to Mikko Varjanne, the need for interior designers both in newbuilding and refurbishment sides will increase a lot in the next 2 to 3 years. The visit gave the creative field representatives a chance to study ways to apply their creative knowledge in the maritime industry. Two of the participants were considering that their next career challenge could be in the maritime industry.



Picture 24: Creative participants at a visit in Meyer Turku shipyard 7.2.2018. Picture: Leena Ketonen.

Testing workshops of the Innovationtool.fi

Written by Elina Vartama, Rita Rauvola, Elina Rebers and Tommy Nyman

The content and usability of the Innovation tool were tested with different target groups as soon as some content was ready. The target groups included representatives of the maritime and creative industries. The Innovation tool was mostly tested to work on a design task or development challenge in a workshop. The workshops were facilitated by the IRM-Tool team or moderators from the creative industries.

The table 2 summarizes the key actors, objectives, and results of the testing workshops that were held during seven months over the period 27.3. - 30.10.2019. First workshops tested the usability and contents of the Innovation tool. Last three workshops tested also the facilitators perspective on applicability in designing a workshop to specific maritime needs.

First Innovation tool workshop concept was designed by service design students **Haron Rustam, Amruta Shingte** and **Riina Salmivalli** to Auramarine's case. The aim of the workshop was to discuss innovation and service design and to test the Innovation tool in the company's retrofit products' sales innovation case. The discussions were lively and focused on finding

solutions for innovative sales and many "Aha!" moments raised from the discussions and from the co-creation part. Also facilitators felt that tool content helped in designing the workshop.

Second Innovation tool workshop was open for all interested in developing innovation culture in their organizations. The theme was suggested by WISTA. The goal was to recognize individual and organizational obstacles and preconditions to boost success in the innovation work and in each participant's own work. Workshop concept was designed, and the workshop was facilitated by artist **Liana Potila** and consultant **Arto Kunnola**.

Facilitators felt that tool content helped them to find a common language and bring in knowledge from both in their collaboration as an artist and consultant pair. In the third Innovation tool workshop concept the tool contents tested out in cooperation with Baltic Yachts in Pietarsaari. Baltic Yachts had a R&D challenge related to balancing between standardization and customization in order to serve the customers well but keep the budgets in control. R&D team felt the workshop helped them communicate better between each other around the problem, and it was a platform and kick-off for a great internal development work. Architect **Ann-Charlott Hästö** from ACH Architecture was designing and facilitating this workshop. Ann-Charlott Hästö was also inspired of the contents of the Innovation tool and thinks it is useful for the small and

medium-sized companies when they try to explore innovation opportunities and develop their team skills. All the feedbacks from the test workshops indicate that the tool serves as a cross-disciplinary tool, opening up the discussion of development needs and the creative development solutions that can be found in them. In this way, the creative expert or artist is able to offer his or her expertise to the right development needs or apply his or her expertise as an innovation consultant. The visual content in the tool has been praised especially by the creative industry.



Illustration from Innovationtool.fi

"Helped them to
**communicate
better**"

"A platform and kick-off for a great
internal development work"

"Helped them to find a
common language"

"Inspired of the contents"

Table 2: The Innovation tool test workshops (IRM-Tool 2019).

Date	Target groups	Facilitators	Objective of testing	Used methods	Viewed contents	Key results
27.3.2019	Engineering and Marine Engineering students	IRM-Tool project staff	Testing the tool in a study-related design assignment	Videofilms and animations as inspiration.	Videofilms and animations.	IRM-Tool helped to think about the problem from a broader perspective. Materials, such as different examples, could be more precisely targeted at different user groups.
7.5.2019	Creative Professionals	IRM-Tool Project Staff	How comprehensive the content of the tool is, how understandable, interesting and easy to use the tool is.	Exploring and analyzing the content of the tool, brainstorming.	All content at the structural level.	The tool has a lot of content. Especially the workshop guidelines, infographics and visuals were easy to comprehend, meanwhile it takes more time to become familiar with innovation materials.
14.6.2019	Maritime Industry Company's (Auramarine Ltd) personnel	Master Degree students in Service Design	Applicability of the tool in implementation of an innovation workshop. Case: Auramarine Retrofit Sales Innovation	Picture cards, Backcasting.	Innovation, Design Thinking, customer orientation.	The workshop method itself was praised and the innovation process was fruitful.
27.8.2019	Members of the WISTA Network and other maritime industry representatives	Representatives of the creative industries	Applicability of workshop methods to solve challenges of the maritime industry. Case: Developing innovation culture in the maritime organizations.	Theatre method, 635, Six Thinking Hats.	Innovations.	The workshop itself and the methods were appreciated. The introduction of innovation material was seen as more challenging.
30.8.2019	Staff of the boat industry company (Baltic Yacht)	A representative of the creative industries	Suitability of workshop methods and innovation material in developing the company's future strategy. Case: Baltic Yachts Standardization 2020.	Zoo, Backcasting.	Design Thinking.	The workshop concept was considered to enable dialogue within the working groups to develop a strategic plan.

5 THE APPLICABILITY OF THE INNOVATIONTOOL.FI

The main outcome of the IRM-Tool project is the Innovation tool, published at www.innovationtool.fi. It is a website that is based on Professor Alf Rehn's theoretical input and texts, innovation studies from the maritime industry, workshop cases and guidelines, short films based on innovation themes and infographics based on the theories, ideas from the different workshops and blueprints.

The purpose of the Innovation tool is to help companies utilise innovation theories and develop their innovation know-how. Despite of helping with innovating processes, the tool can also be used to evoke discussions about the challenges in innovation in an organisation or between the organisations. Its purpose is also to function as an intermediary between the maritime and creative field experts. The creative field experts can benefit from the tool when managing an innovation workshop or selling their services. The Innovation tool can open a dialogue about innovation between the maritime industry and the creative experts.

By testing the Innovation tool, IRM-Tool has trained three experts and many service design students as IRM consultants during 2019. The IRM consultants develop their own concepts of utilising the Innovation tool in innovation workshops. Three concepts were tested during the summer of 2019. One was

the case of Auramarine's retrofitted products and the user experience development, second was developed for the needs of WISTA (Women's International Shipping and Trading Association) and the third was designed

for Baltic Yachts case. More information and feedback on the cases can be found at www.aboamare.fi/IRM-Tool and by navigating to the Co-Creation workshops page.



Picture 25: Innovationtool.fi can be applied during the coffee breaks. Picture: Johanna Naukkarinen.



Picture 26: Innovation tool contents in use for the innovation culture challenge 27 August at Aboa Mare in Turku. Picture: Johanna Naukkarinen.

About the Innovation tool

Written by Rita Rauvola and Päivi Katajamäki

The tool can be used at www.innovationtool.fi.

Even though the tool was developed together with the maritime industry, it can be adapted to the other industries as well. By applying the contents of the tool to their own development policies, organisations can take advantage of the tool in their own actions.

Potential users for the tool

The user profiles (attachment 4) were created for maritime and creative sectors to describe the potential user segments of the tool. They can be seen as examples of the applicability, but the Innovation tool can be used also by wider user groups and perspectives.

The Innovation tool can be used by

Creative experts or artists who want to

- learn about innovations and increase their capabilities for applying their creative knowledge
- develop skills in facilitating multidisciplinary workshops
- work as consultants
- apply and sell their expertise to the maritime industry or other industries

- learn about innovations and increase their capabilities for applying their creative knowledge
- develop skills in facilitating multidisciplinary workshops

Maritime and other fields' R&D managers/ employees/companies who want to

- boost the R&D teams' innovation knowledge, habits, processes and practices
- explore new ways to innovate and look for creative inspiration
- apply creative knowledge for their innovation purposes
- learn about innovation, creativity and applying creative knowledge
- create openness, co-creation and team spirit inside their organisation

Anyone who wants to

- learn more about applying knowledge of the creative field to new fields, as well as how increasing the innovation knowledge and capabilities can increase innovation opportunities in the company

The contents of the tool

The contents of the tool are in form of text, videos, infographics, cartoons, canvases, worksheets and graphics.

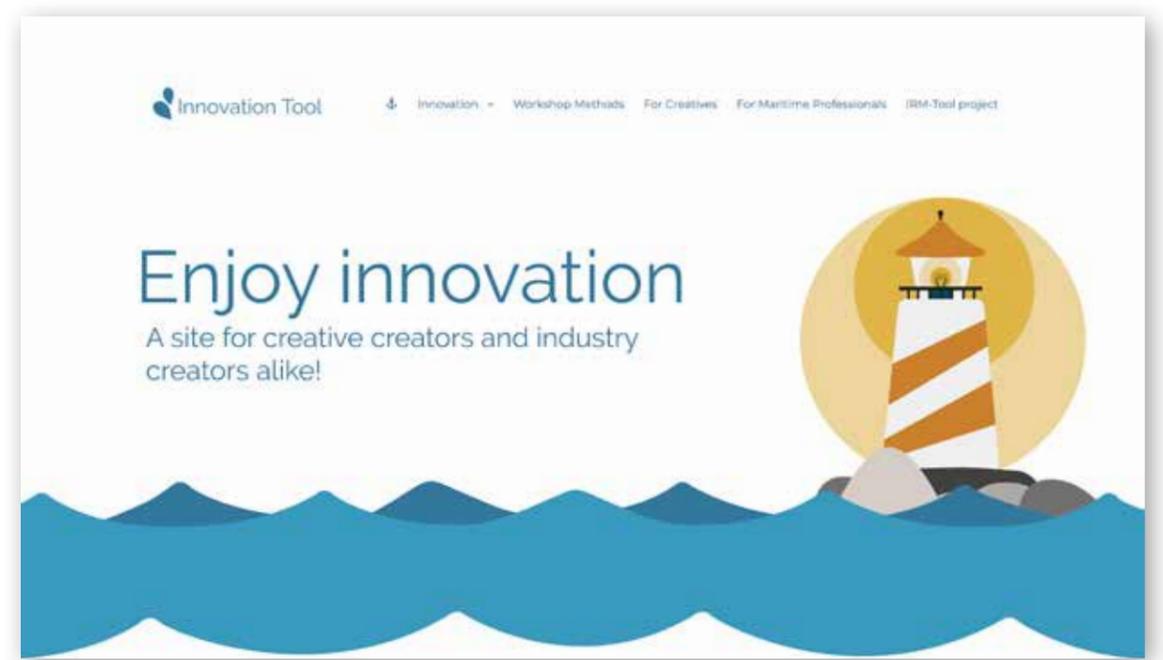
The contents include:

- the innovation theory, which consists of both the Seannovation innovation theory by Professor Alf Rehn and practical texts. Seannovation includes twelve innovation themes with supporting questions and tips for further readings. Practical texts provide help in understanding the meaning of innovation, innovation management and innovation culture. It consists of advices, challenges and opportunities, as well as other inspirational material for learning about innovation, boosting creativity and social collectiveness, and matching creative and maritime fields in a new way. The support questions as well as videos, animations, infographics and canvases help to evoke discussions inside the company and between different organisations.
- theory of design thinking approach and concrete methods and instructions for workshop facilitating. This part helps in understanding the design thinking

approach, that is one of the starting points of innovation processes and projects. Concrete instructions help the workshop facilitator to choose the right methods for the workshop objective. Case descriptions are examples of the used methods, and challenges which were answered by using them. The instructions for a workshop organizer works also as a memory list about the things to be taken into consideration when planning and implementing a workshop.

- special parts for creative and maritime professionals. These parts include reasoning why co-operation between creative field and maritime industry as well as the use of the Innovation tool would be useful for both industries. Tips in form of infographics, and what to take into consideration when working with creatives or maritime industry representatives are included.
- shortly about the IRM-Tool project.

The Innovation tool has been developed iteratively and its contents have been tested during the development process, as described before. According to the feedback, the content of the tool supports answering the challenges the organisations have in their way to innovation.



Picture 27: A screenshot of www.innovationtool.fi

6 CREATIVITY FOR ALL

Creativity is the process of generating ideas, whilst innovation is the shifting, refining and the implementation of those ideas. Creativity is about divergent thinking, and innovations is about convergent thinking. This means that creativity is about the generation of ideas, and innovation is about putting them into action. Creativity is not enough; we need innovation to take existing ideas and turning them into actions. Coming up with new ideas is the food of innovation. (Gurteen 1998)

The goal of the IRM-Tool project was to bring together the maritime industry and the creative experts, and through these interactions make creation and innovation possible. Interaction between people gives opportunities to learn, influence and make things happen. (Gurteen 1998)

In this chapter, the publication concludes with the importance of creativity in organisation and individual level. First, the coordinator project Creative Finland's project manager Anu Perttunen summarises the results and ideas of almost 20 projects that have exploited creativity and creative expertise in various ways in different fields. IRM-Tool project is just one

of the projects. Following, the IRM-Tool project manager Rita Rauvola wants to inspire each reader to explore what factors and things have effect on his/hers individual innovation flow, and thus actively develop the preconditions of innovation work at the workplace.

Talent Is Everywhere - Opportunity Is Not

Written by Anu Perttunen

The heading is a quotation used often and in different situations, but it suits our present situation especially well: in Finland there is a large group of talented creative professionals available to development experts both in the public and private sectors to help create new value. The creative expertise is there, but the means and actions to put it into use are missing.

Companies try to provide their customers, partners, investors and employees with more and better reasons and opportunities to participate and to buy and use their goods and services. Customers are interested in new, surprising and strange concepts. Expertise in creating experiences, influencing, visualization

and meaningfulness plays a significant role throughout all branches of business. Creative expertise is in a key role in developing customer experience, in user oriented design, product design and development, branding, communication and in building sustainable business models

Diverse Creative Expertise

Three projects funded by the European Social Fund – the Innovation Resource Moderating Tool project, The City Drivers project and Creative Finland – have examined creative professionals' fields of expertise, and what they could offer other areas of business. The list is surprisingly long, and a clear indication of the versatility of education in the creative field. An infographic (on next page), which can only cover a part of all the professional expertise available has been composed based on these findings. For more information, see the publications and websites of the projects mentioned.

¹ www.aboamare.fi/IRM-Tool
² <http://urn.fi/URN:ISBN:978-951-528-3>
³ www.creativefinland.net/creative-industries-info



Creative Expertise Is a Source of Renewal

World Economic Forum has conducted an analysis of the kinds of expertise needed and the skills that will be central in the future. According to that analysis, complex problem solving, critical thinking, creativity, people management and emotional intelligence,

among others, will be indispensable in the 2020's (Gray, 2016). A report by the National Forum for Skills Anticipation agrees that creativity is one of the most important fields of expertise in the future. The report connects creativity naturally to the core of creative professions, but also to innovation expertise and multidisciplinary expertise. The

significance of creativity is emphasized in connection to standing out from competition in business (Opetushallitus, 2019). Creative expertise opens up opportunities to unprejudiced thinking and the ability to solve problems, to originality and ability to find alternative solutions to problems at hand.

We Need Real Actions

Growth ecosystems need to be more open to offering opportunities to actors in the creative field, as their expertise plays a significant role in solving social challenges and building a sustainable society. In Finland the development of multidisciplinary ecosystems must be strengthened: we need a strategic, target-oriented plan for how creative fields will strengthen and diversify the structure of economic life and the economy, how creative expertise integrates into growth ecosystems, and the methods for the realization of these goals in the long term.

Talent is everywhere - we must ensure opportunity is too.

Anu-Katriina Perttunen
Chief Networking Officer
Creative Finland



Find out your innovation flow!

Written by Rita Rauvola

There is always learning occurring in functional, social and cultural situations. Flow for the learning occurs when self-capability and self-regulation are in a balance. These are also the elements of building internal motivation. (Lehtinen et al., 2016) The Self-Determination Theory (Ryan and Deci, 2000) explains that internal motivation for a person is compiled from three different needs: the need to feel capable (competence), the need for social attachment (relatedness) and the need for independence and ability to influence (autonomy). The same goes for a capability to innovate and develop as an organisation.

Human capital is the most important asset for innovation, and it should be nurtured. This means that the responsibilities and the control/power to influence one's work, as well as the price for achieving the expectations, need to be in a balance. Also, the company structures need to be in balance and communicated concisely, for example the balance of freedom vs. control, goals vs. resources, decision power vs. responsibilities of individuals.

For innovation managers, individual and environmental factors are needed for being able to boost the innovation flow at the workplace. Is the environment enabling the needed functions, in which the individual has the capability to

implement, and/or does the individual possess the competence needed for the functions in the environment that enable innovation? Below are some of the most important factors that boost the innovation flow.

Motivation

Motivation is the inner feeling of a person that launches, directs and sustains his or her operations. It includes feelings, attitudes and the ability to concentrate on the things that are implemented. Motivation influences one's choices and efficiency. (Lehtinen et al., 2016) Motivation is a key factor in affecting individuals to be able to learn, work hard and improve efforts. The innovation manager's job is to create practices that boost the opportunities of the personnel to attach to the organisation's values and goals, and to join the work community as an equal member.

Organisational learning

There is also a need for knowing the teams well and creating structures for lifting up the existing knowledge and providing challenges in which the boundaries of the existing knowledge can be crossed. The teams should have the possibility to influence the way they do their work, develop it and come up with new challenges, failures, and successes. A person learning something participates in shaping the knowledge and creating it, thus sharing it and applying it, leading to a boost in organisational learning.

Supportive working environment

Leading expert work is like teaching a child: one needs expectations, rules and boundaries, but also trust, appreciation, a chance to do mistakes, learn and grow as a person, as an employee. The same goes for enabling innovation in the organisation. The possibilities and expectations of something happening should be in balance with the available efforts and efficiency. If the employees feel that they lack skills, time or support, they get stressed. If the employees feel that tasks are very fast and easy to do and that they are not that meaningful to the organisation, they become bored and do not provide the best quality and effectiveness for the company. (Csikszentmihályi, 2005)

Balance

When everything is in balance, one can achieve the feeling of a flow. Achieving a flow refers to the feeling when all of the stars are in their right place in the universe, and moving on and solving problems becomes rather easy, while enjoying the feeling of getting forward and succeeding. Generally, the flow feeling is related to virtual games and learning. Boosting teamwork skills, supporting learning, developing in teams and communicating about matters important to the organisation influences employees' feelings regarding the challenges, as well as their motivation for solving problems. Work effectiveness can be increased by providing good tools and

processes, an enjoyable working environment, as well as support and trust for the employee's work. (Csikszentmihályi, 2005)

Deploying the natural creativity and intelligence of the human being

A person can achieve a flow feeling related to his or her work when he or she feels that the competences and expectations as a team member are in balance. This feeling spreads among team members. Once it has reached every team member, the organisation benefits from a strong

innovation flow. It's as simple as that!

"The fullest representations of humanity show people to be curious, vital, and self-motivated. At their best, they are agentic and inspired, striving to learn; extend themselves; master new skills; and apply their talents responsibly" says Ryan and Deci (2000) in their article. In fact, this is more normative than exceptional human behaviour. Thus, in order to bring up innovation flow in the organisation a lot of managerial support may not be needed, but organisations should still be careful not to destroy this natural thrive of human beings.



Picture 28: Audience inspired at IRM-Tool final seminar at Visitor Centre Joki. Picture: Johanna Naukkarinen.

7 ABOUT THE IRM-TOOL PROJECT

Coordination:	Novia University of Applied Sciences. Other partners include Åbo Akademi University and Turku University of Applied Sciences. Meyer Turku is a strategic partner.
Schedule:	May 29, 2017 to December 31, 2019.
Budget:	431,690 euros
Co-financing:	European Social Fund
Goals:	<ul style="list-style-type: none"> To boost creative job opportunities in the maritime industry by enabling encounters between the creative field and the maritime industry. To create a web-based tool that helps companies develop their innovation capabilities To co-design the service-concept or concepts that utilise the tool

Implementation

The IRM-Tool project has built its activities on innovation theory-based themes. The themes derive from the text written by Alf Rehn. Innovation theory is applied to the maritime industry context in a short and simple way. During 2018, the themes were applied in co-creation workshops, but also in multimedia production, for example in short films that explain, describe or tell a story about innovation challenges or opportunities. The short films were produced during 2018.

Their transcripts are based on innovation theory and practical cases, as well as on stories collected by interviewing maritime industry companies between 2017 and 2018.

The Innovation tool is thus developed from the perspective of the maritime industry by using the case studies and innovation theory, utilising service design, media expertise and other creative knowledge. Workshops test the creative knowledge, methods and their application in real challenges faced by the maritime industry, thus providing

information on the usability of the tool.

More information can be found at www.aboamare.fi/IRM-Tool.

Background

IRM in "IRM-Tool" comes from the words "Innovation Resource Moderating", and its initial idea is from the international Bridge Resource Management course, nowadays called the Maritime Resource Management course, arranged for all sea captain students and maritime professionals. In fact, many professionals take the course several times to keep up with the required quality and safety protocols in their management. The course comprises of real cases, and participants learn the basic steps and processes on how to handle tough and surprising situations. Instead, Innovation Resource Management can be considered a field of science that lacks research. IRM generally stands for Information Resource Management, and the themes Resource Management and Innovation Management are often discussed together under the title Human Resource Management. Thus, the research lacks consistent processes, protocols and courses of action: how can we ensure that all innovation potential is utilised in the organization and how can the innovation resources be enhanced in the different stages of the innovation processes. This is where creative know-how could be utilised to a greater extent.

The IRM-Tool project in numbers

21 workshops

4 company visits

300 participants (approx.. 52% from the maritime industry, 26% from the creative field and 12% from other fields)

47 companies

14 organisations

10 creative methods

10 art concepts

4 cities

3 languages

33 articles or publications in media

podcasts

20+ videos, animations or podcasts

300 followers in social media

1 Innovation tool

**#irmtool #maritimecreativity #luovameri
#luovameriteollisuus #kreativsjofart**

Impacts on target groups after the workshops:

5 persons have been employed

1 company applied "Innovaatioseteli" by Tekes

3 unemployed persons have started planning entrepreneurship

2 new companies established

1 new freelancer

6 new co-operation projects within the network

Read more about IRM-Tool project:

www.innovationtool.fi

www.aboamare.fi/IRM-Tool

www.facebook.com/luovameri

<https://www.linkedin.com/groups/13564048>

The IRM-Tool team

The IRM-Tool core project team consists of project manager **Rita Rauvola** and team members **Peter Björkroth**, **Milla Järvipetäjä**, **Elina Vartama**, **Päivi Katajamäki**, **Elina Rebers**, **Tommy Nyman** and **Teresia Othman**.

In earlier phases we had input also from **Nina Kivinen** (Åbo Akademi), **Alexander West** (Åbo Akademi), **Kyoung-Yeol Chun** (Novia University of Applied Sciences) and **Carina Virkama** (Novia University of Applied Sciences) as well as many students with media, service design, and technical expertise from Novia University of Applied Sciences and Turku University of Applied Sciences.

IRM-Tool project's advisory group has consisted of **Kari Sillanpää** (Meyer Turku), **Ilkka Rytkölä** (Wärtsilä, Auramarine), **Leena Jokinen** (University of Turku), **Leena Janhila** (Humak University of Applied Sciences), **Henri Terho** (arts Promotion Centre Finland), **Timo Tanskanen** (Turku University of Applied Sciences), **Mirva Salokorpi** (Novia University of Applied Sciences, Kirsi Kaunisharju (Ministry of Education and Culture), **Valter Karhu** and **Minna Taipale** (Centre for Economic Development, Transport and the Environment).

See IRM-Tool project team's thoughts of the project in attachment 5.



Picture 29: Project experts Tommy Nyman and Elina Rebers organized IRM-Tool workshops in Pietarsaari. Picture: Tomas Olsen.

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Attachments

Attachment 1 - The workshop methods

A. 635 With Five Point Voting

635 is a brainstorming method that produces a large quantity of ideas. It allows for equal participation among the group without anyone taking over the session. Since the whole brainstorming session is performed in silence, it is important to discuss the results and summarise them in order to share the ideas between the participants.

For example, there are six participants sitting around the table. Each participant is given a worksheet with a challenge or problem written at the top. The participants are given five minutes to generate three ideas and write them down on the worksheet in concise sentences.

After 5 minutes the sheets are passed on to the following participant.

The following participants write down another three ideas, adding new ideas or improvement suggestions to the previous ones.

The passing on continues until each sheet has been in front of every participant, ideally producing 108 ideas.

The process continues by studying the group's ideas and categorising them.

The Five Point Voting method is a way of selecting the best ideas from several alternatives. Each group member issues five points to the ideas they like the most. The participants can allocate all of the points to one idea or distribute the points between several ideas. The group can continue discussing the results and select the ideas that got the most votes for further development.

B. Six Thinking Hats

The goal: Produce as many innovative ideas as possible, see the problem from different perspectives and finally evaluate the produced results. The facilitator wears the blue hat at all times. All participants hold a hat of the same color and change to another color at different stages the workshop.

Blue Hat: Organises, oversees and controls the group's thinking process, summarizes and makes conclusions.

White hat: Information and data, facts, neutral and objective.

Red hat: Feelings and intuition, hunches, gut instinct, emotions. No reasoning or justifications.

Yellow hat: "Why it could work" Benefits, values, plus points. Provide logical

reasons. Focus on the positives.

Black hat: "Why might it not work" Cautions, difficulties, weaknesses, dangers, problems, identification of risks.

Green hat: Creative thinking, ideas, alternatives, possibilities, problem solving.

Blue hat: In the end everybody wears the blue hat to piece together the thoughts and ideas into a practical plan of action for solving the problem.

C. Double Reversal

The goal of the brainstorming is to produce as many innovative ideas as possible and take advantage of the participants' varied skills and experiences. The general rules of brainstorming are:

No criticism or rejection of ideas.

Go for a large quantity of ideas.

Build on each other's ideas.

Encourage wild and exaggerated ideas.

The double reversal brainstorming session includes a reversed thinking process, that allows you to continue generating ideas by looking at the topic from a new perspective. Reversing each reversed idea again can

produce new points of view and potential actions to consider in a later problem solution phase. The method progresses as follows:

Brainstorm individually and write down at least 10 ideas or problems in silence, or continue from what was produced earlier.

Now, instead of thinking "how can we solve it?", reverse your thinking process and instead think "how can we make it worse or more difficult?"

View the reversed ideas together in groups and pick the ten most impossible ideas.

Turn the chosen ideas over into possible solutions for the original topic or problem.

Categorise all of the possibilities and name the categories. Discuss the challenges concerning the chosen topics and ideas.

D. Backcasting version 1

The goal: Backcasting is a method that usually starts by defining a vision of the future, then moving backwards in time to identify trends, changes or events that affected the future situation and finally connecting the specified future to the present by moving towards the vision one step at a time.

Envision a future goal together.

What do we do to achieve this vision? Begin moving backwards from the future to the present.

Write down a trend, change or an event that made this possible on pink sticky notes.

Write down important decisions or choices that affected this on blue sticky notes.

Discuss with the other group members and present the most important findings to them.

Summarise your thoughts from the previous phases.

Move from the present to the future. Draw and describe paths that would lead to the future goal, step by step: **What are the prerequisites? What should the phases of different operations be in different circumstances? What are the effects of the operations?**

E. Backcasting version 2

The goal: Backcasting is a method that usually starts by defining a vision of the future, then moving backwards in time to identify trends, changes or events that affected the future situation. **In this version**, however, the process is done in reverse, starting from a point in the present and moving towards the future.

Define the current state.

Add changes, decisions and actions that would have happened on the way. The starting point is the future scenario, moving backwards to the current state.

Analyse the risks associated with the changes, decisions and actions.

Analyse the opportunities associated with the changes, decisions and actions.

Discuss the path from the current state to the future scenario.

Attachment 2 - Workshop details and participant feedbacks

A. Workshop: Creative job opportunities in the maritime industry

Date & place:	Nov 16, 2017 Aboa Mare Training Centre, Turku
Who was there?	21 participants: 13 experts representing the creative field, 3 representatives of the maritime industry and 5 representatives of other fields
Keynote speakers:	Micael Vuorio, Aboa Mare Maritime Academy Peter Björkroth, IRM-Tool project
Facilitators:	Päivi Katajamäki and Elina Vartama, IRM-Tool project
Purpose:	<ul style="list-style-type: none"> * To get knowledge and ideas regarding the kind of know-how the creative field could provide the maritime industry. The workshop was mainly targeted at creative field participants. * To inspire the participants to explore innovation opportunities of multidisciplinary collaboration between the fields. * To find a network of creative professionals who are able and willing to apply their knowledge in the context of the industry, as well as in maritime cases.
Methods:	Double reversal (see attachment 1) The goal of the method is to produce as many innovative ideas as possible and take advantage of the participants' varied skills and experiences.
Results:	<ul style="list-style-type: none"> * A mind map on the maritime industry's needs for creative skills from the perspective of the creative field
Feedback & observations:	<ul style="list-style-type: none"> * Many artists are interested in applying their knowledge for industrial purposes and, unlike 5-8 years ago, they don't feel that their artistic value decreases because of that. * Artists think that their skills are needed in the maritime industry. However, artists wish to increase their knowledge regarding the maritime industry in order to improve their capabilities in responding to the needs and selling their knowledge. * Artists wish for commitment in the form of time and resources in order to explore the opportunities, problems and challenges of the maritime industry

B. Workshop: Creative and technical solutions in shipbuilding projects

Date & place:	Feb 7, 2018 Turku, Meyer Turku Shipyard, B23 Seminar room
Who was there?	29 participants: 20 experts representing the creative field, 7 representatives of the maritime industry and 2 representatives of other fields
Keynote speakers:	Kari Sillanpää, Ilari Graf and Kaisu Tunkelo-Hering (Meyer Turku)
Facilitators:	Leena Ketonen and Kati Routti, Solidabis Ltd
Purpose:	<ul style="list-style-type: none"> * The theme of the day was the development of modular shipbuilding. Meyer Turku invited experts from various fields interested or involved in modular shipbuilding. The goals were to develop a model for collaborative modular shipbuilding and discover collaborative models and ways for matching the creative and technical solutions. * The workshop also responded to the earlier finding of the project, for example, suppliers want to know more about the shipyard's planning process so that they can offer better solutions and play the role of an associate rather than a mere subcontractor. In addition, the creative field experts want more information regarding the maritime industry, so that they could provide their services better at the right time with regards to the construction processes.
Methods:	In this workshop the Backcasting method was used. Backcasting is a scenario method that aims to find out different alternatives for reaching predetermined goals. The main idea in Backcasting is to think what stakeholders should do and what decisions they should take to be able to reach the goal.
Results:	<ul style="list-style-type: none"> * Meyer Turku's reflection on what the creative field could offer for them * The cases learnt in this workshop was a basis for designing a workshop about sustainable interior design * Auramarine and Meyer agreed on meetings to continue the development within modularization projects
Feedback & observations:	<ul style="list-style-type: none"> * A lot of confusion and mixed feelings among both fields' participants * Some frustration in not finding a common language, due to too many technical words * Both fields' participants were interested in the topic. Both fields pointed out and admitted that the lack of openness in the maritime field complicates the interaction. * Some creative field representatives felt that their ideas were not listened to and that engineers deliberately talked in a technical language so that others cannot understand. It can be concluded that creative representatives need more knowledge about the industry, and more "creative space" in order to represent their skills without disruptions. * The maritime company representatives wished for more time to learn about the topic as well, and due to many practical and urgent issues related to their current work, they were not able to anticipate the near future. In addition, it was noted that some key persons related to the topic were absent. This can mean, for example, that maritime companies are living in the present too strongly, and lack resources to develop their working methods and processes.



"I participated IRM-Tool project first in User Orientation in Service Development- course as part of my studies at Novia UAS. My group interviewed maritime companies about their needs to improve co-operation between the companies. We explored some early concepts for the Innovation tool and tested them with the users. I was also a team member when Solidabis facilitated a workshop with the theme "modular construction" in 7 February 2018 at Meyer Turku shipyard. In the student project, we were surprised that not all maritime companies are ready for digitalisation in a way that we had expected. In the workshop, it was good to see the different approaches that the groups took, depending on their background and perhaps on previous experience from service design workshops. However, it can be challenging to gain common ground in a short period of time, as the subject matter can be difficult for people from outside the industry. "

Kati Routti, Service & UX Design consultant at Solidabis Ltd



"I genuinely believe that engineers need to learn service design more. In the workshop though, it was easier to talk the same language with engineers who understand the technical details. The technical stuff limits the creativity. Broader concepts work better for designers, I think. Auramarine could provide for example a thesis study to develop the aftersales market service process of our products.

I think we need varied teams in which we have the project lead and business lead together with a service designer and technical expertise, and possibly a visual artist to illustrate the new solutions the team comes up with, and similarly the challenges, questions, and doubts the business professional might bring up."

Ilkka Rytkölä, Chief Technology Officer at Auramarine Ltd

C. Workshop: Competitiveness, safety and sustainability in ship demolition projects

Date & place:	March 23, 2018 Aboa Mare, Auriga Business Center, Turku
Who was there?	22 participants: 10 experts representing the creative field, 11 representatives of the maritime industry and 1 representative of other fields
Keynote speakers:	Thomas Lundström and Oskari Kosonen (Turku Repair Yard)
Facilitators:	Janette Aaltonen, Laleh Dawoodi, Janne Granfors, Heikki Mäenpää, Laura Runola, Peniel Villa Zarazúa and Laura Vuorinen, Master degree students in service design from Novia University of Applied Sciences and Turku University of Applied Sciences
Purpose:	Discussions regarding new ways of co-operation and development of operating models, but also on adding value to the ship demolition business. The purpose was to find out how the ship demolition business could be competitive in Finland as well, and whether creative fields can help with it.
Methods:	Two methods were used simultaneously, and the participants were divided to work either with the Six thinking hats or the Backcasting method. Six thinking hats (see attachment 1) The objective of Six thinking hats is to take advantage of the participants' variety of skills and experiences, and explore phenomena from various perspectives, one perspective per each hat. Backcasting (see attachment 1) Backcasting is a scenario method that aims to find different alternatives to predetermined goals. Backcasting differs from other scenario methods, because the goal or the future status is predetermined, and building up scenarios will lead to a determined goal.
Results:	<ul style="list-style-type: none"> * Many new ideas on how to collaborate and build value around ship demolition business to make it competitive in Finland. Also, it was realised that if the business is not enabled now, there might be big economical and sociocultural influences on the Finnish shipbuilding industry. * One of the service design students employed 6 months after the workshop
Feedback & observations:	A common value base (such as safety and ethical issues in the current ship demolition industry in Asia) helps find the persons "behind their titles", as one creative representative put it. This topic included various technical words and processes, but collaboration between the different fields was quite fluent according to the feedback. Also, when compared to the discussions in the media and public panels, participants could discuss about more than just the costs of the ship recycling business.



"It was interesting to learn about EU regulations, for example that in 2020 a ship under an European flag needs to be demolished sustainably and responsibly. This can mean that most of the ships will be owned by non-Europeans in 2020 and onwards, because the ships can be demolished at a lower cost in a non-European country. The modularisation of vessels, meaning that vessels are built in modules that are easy to handle when the vessel is being recycled or demolished, was also an interesting part to learn about. This should be taken into consideration already at the design phase of a ship."

Janette Aaltonen, Documentation Assistant at Etteplan, Ltd



"I think IRM-Tool project has an innovative concept for exploring the tools for innovation resources. The issues we discovered during the Modularization workshops kept me thinking about practical innovation, and the Digitalisation and the Ship demolition workshop made me look at the future of the industry. I have learned a lot about innovation and its development processes."

It was surprising how the creative field can understand the maritime industry so well. We small and medium sized network company members need a playground for exercising our skills in a more useful way, finding the right channel to communicate with the innovation resources in the most ecological way, as well as a platform for exchanging the information and creating value together."

Kyung-Yeol Chun, CEO at KF Marine



"I wanted to understand innovation and practices within the maritime industry in greater detail, because industry is growing fast. Modern technologies and methodologies would give competitive edge to the maritime companies. The idea of boosting innovation to a fairly traditional industry with well-established practices was inspiring. Also, Meyer Turku's willingness to include smaller companies to cooperate on the field of heavy industry, such as shipbuilding, was a fresh breeze of sea wind."

Leena Ketonen, Head of Service Design and UX at Solidabis Ltd.

D. Workshop: Sustainable development in ship interior design

Date & place:	April 5, 2018 Yrkeskolan Novia, Henrikinkatu 7, Turku
Who was there?	19 participants: 12 experts representing creative branches, 5 representatives of the maritime industry and 2 representing other fields
Keynote speaker:	Mikko Varjanne (FCR Finland Ltd)
Facilitators:	Jussi Huuskonen, Jenny Koskelainen and Camilla Salenius, Master degree students in service design from Novia University of Applied Sciences and Turku University of Applied Sciences
Purpose:	<ul style="list-style-type: none"> * To share knowledge between the maritime industry and creative field, as well as to co-design sustainable ship interior design solutions. * To continue the discussion about developing modular shipbuilding, which was started in an earlier workshop. Modularisation was considered to be a solution for conciliating the technical and creative expertise. * To come up with new ways of working together and discuss sustainable interior design solutions.
Methods:	The chosen method for the workshop was the 635 method (see Attachment 1); a brainstorming method that produces a large quantity of ideas in a short period of time. 108 ideas were produced.
Results:	<ul style="list-style-type: none"> * Ideas and discussion on various ways to make interior design adaptable to situations * Insights on understanding the customer and user (for example the ship personnel) as early as in the design phase * Collaboration between FCR Finland and IRM- Tool project continued with both as a company visit for creative experts and as a new workshop for refurbishment business network.
Feedback & observations:	<ul style="list-style-type: none"> * Participants were interested in the differences between the refurbishment and newbuilding businesses * Participants were interested in the possible job opportunities in marine interior design.



"I have been exchanging ideas with project manager Rita Rauvola about an online platform for selling leftover materials from maritime companies in order for them to be reused. There's a real need for this, as big leftover materials are only a cost at the warehouse. I also had the opportunity to present our company's operations as a case in the IRM-Tool workshop on 5 April regarding sustainable ship interior design. Participants were interested in our solutions and for example differences in refurbishment and newbuilding, so I also invited them for a visit to our factory in Nousiainen 29 May 2018. It is good to have this type of fearless outside-the-box thinking encouraged."

Mikko Varjanne, Chief Operative Officer at FCR Finland



"By participating IRM-Tool project I got fascinated by ships and the sea, and wanted to see how I could hop on board with my expertise into maritime community and industry. I wanted to build networks and let people know my skills and knowledge. I'm still looking for a new challenge, but I learned that there is a lot of expertise that we artists can share also outside of the arts field. I am now more confident in approaching ship industries to offer my artistic innovations. I can say that I understand a little bit better their work-related language and industry now."

Liana Potila, multidisciplinary freelancer artist

E. Workshop: Identity and creative knowledge in boat industry network of the Kvarken region

Date & place:	April 20, 2018 Yrkeshögskolan Novia, Campus Allegro, Pietarsaari
Who was there?	23 participants: 13 experts representing creative branches, 8 representatives of the maritime industry and 1 representative of other fields
Keynote speaker & Facilitator	Ann-Charlott Hästö (ACH Architecture Ltd)
Purpose:	The workshop was held so that the boatbuilders of Ostrobothnia, subcontractors and representatives of the creative field could meet. The boatbuilding industry in Ostrobothnia consists of small companies and their respective networks. The goal is that the creative field would become part of these networks. Communication and encounters were emphasised during the workshop, but also the recognition of the identity of the company.
Methods:	Conceptual thinking, doing by hand, metaphors The facilitator introduced participants to her own conceptual thinking theory, concentrating especially in the role of the communication in product design and customer orientation. After this, participants made keychains to represent the company values and core knowledge and discussed how it could be made more visible. This opened discussions between the fields, as they all knew the materials: wood, fabrics, leather and metal.
Results:	<ul style="list-style-type: none"> * A novel knowledge-based network combining the boatbuilding industry and creative field * One new job for a person representing the creative field in the maritime industry * Various new collaboration suggestions for the Novia University of Applied Sciences from the participants * Development ideas of Fiskets Hus started to take concrete actions (Fiskets Hus finished 2019, and was in nomination for the years tree award, Vuoden puupalkinto)
Feedback & observations:	Creating something together by hand functions as a good icebreaker. The keynote speaker known by participants of both fields was able to facilitate the collaboration well, thus challenges and solutions were observed in the most constructive way possible.



"I find the combination of creativity and entrepreneurship very interesting and that's why I wanted to participate IRM-Tool project. I'm familiar with the boat industry network of the Northern Ostrobothnia, because as an interior designer at Nautor's Swan I was in contact with the companies in this field. These companies have a very high level of knowledge and therefore I wanted to emphasise their pride in their work, but also the humbleness towards understanding design. Many of these companies may have fulfilled a specific need of the industry, but really don't know why they exist and what their core know-how is. This knowledge is vital for doing business with customers. I was surprised to see how eagerly and actively all participated during the workshop. No-one rushed away, even though it was Friday afternoon. I'm very happy with my input and that the participants were so engaged."

Ann-Charlott Hästö, Architect SAFA and CEO at ACH architecture Ltd
(Photo by Daria Gatska)



"I wanted to participate because the boat industry was something I did not yet have any experience in, but it seemed interesting. I liked the lecture that was held during the workshop, it was very inspiring. I was a student of interior design at the time of the workshop and got to collaborate with a person representing a boat company. After the workshop. I got very interesting job offer and got the opportunity to start working for them. Now I work for the same company as a consultant, and my main task is updating the drawings of the boats."

Sarah Smeds, alumna of Novia University of Applied Sciences

F. Workshop: Digitalisation in the maritime industry in the upcoming 10 years

Date & place:	April 25, 2018, Joki – Visitor and Innovation Centre / ICT-City, Turku
Who was there?	10 participants: 3 experts representing the creative field, 6 representatives of the maritime industry and 1 representing other fields
Keynote speakers:	Mika Luimula, Game Lab Turku Pasi Porramo, ADE Ltd
Facilitators:	Victor Blomstedt, Sameh Katr and Aki Virta, Master degree students in service design from Novia University of Applied Sciences and Turku University of Applied Sciences
Purpose:	* To introduce the possibilities the gaming industry and the AVR technology could provide maritime companies, as well as to discuss the maritime industry's challenges and opportunities within digital development.
Methods:	Demo tests and a round table / café dialogue conversation
Results:	* Implementation of InnovaatioSeteli, a new collaboration project between a maritime company and an AR/VR company. * A collaboration between Aboa Mare Maritime Academy and Game Lab started to develop in the form of Maritime Special interest Group of Allied ICT Finland project.
Feedback & observations:	A collaboration project was suggested in which Cadmatic and other similar companies would participate. Collaboration and communication between the customers, subcontractors, shipowners and shipyards were also major topics in this workshop. The need for mapping was discussed. Mapping the development needs and guidelines, so that the solutions would work together, as well as the need to share knowledge safely, effectively and in real-time. Ecological and energy-efficient solutions were discussed. When thinking of digital solutions, for example, the vast amount of paper that still is used within the maritime industry. The collaboration with shipowners was crucial, so that the benefits of the investments would be understood and the whole network could collaborate. The big question for everyone was: is it worth for a single company to invest or should the whole network be involved?

G. Workshop: Work stories and Wista's Fall gathering

Date & place:	August 23, 2018, Aboa Mare Training Centre, Auriga Business Centre, Turku
Who was there?	20 participants: 15 from the shipping industry and 5 from the creative field. The workshop was implemented in collaboration with the Women's International Shipping and Trading Association and thus aimed at women. However, one man participated as well.
Keynote speakers:	Rita Rauvola, IRM-Tool project Maija Mattila, WISTA Finland
Facilitators:	Anni Linko and Janne Junttila, Junttila&Linko
Visualization:	Salla Lehtipuu
Purpose:	<ul style="list-style-type: none"> * To raise awareness of women's skills in the maritime field, thus boosting creation of the novel knowledge network that would combine skilful women from the maritime industry and creative field. * To test the usability of storytelling and live illustration in encounters between the fields.
Methods:	Storytelling and visualisation of stories
Results:	<ul style="list-style-type: none"> * Through storytelling it was possible to identify obstacles and opportunities for innovation from the stories. * Facilitator pair Junttila&Linko was launched after the workshop * Participant from Wilhelmsen Ships Service was inspired of visualisation as a method and decided to take part in the piloting project that IRM-Tool started with Arts Promotion Centre Finland. After taking part in this process, Wilhelmsen Ships Service has decided to buy services from an illustrator to develop an improve the understanding of and commitment to quality standards in the company.
Feedback & observations:	Many participants reported that they wished to have more networking events for women. One participant had an idea on how to utilise live illustrations for making safety and quality standards more human-centred, being thus easier to understand and apply concretely in everyday work.



"Although the event was not directly linked to my work as a QHSSE manager, it was extremely interesting and gave me a lot of ideas on how visualisation could be used in our line of work as well. In hindsight, I think that it is harder to find places where such an approach could not be used... It was interesting to see how much more life visualisation can bring to a story. I would love to test this kind of approach when implementing standards in our company. We have recently implemented the OHSAS 18001 standard and have performed a risk assessment for office employees in our company, and using this approach would have made it a hundred times easier to understand!"

I think it is a brilliant idea to combine creative work and the maritime industry, both can certainly benefit from each other. I think creativity could be used to a greater extent in all industries, as today the focus seems to be so much more on technology and digitalisation."

Anita Åkerlund, Area QHSSE Manager Northern Europe at Wilhelmsen Ships Service Ltd



"When I came to the workshop, I didn't know what to expect, but the idea sounded interesting, so I signed up. Workshop was fun and it was interesting to hear work stories of other people. Usually I talk about my work only with people within the same field, so it was a bit challenging, in a good way, to try to describe what I do, to someone from a completely different background. On board we are always told to think outside of the box, so it would certainly be interesting to see what somebody working in the creative field could do with visualisation on a ship. For example, people working in the game industry probably would be able to help develop aids for navigators, such as a simulation app where we could do a test run into a port we have never been to before. In my daily work involves quite a lot of applied math and physics, the end result is often presented with at least some visual information included, whether it is a graph describing the stability, a track line on an electronic chart or a docking plan with the intended manoeuvre and mooring line configuration. If somebody with no background in shipping looked at the visual information we use on board, perhaps they would be able to come up with different solutions on how to present the information in a better way or provide a fresh view as to what might need to be changed in order to make it more understandable."

Mareena Viljanen, 2nd Officer at Holland America Line



"IRM-Tool is an interesting project. It was interesting to hear other people's experiences of their working life. Many of the stories were related to women working in a male-dominated environment. The reason was probably that the event itself was directed at women. It was also interesting for Wista members to get to experience the Aboa Mare simulators.

Foreseeing the changes in working life and the readiness for changes will be even more important in the future. It's important for the education organiser to develop an operating model in which the foreseeing, readiness and future knowledge are constantly and systematically analysed within the co-operation network between businesses, working life organisations, authorities and the educational establishments. It's important for the educators to examine future development paths outside their own branch as well. This kind of knowledge in foreseeing is also needed inside the maritime educational field."

Eija Velin, Education Manager at University of Turku / Centre for Maritime Studies



"My partner Janne Junttila had participated in the IRM-Tool workshop on 7 February at Meyer Turku, and we decided to start a new business concept with the operating name Junttila&Linko (www.junttilalinko.com). We made an offer to facilitate IRM-Tool workshop and our offer was accepted. This was the first workshop organised as a Junttila&Linko production. The aim of the Workstories workshop was to hear participants' stories related to working life, both successes and challenges. The stories were first shared in small groups and then two of the stories were visualised by our illustrator Salla Lehtipuu. The idea was to learn and get inspired by others and also bring the experiences alive by using visualisation. I was surprised to see how eagerly the participants shared their experiences and how inspiring it was to hear them. The workshop also created a valuable platform for networking. Many participants left their contact details and were interested in participating again, which was motivating for us. I think service design can and should be used widely as a toolkit in all organisations. I think that the idea of co-design is powerful: it truly involves the users and clients in developing new processes, systems and services. The other eye-openers are the different visualisations. When a service process is drawn on a canvas with every detail, it is easy to discuss it, challenge it and create new ideas. IRM-Tool has brought together professionals from various fields and enabled cross-function networking and knowledge sharing. It's important to step outside the comfort zone and see what kind of innovations or methods you could borrow, develop or adapt from other industries."

Anni Linko, a client director at Management Events Studio and partner of Junttila&Linko

H. Workshop: "Together we work, together we shall learn" - future oriented workshop

Date & place:	September 10, 2018 at 13:45-16:00, Visiting and Innovation centre, Turku
Who was there?	This workshop was implemented as part of an existing network event in which FCR Finland had invited supplier and customer companies from Finland, Baltic countries and Europe. The event was attended by around 50 participants: 15 different companies of the maritime industry representing different fields of work, such as electricity and lighting, design, consultancy, flooring, fabrics, assembly and logistics. All participants were in a supplier or customer relationship with FCR Finland. However, they did not know each other beforehand.
Keynote speakers:	Niko Herlin and Kirsi Kostia, Great Minds Ltd
Purpose:	<p>The goal of the workshop was to promote efficient co-development processes and to be more prepared as a network for future strategy work. In this event it was possible to reach out to a network unity and make them work together.</p> <p>Acting on behalf of FCR Finland, the goal of the whole day was also to deepen participants' insights on the company. The supplier network usually sees only a part of what the company does. For example, some companies are familiar with a 10-30-day project, even though the company works 12 months a year. FCR Finland has grown rapidly in the past years and they consider the future to be even brighter, as a refurbishment boom comes tens of years after the newbuilding boom.</p>
Methods:	The project utilised a method called future scanning due to the fact that the industry is facing major changes and according to feedback, companies do not know what to think of it. Facilitators were futurists Niko Herlin & Kirsi Kostia from Great Minds Oy.
Results:	<ul style="list-style-type: none"> * The workshop gave an insight on how different companies in the network see the future, and what kind of concrete ways they have for preparing for it. It also demonstrated how different cultures relate to the current time perception and the future. In the workshop, companies also got ideas on how to shape the future in a way that becomes beneficial for them. * FCR Finland believes that the results can be utilised in various project teams. The company wants to listen to the customer and find synergy in the network processes. FCR Finland's message to its network is that they're doing great and that it is worth being in the network, as together they are even stronger. * Due to working with iPads, it was also possible to get a demonstration on the network's capabilities and get familiar with digitalisation.
Feedback & observations:	According to the feedback, those having a higher level of education liked the workshop and got more out of it. Those having a lower level of education or a so-called self-educated level found it hard to get along with group discussions, perhaps due to lower level of language skills and concepts that are difficult to understand if you haven't followed current research and development topics around the world. Consequently, it really is important for innovation work to get familiar with current news of the field and learn to discuss about news from other fields as well.



"I participated in the workshop on 10 September 2018 at the Visitor and Innovation Centre JOKI, Turku, as part of the team day of FCR Finland Oy. AHA Logistics is a logistics supplier for FCR Finland. Tiina Haapala from AHA Logistics participated in the workshop with me. It was great to meet most of the FCR Finland supply chain, work together and get to know everyone a bit better. The workshop was organised in a fun and relaxed way, which made participation easy. I was reminded to always have dreams and plans for the future. To always keep an open mind and think about the positive things development can bring to our business. Each new thing can be an opportunity. We are developing a new software for our company, and this way of thinking might have some effects on the outcome of that."

Jonna Ahkila-Niemi, Co-owner and founder of the company Oy AHA Logistics Ltd



"We met project manager Rita Rauvola a couple times to plan the IRM-Tool workshop that was held on September 10 at the Visitor and Innovation Centre JOKI in Turku. In this workshop on September 10, the IRM-Tool project was the main organiser, and our role was to facilitate the workshop. Kirsi also participated in the workshop at Aboa Mare on August 23, 2018, which was targeted for women in maritime and creative branches, where they could share work stories and discuss obstacles and opportunities for innovation."

Our main challenge as facilitators in the workshop was that the participants came from various backgrounds and nationalities, so we needed to be clear in our introduction and guidance. People were interested and talked a lot about future business opportunities, as well as threats. We see great opportunities for maritime companies to utilise business foresight in developing their business and the way the companies cooperate. The same goes for all the individual experts on the field. Future fitness should be one of the basic skills in the future working life! Innovation is a life and death question for everyone! If you do not renew your competences or business, you will not have a future as a professional or as an organisation."

Kirsi Kostia and Niko Herlin, Great Minds Oy

I. Workshop: Customer-oriented product development and perspectives for innovation

Date & place:	November 2, 2018, Novia University of Applied Sciences, Campus Allegro, Pietarsaari
Who was there?	13 participants: 6 persons from the creative field and 7 persons from the maritime industry
Keynote speaker:	Marja Rak, Noolan Ltd
Purpose:	The workshop was organised for persons working in the creative field or the maritime industry. The purpose was to find new opportunities to collaborate and to get synergies and new ideas for developing their products and work.
Methods:	The ME-WE-US method was used during the workshop. At first the participants thought of their own field and its future needs. Then the participants were divided into groups and were given the task of thinking about the customer's needs. At the end, the groups presented their outcome and one concept was selected as the best one.
Results:	<ul style="list-style-type: none"> * Participants learnt about customer-oriented design. * Four concepts were developed during the workshop. * Noolan brand was re-launched after the workshop. * Baltic Yachts got interested in the development of innovationtool.fi and they agreed on testing workshop with the IRM-Tool project. Later also a company visit for students was arranged. * Collaboration with Concordia and IRM-Tool project was ideated
Feedback & observations:	<p>The workshop was a success. The participants seemed satisfied and they thanked for the possibility to be part of an encounter like it.</p> <p>The duration of the workshop was a bit short. If it would have been for the whole day, it would have given more time for the participants to dive deeper into the topic and learn from each other.</p> <p>A new project with Concordia is possible. The operators thought that closer cooperation between the maritime industry and the creative field as early as during the studies would be important, but also cooperation between the companies.</p>

J. Online workshop: The autonomous shipping concept and its effects on business

Date & place:	April 9, 2019, Online workshop, Novia University of Applied Sciences, Aboa Mare
Who was there?	10 participants from different fields
Keynote speaker:	Johanna Salokannel, Novia University of Applied Sciences, Aboa Mare
Facilitators:	Mari Kaarnavaara-Puutio, Asko Pippuri, Haroon Rustam and Amruta Shingte, Master degree students in service design from Novia University of Applied Sciences and Turku University of Applied Sciences
Purpose:	To discuss the autonomous shipping concepts and how the launching of the concepts affects or will affect business
Methods:	Online discussion using digital tools, such as Google Hangouts and Miro.
Results:	A tested method to arrange an online co-creation workshop, a selection of thoughts regarding the autonomous shipping context and its effects on companies

Attachment 3 - Process description of developing the maritime industry through arts

During 2018 the IRM-Tool started a co-operation with the Art Promotion Center Finland. The aim of the process was to create interesting examples of arts concepts through cooperation, which are in line with the real challenges presented by maritime companies. The project opened a new kind of interaction between arts and the maritime industry, as well as enables different forms of cooperation in the future.

Rita Rauvola, project manager of IRM-Tool, acted as an intermediary for the maritime industry participants, and regional artists Krista Petäjälä and Annika Dahlsten from Arts Promotion Centre Finland worked as art counsellors in the process. They facilitated the creative process from artistic perspectives. The IRM-Tool project has also evaluated the process from a service design and innovation perspective.

The maritime companies Meyer Turku, Wilhemsen Ships Service and Arctech Helsinki Shipyard provided challenges in which known Finnish artists Heini Aho, Jukka Hautamäki, Sini-Meri Hedberg, Sampo Kerola, Oona Tikkaaja, Ville Pirinen and Tobias Zilliacus engage with their artistic knowledge and creative problem-solving process. Clap Ltd. was also involved in the cooperation by

analysing methods to boost the utilisation of artistic interventions in traditional industries as an intermediary company.

Background

The process started with a meeting between the participants from the IRM-Tool project and Arts Promotion Centre Finland. The purpose of the IRM-Tool project is to boost creative job opportunities in the maritime industry by enabling encounters between creative fields and the maritime industry.

In addition to including participants from the creative fields, the IRM-Tool project aimed to reach the centre of creativity, something that we call "true art". The IRM-Tool project also aimed to transcend one-time workshops focused on one topic at a time with a process for continuous interaction with the same participants in order to further deepen their knowledge and capabilities with topics selected by them. Arts Promotion Centre Finland has also started a new development programme to boost the intermediary process for helping artists do more business with companies.

Process

The first ideas between the coordinators were discussed in the spring of 2018, and after several meetings during the summer and autumn of 2018, the co-operation started to shape. In September 2018, the IRM-Tool project

manager contacted the companies and reached an agreement with three of them. In October 2018, the art counsellors contacted the artists and reached an agreement with seven of them. For all participants, it was made clear that the process requires commitment, openness and trust, as well as courage and willingness to explore something new. Therefore, the commitment level was rather high among the artists, as well as the maritime companies.

At first, all companies met with their own teams. Before the meeting, the companies were provided inspiration material and directions on how to think of challenges suitable for the process. The teams presented several challenges during the meetings. For example, Arctech was very innovative, and came up with 15 challenges of which three were selected to the process and developed further in order to present them to the artistic audience. Meyer Turku had already listed about seven challenges. Three of them were selected to the process. Wilhelmsen Ships Service had only one challenge in mind, but during the meeting it was split into several smaller ones and finally three were selected to the process. 2 to 3 hour-long pre-workshops with the companies were held during October and November 2018.

In the beginning of December 2018, each company presented three challenges. The challenges were carefully selected so that the participants could work on well-defined and concrete challenges during the

process. The challenges regarded safety, quality, product development processes, company image, as well as communication and cooperation in the companies.

The first common workshop was held on the 11 December 2018 at the Aboa Mare Maritime Training Centre in Turku. The workshop launched a novel cooperation process in which the maritime companies provided challenges to be solved through arts. In this workshop, the goals were presented, and a cooperation agreement was signed. A common language was selected, and the terms were discussed. For example, what does the concept “art” in fact mean? What kind of results can be expected and how can the outcomes be utilised? Who owns the rights of the concept? Artists and companies introduced themselves, and the challenges were presented in small groups so that two artists heard the challenges from one company at a time and had a chance to ask further questions. At the end, the artists discussed the challenges in private.

The artists’ felt they needed collegial support and wanted to co-operate more and therefore an extra online meeting was arranged on 19 December 2018. Only art counsellors and artists participated in the discussion about the first ideas.

The second workshop was held on 9 January 2019. It was not entirely open, as it was mainly organised for the artists. However, 1-2 hours was reserved for questions to companies

and general discussions. In the first part the artists presented their ideas and shared their feelings, doubts and questions. In the second part the artists further developed their ideas in two smaller groups, and Ville Pirinen facilitated both groups. In the third part Sini-Meri Hedberg spontaneously held a short drawing workshop for all the participants. Artists, organisers and Meyer representatives participated, and Wilhelmsen Ships Service was contacted through Skype for business. The atmosphere eventually got more relaxed, and more questions were asked from company representatives.

In this workshop it was agreed that a part of the artists would contact the Arctech Helsinki shipyard to agree on a visit, while others would contact the Meyer Turku shipyard and visit them. Some of the artists agreed on meetings with art counsellors to further develop their ideas. Artists had also started their own Facebook and other social media groups to keep contact. Everybody was excited about the cooperation between the artists in the challenges.

The concluding event was held on 5 February, 2019 at the Aboa Mare Maritime Training Centre. All participants were present in this event. After three months of creative work, nine different artistic solutions were presented to the companies. Finalised art concepts were presented by artists Heini Aho, Jukka Hautamäki, Sini-Meri

Hedberg, Sampo Kerola, Oona Tikkaaja, Ville Pirinen and Tobias Zilliacus.

In the beginning of December 2018, each company presented three challenges. The challenges were carefully selected so that the participants could work on well-defined and concrete challenges during the process. The challenges regarded safety, quality, product development processes, company image, as well as communication and cooperation in the companies.

Feedback and thoughts from the process by artists, maritime companies and organizers



“I became interested in this project after the Työtarinat event in August. The phrase “visualisation of standards” caught my mind, and I started wondering, whether it contains something for us.”

Originally, I sought for ideas to visualise standards and bring them closer to the employers. I essentially had occupational safety and well-being standards on my mind.

As the process progressed, our deviation management system was also included. At present, it is regarded as something negative and burdensome, and the goal was to make it more easily approachable, potentially by using arts.

The process was well planned and managed. I especially valued the way the challenges were dealt with during the two initial meetings; I was able to better describe our challenge after my first hesitations.

It would have been wrong to present vague challenges to the artists. Now we’ve gone through them once, which makes it easier to present them. Being involved in the process has not had a direct impact on my work, but there have been indirect consequences: I’ve gained new energy and ideas for my work, even though they aren’t a direct result of this process. Or perhaps the involvement in this process has awoken my sleeping creativity?

The most memorable arts concept was the shipyard musical, although I do not think that it was suitable for us. It was such an interesting and arresting concept that it made me regret that I do not work on the shipyard... The proposed wall mural for the Arctech shipyard was also an excellent idea! I can imagine that both

concepts could be a perfect fit to the challenges presented by the shipyard.

An arts puzzle or comic strip-type approach would suit us best. As a matter of fact, there were some comic strips, which is something I had secretly hoped for, although the concept was quite generic and fitting for any type of company.

I wish that it had been better targeted at Wilhelmsen Ships Service and that it would have e.g. contained our logo or at least been written in English. It would have made it easier to sell it if it clearly showed that it was meant for us. I already came up with a name for the cartoon figure: Safety Sam, or Safety Sally in the name of equality.

In any case, it is good to continue from here and I hope that at least a part of these concepts will be implemented. It would be nice to see the end results if these were to be implemented. I can say for my part that I am happy and proud to be part of this process; it was a great experience!”

Anita Åkerlund,
Wilhelmsen Ships Service,
6 February 2019

"The process seemed interesting. It was interesting to hear the thoughts of other artists on the challenges presented by the companies, and also the angles on how to solve the challenges. The multidisciplinary starting point was fruitful, also when taking into consideration the common discussions. The moderation performed by the art counsellors was a success. I chose two different concepts for separate targets. The challenges of Arctech were interesting due to their locality, because I live pretty close to the shipyard and have thought about ideas for works related to the area. I am also interested in questions regarding the history and change of working methods. My concept called Laivan aika answered all the presented challenges. In the case of Meyer, I thought about an idea for spending holidays. About how it is implemented on an ocean cruise and what value digital arts could add. I also thought about the ecological sides of ship tourism and whether a ship trip and the concept of a holiday in general could be implemented as an immersive experience e.g. in a museum, at home or even at work as a form of digital break exercise. Perhaps the project shifts the thoughts from the working relationship to the rest of the society? How much has arts been secluded into an own island and does it open up to audiences other than those in the same discourse? How can arts be brought closer to being part of the society without sacrificing its freedom along the way?"

Jukka Hautamäki, Artist, 6 February 2019



"Cooperation with the IRM-Tool project was good. We had a clear common goal; to have artists and maritime companies clash into each other within the topic of genuine corporate challenges. In my opinion, this cooperation is a good example of using the strengths of both parties in order to create something unique. This process required good networks and relationships to companies of the IRM-Tool project, as well as the artist networks of Taike – these formed a good combo. It was surprising to see how enthusiastic the companies and artists were about the cross-border dialogues. It felt like two estranged worlds were brought closer to each other. Everyone participating in the process gained new perspectives and became acquainted with something new. That's quite a big deal! This difference in the worlds creates the energy and sparks that result in a lot of opportunities. I'm looking forward to seeing the interesting things this brings. An artist is an expert of creativity. There is a demand for creativity everywhere, which means that there is a lot of potential. We need curious and broad-minded artists and companies. These are pilot activities that still seek their form, which means that we have to be courageous. We also need bridge builders, i.e. intermediaries between the artist and the company. The intermediary recognises the starting points of both parties, puts common goals to words and combines these elements into a process. The intermediary plays an important role as an implementer of the discovered potential."

Krista Petäjäjärvi at Arts Promotion Centre Finland, 6 February 2019



"We became involved in the process because the thought of the confluence of arts and engineering science is fundamentally an interesting conflict, and this confluence has potential to bring synergy benefits for both parties. Also, the process itself enabled the expansion of the thoughts inside the company. This brings us outside the box, which is always beneficial. At first, we were not quite sure on what to expect from the process, but this became clear along the way."

The process was interesting and inspiring. It opened a lot of new thoughts on development possibilities at the workplace. The process was well organised and directed by the organisers, so it was easy to be part of it as a representative of the company. Also, it was inspiring that the artists visited the shipyard. It felt like we could have spent hours discussing the challenges and possibilities at the production line."

All concepts contained interesting and thought-provoking observations. Our challenges were best met by the concepts of Sampo Kerola and Jukka Hautamäki. They had also visited our shipyard and clearly gained deep insights on our challenges, which enabled them to provide concepts that would really answer our challenges."

Leena Vedenpää, Arctech Helsinki Shipyard, 7 February 2019

"I had worked with both maritime and creative fields since 2011, but I learned more again with this process. It is very different to work with the true artist who has the strong need for artistic freedom, belonging to art community, and be categorized by certain values. I think both the artists and companies that participated in this process were very brave and open, and they can be proud of being such a forerunners and example-makers for other artists and companies. We need this kind of piloting trials to understand what is needed. In general, the artists were surprised of how open and engaged companies were and the companies were interested and inspired by the discussions they had with the artists. It is amazing that already the first meeting between the artists and companies already had such an empowering influence on all participants. And after... I know that at least three concepts have been taking its first steps for implementation. Even the biggest innovations need more than one channel of approval, before they are acknowledged and recognized. I am happy and honored to be involved in the first push towards something new."

Project manager **Rita Rauvola**, 11 October 2019



"I was excited as soon as I heard about this pilot process because of my background in design and art studies. It was really inspiring to participate in the process. It was also great to meet new people from other companies and get new points of view of things from professional artists. I really hope some of the solutions will be put into practice and utilised in one way or another, also in other companies. As I am personally interested in service design, I hope I will utilise the creative knowledge of the project somehow. Now that the process has given me new a perspective for thinking, I think it might give me solutions even in least expected situations. I see the need for interdisciplinary co-creation and this tool in the maritime and technology industries. People just need to hear and see the results and example projects on how to utilise them in order to open up their minds for creative thinking."

Saara Suvela, a designer in the Interior department of Arctech Helsinki Shipyard



"I learned that there are many possibilities in the maritime industry for artistic and creative thinking, processes and practice. These two fields need mediating to be able to fully understand and learn from each other. Industries undergoing changes can benefit from the dialogue with arts and artists in multiple ways. A good tool for me would include methods for pursuing artist expertise in the maritime industry, provide case examples on how it can be done, what to avoid and what to remember. Also, the language used is important, as the two fields use a completely different professional language, which means that there is a need for "a dictionary" in order to reach a common understanding."

Annika Dahlsten at Arts Promotion Centre Finland, 6 February 2019

"It was really interesting to be involved in the process and be sparred by Taike and other artists. It's great to work with companies who have already been enrolled and whose challenges have been knowledgeably laid out. It's surprising to see the amount of gains from such a short process!"

I have recently participated in works in the form of games and researched the history of Fluxus. A game seemed like a suitable solution to the challenges presented.

It was great to see how devoted the companies were. The high-quality cooperation is a great reference for me. I really hope that I'll get to implement and develop my concept!"

Artist **Oona Tikkaaja**, 7 February 2019

Attachment 4 - User personas within the creative and maritime fields

Maritime Industry

Mathias (43 yrs) works as a Project Manager / CEO in a supplier company for a turnkey supplier. He has worked for over a decade and feels that he is competent in his work. He is a practical thinker, handling large amounts of information with a good mathematical and engineering competence. He wants to use the tool with the creative industry, as he wishes to develop his skills and get new knowledge and innovations to the company and shipbuilding business. He also thinks he has a plenty of knowledge and development ideas to share with other people. He is interested in future technological opportunities.

Samantha (36 yrs) works as a Naval Architect with conceptual design and ship architecture. She did her master's thesis for the shipyard, and has worked in the maritime industry since she graduated. She has also another earlier degree and work experience. She wants to co-operate with the creative field to get innovations

to boost the department's work. She is looking for establishing long-term partnerships with the creative companies. She is eager to learn and understand the big picture better. Therefore, she is willing to work in multidisciplinary teams.

Thomas (55 yrs) is an R&D Manager or Head of unit in the maritime industry. He leads and executes cutting edge engineering, architecture or development projects in the maritime industry. He is an experienced engineer, and has worked both in several positions at shipyard, and in the network companies. Therefore, he knows the field and its needs well. He likes to work with people who are as experienced as he is. Due to his involvement in many development processes, both failures and successes, he is critical to new ideas. However, he is interested in all new development possibilities, and is capable to speed up the well stated projects.

Creative field

Harry (49 years) is a professional from creative arts (i.e. visual arts, performing arts, music). He is known for traditional exhibitions or performances and commissioned artworks, but has also a

strong vision how to apply and offer his creative knowledge to a wider range of customers. Lately, he has also studied and got interested in productizing, and consulting business. He wants to expand his knowhow to the maritime industry and develop his competences and ensure new career possibilities in the future. He aims to develop a set of new, lightly deliverable products including i.e. innovation workshops with artistic twist.

Linda (28 years) is a professional from creative industry (i.e. design, media, cultural management, gaming industry). She has / is planning to establish own enterprise or a sole proprietorship. She has already begun to build network and moves naturally in start-up circuits. To offer her competences for the maritime industry network is one of her goals. Linda is looking for fresh ideas, seeking new opportunities and co-operation possibilities. She has strong skills in facilitating workshops and working as a consultant within her own field, but she believes that she has capabilities to work in other fields, too. She recognizes that working with new fields demands re-development of the existing set of workshops. She also wants to solidify the customer relationships.

Attachment 5 - The IRM-Tool project team's thoughts about the project



"I have been the project manager for the whole project, but I jumped in a project team that had been planning the project already, so the start was a little bit challenging, especially due to the very tight budget and time. The passion for my work comes from the positive feedback from the project participants, so I am happy and excited that the project has been able to achieve so many good results.

I believe that by learning from each other's knowledge, we can better respond to the needs of the future, find synergies and create innovations."

Rita Rauvola
Project manager
Novia University of Applied Sciences



"My role was to initiate and come up with the idea that resulted in this project, which, by the way, is not quite the same as the project I initiated... I had a strong vision about how the Innovationtool.fi could be used. I most enjoyed inspiring students to produce material for the tool and, using it in the future. It has surprised me that innovation/innovating/innovations raise such passions. It has also surprised me how extremely innovative and skilled students can be – when they are given proper space for it!

The Innovationtool.fi developed in the project could be great for further development, and utilising it would also be nice. The kind-of-research-oriented activities would be nice to work more with, more than what was possible during this project. "

Peter Björkroth
Project expert
Novia University of Applied Sciences



"In spite of the fuzzy beginning the design projects often have, we managed to weave different strings together and reach our target. Actually, this doesn't surprise me, as we had excellent team members and talented students. It was also amazing that we had so many committed participants from the creative field and maritime industry involved in the development process.

Working with different people inspires me. Future perspectives and the design thinking approach is something that I would like to continue with. I would also in the future like to work with co-development projects bringing different fields together for new innovations. Maybe with the help of the Innovationtool.fi web page."

Päivi Katajamäki
Project expert
Turku University of Applied Sciences



"The versatile expertise of the group members and the way we succeeded in collaborating and proceeding with the Innovationtool.fi step by step made me happy. These kinds of research and development projects are a very good way for a senior lecturer to utilise the expertise and learn new things from the "real working life". That is valuable, and I am happy to continue with other projects – and possibly utilise the Innovationtool.fi in them, and also with my students."

Elina Vartama
Project expert
Novia University of Applied Sciences



"As the cooperation is the most enjoyable part of R&D work, the tight cooperation with other team members has taught me new areas of interest during the IRM-Tool project. I have learned a lot about innovation theory, design processes and the maritime industry. The innovation processes are interesting and it would be very appealing to participate in such a process."

Milla Järvipetäjä
Project manager
Turku University of Applied Sciences



"The most valuable things during this project have been networking, cooperation and curiosity, which create the basis for something new. We need time and resources for these kinds of research and development projects in order to make them even possible.

I'm mostly surprised by the fact that the boat industry here in Pietarsaari manufactures boats that are absolutely stunning, and the handicraft is first class. The workshops have been successful also in the sense that one of my students got a job in the boat industry after the workshop. That was a very nice surprise. "

Elina Rebers
Project expert
Novia University of Applied Sciences



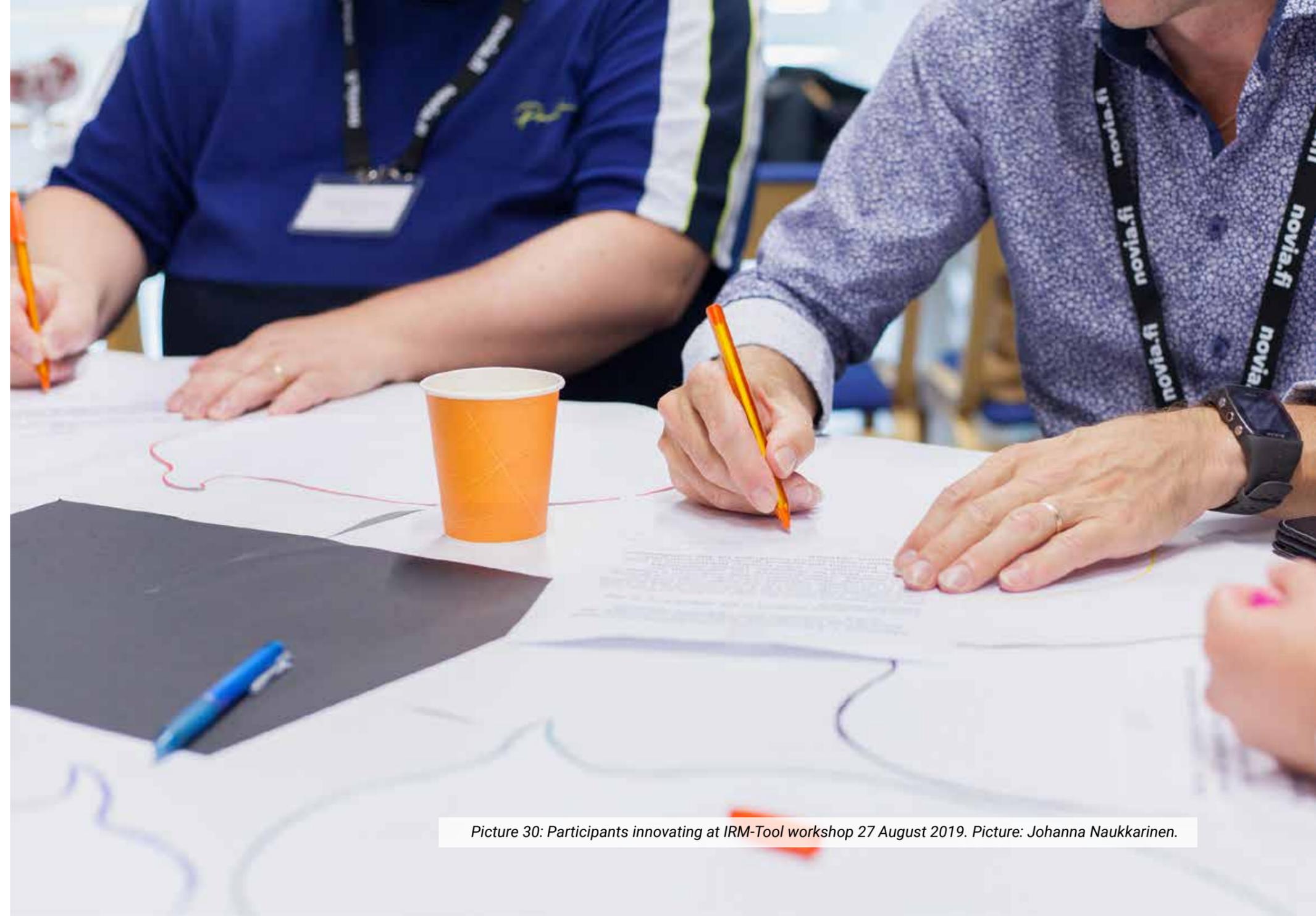
"The things that I will take with me to future challenges is cooperating, networking and understanding different work cultures. Among other things I learned that in large companies there are different work cultures that you have to keep in mind, but in smaller companies you have to adapt to their work culture. As an educator or facilitator you need to be able to change the level you act according to the audience. In teaching, there is a lot going on, and I will try to work in different fields in the future."

Tommy Nyman
Project expert
Novia University of Applied Sciences



"This has been an interesting project to be involved in, because of the encounters between the maritime industry and the creative field. This was something new and exciting to me. Especially the part of the project, where artists collaborated with maritime companies was something else and it was eye-opening for me and made me learn what a hardcore industry can gain by collaborating with artists. "

Teresia Othman
Project assistant
Novia University of Applied Sciences



Picture 30: Participants innovating at IRM-Tool workshop 27 August 2019. Picture: Johanna Naukkarinen.



Innovation Resource
Moderating Tool