ANNEX TO THE ANNUAL REPORT 2019:

2. OVERVIEW OF THE IMPLEMENTATION OF THE COOPERATION PROGRAMME

Key information on the implementation of the operational programme for the year concerned, including on financial instruments, with relation to the financial and indicator data.

Indicator	Achieved	Target	Percentage achieved	Analysis
Number of enterprises cooperating with new / improved knowledge partnerships	1812	1789	101,3%	Specific objective 1.1 is well on its way to being achieved. According to programme-level targets, there was an achievement of 379% of this objective by end of 2019.
Number of improved or new innovation support measures launched for businesses	100	182	54,9%	Specific objective 1.2 is well on its way to being achieved. According to programme-level targets, there was an achievement of 500% of this objective by end of 2019.
Number of improved or new innovation support measures launched for public service delivery	42	91	46,2%	Specific objective 1.3 is not as far toward achievement of the target as 1.1 and 1.2. According to programme-level targets, there was an achievement of 210% of this objective by end of 2019.
Number of green products, services and processes piloted and/or adopted by the project	156	147	106,1%	The output indicator for specific objectives 2.1 and 2.2 is well on its way to being achieved. According to programme-level targets, there was an achievement of 305% of this objective by end of 2019.
Number of new and/or improved climate change adaptation methods demonstrated	24	81	29,6%	Specific objective 3.1 is well on its way to being achieved. According to programme-level targets, there was an achievement of 96% of this objective by end of 2019.
Number of sites managed using new solutions supporting long-term sustainability	48	172	27,9%	Specific objective 3.2 is well on its way to being achieved. According to programme-level targets, there was an achievement of 114% of this objective by end of 2019.
Number of new and/or improved green transport solutions adopted	95	151	62,9%	The output indicator for specific objectives 4.1 and 4.2 is well on its way to being achieved. According to programme-level targets, there was an achievement of 190% of this objective by end of 2019.
Number of enterprises participating in cross-border, transnational or interregional research projects	3205	5012	63,9%	Compulsory output indicator

Number of research institutions participating in cross-border, transnational or interregional research projects	752	746	100,8%	Compulsory output indicator
Number of organizations/ enterprises adopting new solutions by project end	2023	6230	32,5%	Compulsory output indicator
Number of organizations/ enterprises informed about new solutions by project end	374 358	166 891	224,3%	Compulsory output indicator

In terms of approved full applications, all four thematic priorities saw an overachievement of the 2019 milestones.

There is one output indicator for each specific objective, and these are automatically selected for the projects. In addition, all projects must provide information on the compulsory indicators as most of this data is aggregated by the European Commission to measure progress throughout the European Union. Projects report on all five indicators – even if the target is zero. Thus, each of the programme's nine specific objectives contains output indicators that capture the extent to which the pooled resources of the transnational partnership have resulted in improvements to existing practices in participating organisations/regions. These outputs serve as a proof of concept, which validates the project's approach and justifies the duplication of the approach by other organisations.

As the projects progress, the Joint Secretariat has processed an increasing number of reports. Achievement of output indicator targets can be seen above.

This table also includes an analysis of achievement against programme-level targets. From these numbers, it is already quite clear that nearly all output targets had been overachieved by the end of 2019.

* This is the only way to make an explanation to the reference on page 26, 3.3. Table 3: An explanation for the indicator types I and O. I = Information. O = Output. These tables are pre-formatted by the SFC. Hence, no possibility to provide an explanation in the current set-up.

3. IMPLEMENTATION OF THE PRIORITY AXES

3.1. Overview of implementation

1. Thinking Growth: Supporting growth in North Sea Region economies

(This is a continuation of the text provided in the SFC under this heading):

Priority 1 results expected and achieved:

Call #	Project name	Result description	Quantified target	Achievement through 2019
1	CC	New transnational SME collaborations pursuing novel creative digital opportunities/solutions	30 collaborations	0
		SMEs providing new or more efficient creative digital services or engaging with new markets for these to support sustainability of business and turnover.	50 projects	0
1	REFRAME	Political and Consumer commitment to new products of food related SMEs	€ 2.750.000	€ 3.480.000
		Increase in average turnover for SMEs participating in an RCA	5%	0.01 %
		New and/or better equipped food related SMEs	160 new business activities	423 new business activities
1	SHINE	Spin-offs from healthcare organisations	3 Spin-offs from healthcare organisations using the transnational SHINE approach based on shared value creation	9
		Strengthen regional innovation capacity	3 implementations of the jointly development integrated Business model for complex partnerships in the healthcare economy	14
		Transnational networking in healthcare innovation	15 SME Transnational Trade contacts embedded in a strategic network platform	11
1	Lean Landing for Micro SME's	Increased turnover and/or export and/or employment	20%	10%
		Created long-term viable knowledge network	1 Soft landing network consisting of 6 NSR member countries	1
		Delivered concrete marketable new products, services or processes	160 partnerships that result in concrete new products, services or processes	157
2	In For Care	Increase economic growth by enhancing regional innovation demand	€0.5 million growth in turnover of SMEs supported by project	€0.045

		Improve the effectiveness of delivery of (healthcare) services by enhanced cooperation between formal and informal networks	10% increase in user experience and satisfaction	35%
		Improve service delivery through increased efficiency of networks between formal and informal service delivery	3% reduction of costs of operating budget per year	0
2	Inn2POWER	Number of participants successfully completing the MBA module (being organized using the methodology developed in the project) within the project lifetime.	70% of participants successful	The first two modules took place of the MBA pilot. All15 participating students succeeded the modules to which they participated. This means a 100% success rate.
		Number of SMEs that enter new transnational markets (in conreto this means delivering services or goods in a country where the SME was not active before)	50 SMEs	0
		Number of long-term (=LT) transnational SME collaborations. The LT intention involves minimum 5 years.	15 Long-term transnational innovative SME collaborations.	2
2	Like!	Deliver the next generation of smart services (with the use of data, digitization, co-design) to support increased customer value across the NSR	10% increased customer satisfaction of end users per new, redesigned or digitized service within the Like! project	0
		Deliver more cost-efficient services (for those services where process-changes occur within the Like! Project)	5% reduction in costs of those services which have been redesigned	0
2	Northern Connections	Enterprises in partner regions collaborating with innovation partners outside their own country	10	6
		Enterprises moving at least one step up on the technology readiness level	50	36
3	CORA	Enhanced level of local authorities' awareness around new telecommunication technologies and effective solutions for creating advanced digital environment in rural areas	50 local authorities being informed and trained	30

		Improved level of digital inclusion and public digital skills (local communities and enterprises) in rural areas	25% increase in share of citizens and enterprises using digital technologies and services in selected pilots	
		Mainstreaming CORA approach and developing a transnational rural community around digital inclusion	200 CORA rural community members (online community platform around rural digital inclusion)	173
3	GrowIn4.0	Collection of new and improved methods and tools, ready for publication to business support organisations and other relevant target groups.	3 tool collections	0
		Test and evaluation of I4.0 tools and methods, which will help SMEs to implement new business models, techniques or competences	80 SMEs	0
3	Inno-Quarter	More cost-effective start-up programmes	25% reduction of average costs per start-up programme	0
		Increased regional market uptake of innovations	Market uptake of 30 products, services that have been realised via the integral public service of the Inno-Quarter approach	0
3	PERISCOPE	New emerging Blue Growth markets	€50 million p.a. estimated market value potential	0
		New transnational SME collaborations pursuing novel Blue Growth market opportunities	10 collaborations	0
		Transregional Blue Growth innovation projects	2 projects	0
3	SCORE	Reduction in service provision costs using data-driven and open source solutions	10%	0
		Improvement in service provision of authorities in the sectors of sustainability, environment and urbanism from data-driven and open source solutions	20%	0
		Reduction in solution development time	30%	0
5	CUPIDO	Stronger cross-sector knowledge-based cooperation	8 long lasting partnerships, embodied in culture centers of excellences	0
		Increased culture business capacity	40 SMEs established	0
		Increased regional attractiveness	8 (qualitative perception indicator)	0
5	PROWAD LINK	Increased income from nature visitors / sustainable offers with focus on off-season periods.	€5 million	€15.000
		Increased investment in sustainability	€2 million	0

		Long-term engagement and collaboration of SMEs in local and transnational networks	1000 partners	14
5	RIGHT	Increased innovation capacity	75% of participating SMEs	0
		Increase in innovation expenditure	10% increase	0
		Planned innovation expenditure 2022	5% increase	0
7	BLING	Bling will significantly improve the body of knowledge about how to develop and deploy blockchain-enabled services in local/regional government	30 government organisations	0
		Deliver a more cost-effective government by reducing the cost of developing and accelerating the deployment of blockchain-enabled services	20% increase in cost effectiveness (of services changed)	0
7	FBD	Increased SME Innovation	120 SMEs	0
		Increased SME Productivity	120 SMEs	0
		Increased SME Growth	120 SMEs	0
9	COM³	Positive economic growth (employment opportunities) in the pilot regions	5%	0
		Increased share of new companies and growth of existing businesses	10%	0
		Increased share of rural enterprises using digital-tech locally and transnationally	15%	0
9	NorthTick	Optimise diagnostic strategies for Borrelia infections resulting in cost efficiency	10% improvement in health economic evaluation	0
		Reduce the number of patients with long-term complaints associated with TBDs	20% decrease in the number of patients with long-term complaints associated with tick-borne diseases	0
		Increase the vaccination coverage in relevant areas against tick-borne encephalitis	10% increase in number of vaccines doses sold in relevant geographic areas	0
11	EXSKALLERATE	Increased average turnover of manufacturing and construction SMEs in the North Sea Region through the application of industrial exoskeletons	10%	0
		Musculoskeletal disorders (MSDs) in manufacturing and construction SMEs reduced by exoskeleton use	75%	0
		Increase SME exoskeleton adoption rate	25%	0
11	I2I	Improved efficiency of delivery of public social services in order to improve social inclusion and counteract loneliness in NSR communities/neighbourhoods	10%	0
		Improved innovation capacity of the public sector to generate innovation	10%	0

		demand and innovative solutions to combat social exclusion		

The following provides an overview of the projects, their stages of implementation and expected results:

Create Converge: 9 beneficiaries (public and private) from 5 NSR countries (UK, DE, NL, SE, DK) are focusing on getting the visualisation and gaming technology sector to work together with a wide range of other sectors from architecture to science in order to deliver converging creative technologies (CCTs). The project targets all kinds of creative technologies like animation, screen, visual effects, virtual reality, augmented reality and games, and users beyond entertainment like fashion, energy, architecture, healthcare and screen tourism. In this way, the project aims to ensure that technology is no longer seen as a niche activity, or a sort of science fiction process, but as an integral part of business as usual, driving improvements in productivity, design and delivery.

By the end of 2019, the project published a new book "Storytelling beyond the Screen" produced in collaboration with the industry, hosted 60 industry events and exchanges, promoted the project at 40 industry events attended by at least 1000 delegates each, established a Transnational Lab across England, Denmark, Sweden and Scotland engaging 100 participants, mapped 30,000 companies and launched a new online network platform as part of the new website.

REFRAME: 15 beneficiaries (public and private) from 5 NSR countries (NL, BE, DE, DK, SE) are working together to establish a Regional Food Frame as an effective set of measures to scale up and accommodate urban food demands and regional supplies. The project stimulates large scale urban consumers (public & corporate) to utilize regional sourcing, to cooperate with regional suppliers and thus foster a regional innovative food frame. Reframe helps food related SMEs to find and develop smart specialization options, and to fulfill a role in a regional supply proposition. By November 2019, REFRAME has developed 72 smart specializations and support measures. The partners continued project implementation through 2019, organizing B2B fairs and networking events, helping helps food related SMEs to find and develop smart specialization options and to cooperate in a regional network.

Moreover, in 2019, the project published several best practice reports, which describe smart specialization strategies, and the partners have continued to work on a durable transnational training and learning network where SMEs can meet with different stakeholders where best practices are shared and results and insights of the project are disseminated. The project has already shown a positive impact on the turnover of local products supplied by the involved SMEs. Highlights are the ICA maxi stores in Sweden, which have increased their sale of regionally produced food by 24.2% from 2017 to 2018, an increase of 4.6M Euro in one year. The number of local producers selling products in the stores has increased by 59.7% in the same timeframe. In addition, the municipality of Groningen has committed to sourcing food locally in a political declaration, prompting more institutions to follow suit.

SHINE: 8 beneficiaries (public) from 3 NSR countries (BE, UK, NL) are working with integrated business models for the healthcare economy based on the regions' smart specialization strategy. The SHINE partners focus on an integrated solution based on a smart specialisation strategies and complex partnership structures of healthcare institutions, private sector suppliers (SMEs) and knowledge centres to improve regional innovation capacity and entrepreneurship.

The project is nearing its completion and focused in 2019 on creating impact by the use and dissemination of the developed products and the e-tool. The e-tool is now available to all stakeholders in the healthcare economy. In addition to its final conference, the project chose to organize a symposium to which national and regional policy makers and permanent representatives of the EU were invited. This symposium took place on 28 May 2019 in Brussels. The project informed policymakers and European organizations about the e-tool and the added value of setting up a smart specialization strategy in the region.

Lean Landings: 16 SMEs, incubators, business development and knowledge organizations in Denmark, Sweden, Norway, Germany, UK and The Netherlands have worked on developing and implementing a soft-landing network and concept between incubators, accelerators and partners in the North Sea Region to support the internationalisation efforts of micro SMEs and start-ups. The project was completed in June 2019 as the first VB NSRP project to do so. Overall, Lean Landing has succeeded in achieving its objectives. By focusing on co-creation and relationship building, the project has built a strong network with a sound physical and digital infrastructure.

At project end, 276 SMEs had participated in the project, with 169 SMEs having been abroad and having been presented with new business opportunities in new markets with profit enhancing partners, potential customers or business partners. Out of these, 157 SMEs have delivered concrete marketable new products, services or processes. In 2019, a large focus of the project was on the creation of a sustainable Lean Landing network post-project. The partners laid the groundwork for further collaboration after project closure, among other through the creation of trusting interpersonal relationships and the maintenance of their online platform to apply the Lean Landing methodology. The network is open for new partners to join. As such, the created network will continue as an active soft-landing network also after project end. In addition, the previously published Lean Landing blueprint will support similar initiatives and networks to help launch SMEs in foreign markets.

In For Care addresses the rising costs and need for health and elderly care in the North Sea Region by focusing on informal and voluntary care. The partnership, consisting of 16 beneficiaries (public and private) from 6 NSR countries (NL, NO, SE, BE, DK, UK), is using a quadruple helix model and co-creation sessions to improve the cooperation between informal and formal care, develop smart technological solutions to help voluntary and informal caregivers, and to foster informal care networks cooperation. In 2019, the project partners continued the implementation of the project.

Highlights of project activities include the Week of Young Informal Carers in Northern Netherlands, the launch of several (local) websites supporting informal care, the launch of an e-learning course on Health

Communication and the testing of several volunteer apps. In November 2019, the project organised its final conference. The project's activities have resulted in mind-set changes among SMEs, carers and the political level regarding the importance and potential of informal care and the project has managed to have the issue of informal care and voluntary assistance incorporated into several policy documents, thus contributing the policy changes on the local level. The project was completed in December 2019, the second VB NSRP project to finish. It is currently preparing its final report.

Inn2Power: 12 beneficiaries (public and private) from 5 NSR countries (NL, BE, UK, DK, DE) NSR regional clusters and other supporting organisations in the offshore wind industry are working closely together on the shared goal of bringing their SMEs across the borders to engage them in innovative business collaboration. In 2019, the project launched a Networking Tool for offshore wind cluster managers; the tool has so far identified 2000+ collaboration opportunities in the North Sea Region wind industry supply chains. It also launched the Offshore Wind MBA designed for SMEs in offshore wind energy supply chains. 75 students participated in the pilot. 1000+ youngsters participated in the Offshore Wind Escape Room. This led 50 organisations to join forces transnationally.

Like!: 10 beneficiaries (public) from 5 NSR countries (NL, DE, BE, UK, DK) are collaborating to develop a Local Digital Innovation Culture across the NSR, giving authorities & practitioners new skills and knowledge to deliver innovative services, to develop new ways to engage with communities, and to build more inclusive services. The Like! project addresses the themes local government are dealing with to improve customer service delivery.

In 2019 the project progressed steadily with a high number of pilots. For example, inspired by the Internet of Thinks (IoT) hackathon beginning of 2019, Vechta University held their Social Hackathon with students. Another example is the successful strategy to target internationals in Groningen, developed by the municipality of Groningen. The template is available for other cities or regions to use. Another 2019 highlight was the SC meeting in Suffolk, which was used as an opportunity to participate in the transnational DigiFest19 event and attracted around 100 visitors. The project's final conference was held on 3 October. The project partners collected their stories on use cases and pilots, collected photo material and prepared their first transnational magazines. These hard-copy magazines contain stories about Like!'s work and the experiences of people collaborating in the project.

Northern Connections is a project of 21 clusters, cities, regions and knowledge institutions from all 7 NSR countries working together to create innovation connections between their enterprises and clusters in the energy sector, to involve more enterprises in transnational innovation cooperation and to support SME internationalization. One of the key means to achieving this is the project’s Living Labs, where SMEs from across (and beyond) the North Sea region can pitch solutions to “challenge owners” - typically public sector organisations or larger companies. In 2019, the project organised four living labs attended by more than 450 people.

The project also organised a cluster training seminar in 2019, at which the clusters in Northern Connections and other clusters met and discussed cluster theory and capacity building and received advice on strategy and competitiveness in cluster development. In August 2019, the project launched

their Toolbox 2.0, based on the experiences at the Living Lab Events. The toolbox is a handbook for matchmakers containing methods and tools for how to successfully build bridges for both clusters and networks. The project's approach has been incorporated in several municipal strategies and the project has worked on realizing the power of “innovation procurement’, which enables cities to become drivers for innovation by focusing on the city’s needs rather specific, predefined solutions.

CORA: 18 beneficiaries from all seven NSR countries are targeting the rural digital divide in the NSR, focusing on digital infrastructure, services and skills, aiming to enhance the adoption of internet, digital technologies and e-services in rural areas and create an environment stimulating digital innovation. To create an advanced digital environment in the North Sea Region, the CORA project works on enabling local authorities to identify their common challenges and empowers them to exchange experiences and test innovative solutions and tools. In 2019, CORA partners further elaborated on the CORA digital transformation ecosystem model and, building on the CORA model and the training concept, launched the CORA training platform. This platform has made a number of courses available that can be used by local trainers to improve the knowledge and skills of local authorities, enterprises and communities. CORA also started the roll-out of their pilot activities in the partner regions. This was a focal point of the project through 2019, and throughout the year the project partners made significant progress testing digital skills, services, and infrastructure solutions in the pilot regions.

Growin 4.0: 15 beneficiaries (public and private) from 5 NSR countries (DK, DE, BE, NL and the UK) are involved in the project. The focus of the GrowIn 4.0 project is the common challenges manufacturing SMEs throughout the NSR face today. If the manufacturing industry in the NSR is to remain competitive, it needs to capture the potential for productivity and growth that Industry 4.0 has to offer. There is a profound need for an experience based and smart gathering of efficient methods, tools and knowledge to guide SMEs in their transformation towards Industry 4.0. GrowIn 4.0 aims to build strong competences and tools in the participating regions for the benefit of manufacturing SMEs.

The project was approved in June 2017. In 2019, the main work has been to test and evaluate the chosen tools in all partner regions. In addition, the project held their third interregional event in Gent. The event included training workshops, evaluation of the tested tools and visits at companies that have implemented Industry 4.0 concepts. The company visits provided participants with a good impression of how large enterprises use and work with Industry 4.0, which serves as good inspiration for the project's work with SMEs.

INNO-QUARTER: 12 beneficiaries (public and private) from 5 North Sea Region countries (BE, DE, DK, NL, SE) are involved in the project. Inno-Quarter provides a new way to short track innovation processes and improve the cost-effectiveness of startup support mechanisms and redirect funds towards sustainable commercialisation of innovations. The project uses European festivals as living labs where innovators within the North Sea Region can work on their product or service and go from idea to market launch very quickly. In 2019, several festivals opened their doors for start-ups to make use of the Inno-quarter model, such as the Breminale festival, the Welcome to the Village, MOIN Startup Camp, NorthSide and Hallifornia. The project also won the Golden Sticky Award from Brain Fuel for their invention of the "Feedback Coin", which an event visitor can earn if they give feedback to someone.

With these coins, the visitor can then buy products from regional start-ups. It was also awarded the 2019 North Sea Region video competition award during the North Sea Conference in June.

PERISCOPE: The North Sea Region's maritime industry is undergoing massive change. Enterprises in the supply chains need to innovate and act fast to keep up with current and upcoming demands. PERISCOPE seeks to establish a permanent innovation ecosystem in the North Sea Region. The aim is to foster transnational innovation partnerships for sustainable business development and exploit emerging blue market opportunities. This involves an entrepreneurial discovery process to build knowledge, valorise innovation ideas, and foster a Blue Growth ecosystem to stimulate action. 15 beneficiaries (public and private) from 6 NSR countries (DK, UK, NO, NL, SE, DE) are involved in the project. One feature during 2019 was that the project explored the potential of offshore vessel charging stations and usage of drones for smart inspection. Launched the Ocean Digital Innovation hub Neywork (ODIN), which will provide scalable and replicable market driven support to the development of new industrial DigiTech value chains with applications in the blue economy. Conducted a survey in the North Sea region's blue economy in order to better understand the climate for business innovation, completed by over 100 organisations. Another highlight during 2019 was PERISCOPE being recognized by the Norwegian government and mentioned as best practice in its new national Ocean Strategy.

SCORE: 13 beneficiaries from all 7 NSR countries are involved in the project. SCORE aims to improve the delivery of public services like parking, sustainable mobility, and water and waste management, by using innovative software solutions based on open data that are open sourced and replicable for other cities. To create these solutions, SCORE is building an engaged community of cities, developers, open data experts, and specialists in the domains of water, mobility, and environment. Together they will work in an open, agile and transnational way, where they put end-users, city operators and citizens at the heart of development.

The project was approved in June 2017. In 2019, the SCORE partners focused primarily on defining the level of interest and involvement in the co-development of open source solutions. Ten solutions in four different themes (environment, water, mobility and meta) are actively being co-developed within the SCORE project.

CUPIDO: 16 partners from 7 NSR countries (BE, DK, DK, NL, SE, UK and NO) are working to develop new business opportunities in the cultural and cultural heritage sector around the North Sea, to reinforce the economic position, competitiveness and social cohesion of local rural communities in areas with a declining population. The project intends to strengthen a viable and sustainable future economy, based on the social historic role and core qualities and values of the involved regions, cities and local communities. The project is mainly about commercialisation of the cultural sector that contributes towards creating vibrant, sustainable rural municipalities/communities that attract people to live, work

and enjoy life. It enables insight into new business approaches, stimulates the development of products and services, and aims at in average five new start-ups per area and support to existing SME's.

The project was launched in October 2018 with a kickoff meeting in Karlstad, Sweden and submitted their first report in 2019. The project is proceeding according to work plan. The CUPIDO partners have started several initiatives on regional, national and transnational levels. The project organized a meeting about "Power of Culture, the DNA of a region" in Haarlem, NL, which included storytelling and discussions about how characteristic cultural DNA of each area can contribute to job creation. After the transnational meeting in Haarlem the three knowledge partners jointly provided outlines for the perception study and developed questionnaires for interviews of culture actors and businesses in all partner regions.

PROWAD LINK: 14 beneficiaries from 6 NSR countries (DE, DK, NL, SE, UK and NO) aim to support sustainable economic growth in the North Sea Region (NSR) by engaging SMEs in nature conservation and unlocking the potential of nature heritage brands as a driver for jobs and sustainable regional development. The project will develop and test innovative tools and strategies for SMEs in the NSR in order to improve access to brands provided by natural heritage sites with economic value; enhance SME sustainability in the NSR; and develop innovative marketable offers and products in a co-creation process with knowledge partners.

The project was approved in June 2018. During 2019, the work on brand activation started by preparing the concept of a transnational brand activation guidebook following the NBBC approach (Nature-Business-Benefit-Cycle). The NBBC approach was also successfully implemented by a German SME developing new and improved transnational products (Wadden Sea World Heritage merchandising) for retailers in Denmark, Germany and the Netherlands. The signing of a Memorandum of Understanding (MoU) for a strategic “Trilateral Partnership in support of the UNESCO Wadden Sea World Heritage” was a major step towards the establishment of a transnational knowledge partnership covering Denmark, Germany and the Netherlands.

RIGHT: 14 beneficiaries (public and private) from all seven NSPR countries are working on strengthening the competitiveness and innovation support capacity of the regional economy, with a focus on in the blue growth and energy sector. In these sectors, subject to many disruptive innovations, the current level of education and competencies will not be able to meet the demands in the future.

The project is working on bridging this skills gap by developing, adapting and testing dynamic educational programmes to prepare a strong workforce with the necessary skills to support future growth and eventually to unlock NSR innovation capacity. In 2019, the project continued to build the necessary knowledge base for innovation opportunities and skill gaps in the blue and energy sector, and developed regional sector reports on "Mapping the skills gap", a transnational perspective report and pilot proposals, as well as held and attended several events. Now the project is working on further developing its pilots and starting their roll-out.

BLING: 13 beneficiaries from 6 NSR countries are involved in the project (BE, DE, NL, DK, SE and UK). BLING targets the use of blockchain technology for public service delivery. Blockchain-enabled systems will allow governments to deliver a range of new solutions and service designs that have the potential to redefine the relationship between governments, citizens and SMEs in terms of transparency, trust and data-sharing. The project builds upon the substantial investments by the EU, national governments, corporations, SMEs and wider networks to provide one of the first dedicated platforms to bring these tools and approaches into local and regional services.

The project was approved in December 2018 and held their kick-off in February 2019. The first external BLING event was organised in Gothenburg around the theme "The Future of Blockchain in the Public Sector" and was well attended by around 60 participants from government, companies and other stakeholders. The event featured keynotes from Sweden, Scotland and the Netherlands and the after movie "The Future of Blockchain in the Public Sector" attracted over 1800 views. In addition, the project published a booklet on "The Financial Emergency Brake" - a prototype of a government service that is built with blockchain-based technology. The goal of this service is to help citizens with timely paying off debts. It is a multi-stakeholder application that works under the principle of 'zero-knowledge' - which means no private data is shared. Implementation of the prototype is foreseen in 2020.

FBD: 12 partners from 5 Member States (BE, DE, NL, SE, UK) are working to help 300 SMEs in the North Sea Region to grow, increase productivity and innovate better by helping them to use data to drive up performance. The targeted SMEs are placed at the end of the value chain, typically located in hinterlands of larger innovation hubs. While critical to regional economies, their capacity for success is limited by insufficient access to and ability to analyse data - about finance, legal changes, and markets.

The project is addressing these challenges by designing and creating new 'Horizon Scanning Knowledge Transfer' (HSKT) hubs that will provide data-analytic tools and data-harvesting capacities to support SMEs in the health technology, light engineering and agri-technology sectors, and by evaluating and disseminating the experiences from HSKT and data analytics tools. The project started its implementation in January 2019. In 2019, the partnership laid the relevant groundwork for further implementation and for starting their pilots. Special emphasis was placed on developing the HSKT hub concept, creating the first tools and conducting an in-depth analysis of SMEs demands and pressures.

COM³: 20 partners from all seven NSR countries come together to address the lack of digitization of business in rural areas in the NSR. The project aims to develop an innovation framework for SMEs that is established and run by local and regional authorities as facilitators. It hereby focuses on the traditional agro- and regional product sector, rural tourism, and data-driven economy. It will develop the COM³ model for enhancing the tech-adoption of rural businesses, provide guiding measures and training solutions, develop connected hubs and matchmaking and mapping initiatives, which will be combined with a comprehendible set of regulatory, finance and security guiding measures and training. The developed solutions will be tested in cooperation with SMEs in nine pilots. Overall, the project will provide the structures needed to protect vulnerable small businesses and create nine tech-enabled and tech-branded rural areas in the NSR. The project was approved in June 2019, and their first report is expected in 2020.

NorthTick: 11 partners from all seven NSR countries aim to jointly address the challenge for health services and authorities to be updated on optimal strategies for prevention and management of tick-borne infections, to keep up with newer tick-borne microorganisms and diseases, and to give adequate information to a concerned public. Evidence-based and cost-effective strategies for control of tick-borne diseases are currently the weakest chain in surveillance. Tick-borne diseases are of high concern because of the emergence of ticks carrying disease-causing microorganisms in new areas of the NSR and the number of persons afflicted by tick-borne diseases is on the rise. The reasons for this are complex and may include climate change, habitat fragmentation with increased urbanisation and other human influences on the eco-systems.

The project was approved in June 2019 and organised their kick-off in October 2019. The first report is expected in 2020.

EXSKALLERATE: The EXSKALLERATE partnership connects 13 beneficiaries from 5 countries (NL, DE, BE, UK and DK). The project focuses on manufacturing and construction workers that undertake physically strenuous activities which increase the risk of health problems, disability, and sick leave, leading to lower job attractiveness and job candidate scarcity. The unfilled job openings slow growth and competitiveness especially as SMEs in the North Sea region are unaware of available solutions via exoskeleton adoption. The project tackles these issues by focusing on accelerating the adoption of exoskeletons into construction and industrial manufacturing SMEs. Exoskeleton use could alleviate 10-40% of muscle peak loads for passive exoskelletons, and up to 80% for active exoskeletons.

The project was approved in December 2019 and will organise their kick-off meeting and first activities in 2020.

I2I: 12 beneficiaries from all seven NSR countries work together to enhance innovation in social service delivery to improve social inclusion and counteract loneliness in NSR communities and neighborhoods. These challenges have a negative impact on social cohesion and high hidden socioeconomic cost, but public authorities in the region are not yet adequately able to deal with them.

To mitigate this, the project will increase the capacity of public authorities to develop innovative services and provide them with new tools and solutions. It aims to do this by improving cross-sector collaboration using a quadruple helix user-centered approach working with service-/co-design methods. It will develop and test new services and technologies and make existing public services more integrated in a quadruple helix approach and co-creation sessions. These solutions will eventually be brought together in integrated methodologies. Focus is thereby on cost-effective preventive care, in addition to care and cure. The project was approved in December 2019, and their first report is expected in 2020.

2. Eco-innovation: Stimulating the green economy

(This is a continuation of the text provided in the SFC under this heading):

Priority 2 results expected and achieved:

Call #	Project name	Result description	Quantified target	Achievement through 2019
1	Dual Ports	COST REDUCTION by concretely implementing tangible low carbon solutions in DUAL Ports Regional Entrepreneurial Ports	20% DUAL Ports DECARBONISATION PROGRAMME COST REDUCTION	0
		CARBON REDUCTION by concretely piloting and/or adopting tangible low carbon products and green technologies that improve utilities in DUAL Ports Regional Entrepreneurial Ports	12% DUAL Ports DECARBONISATION PROGRAMME CARBON REDUCTION	0
1	SCALE-UP	25 Green solutions piloted / demonstrated from the meet the buyers event	These products, services and processes will expect to result in a 10% reduction in carbon emissions	18
2	COBEN	Climate improvement	18 CO2 reductions – Number of NSR communities exhibiting reduction in CO2 emissions up against the 2016 values due to adoption of COBEN's climate-energy models by the year 2030.	58
		Civic energy uptake	7.5% of the North Sea Region area served by civic energy due to the adoption of one of the COBEN Civic Energy Business Models by 2030	8
3	Smart-Green	Productivity and quality	5 days – reduction in production time (average)	4
		Energy saving with respect to heating and supplemental light	15% reduction in kWh and gas (m3)	5
		Energy efficiency increase	10% of first data of energy efficiency per produced unit	4
3	BIOCAS	CO2 reduction	608 CO2 reduction realized by processing biomass streams by the developed BCA's, new techniques, and products during the project period - * this is under revision	0

		Biomass transformed	26 000 Tonnes waste, biomass transformed to resources or used for new applications till project end.	101
3	2IMPRESZ	Increased awareness in schools on energy and energy saving	50% % increase of students, teachers and other personnel that are aware of the concepts of energy and energy saving	0
		Increased level of energy saving in existing school buildings via 2IMPREZS energy saving programme.	30 % of fossil derived energy saved (against baseline value)	0
		Decreased environmental footprint of existing school buildings by CO2-reduction via 2IMPREZS energy challenges concept	7320 tonnes of CO2 related to energy consumption for heating and electricity	0
3	SalFAR	Energy per year needed for pumping out saltwater back into the sea to keep the farmland saltwater free.	Reduction of energy consumption by 20% by allowing more seawater in for saline farming methods.	0
		Reduction of freshwater consumption in order to improve resource efficiency	Reduction of fresh water use by 10 % by end of the project.	1%
5	Carbon Farming	Enhanced uptake of carbon farming in the agri-food chain to reduce carbon emissions above ground	10,000 Tons of Co2 (equivalent) sequestered in farming ground	0
		Optimise the application of carbon sequestration techniques to increase the effects and impact.	20 % improved soil quality in structure, water holding, biology	0
		Increased awareness of carbon sequestration as a technique to reduce carbon emission in the food supply chain and as a –regional- option to compensate for carbon emissions.	10 economic actors in the food supply chain (farmers, producers/processors, retailers, consumers) and third parties (i.e. outside the food supply chain)	0
5	DeComTools	Carbon reduction in offshore decommissioning operations	25% By piloting innovative processes and services that improve logistical and technological concepts for offshore dismantling and recycling operations BASELINE: see C.2.1 Project overall objective	0
		Cost reduction in offshore decommissioning operations	20% By piloting innovative processes and services that improve logistical and technological concepts for offshore dismantling and recycling operations BASELINE:	0

			see C.2.1 Project overall objective	
		Raise know-how/expertise capacity in offshore decommissioning operations	1250 Raise know-how/expertise capacity in offshore decommissioning operations	0
5	INDU-ZERO	Cost reduction	Cost reduction of 50% for the production of renovation packages. The automation production process will reduce 50% of the cost compared to current manual production of renovation packages	0
		Reducing NSR environment footprint	The showcases will reduce CO2 in the NSR region by 21,6 kton Co2 during the project. Adoption of INDU-ZERO will result in NSR CO2 reduction of 79 Mega-tonnes (Mt).	0
7	ACCESS	Reduction of smart energy grid project costs	20% Lower costs for smart grid development using upscaling methodology.	0
		Reduction of CO2 emissions	25% Average CO2 emissions reduction per city related to the pilots. General baseline: European average carbon intensity electricity*electricity consumption.	0
		Reduction of smart energy grid project development time	30% Reduced time for the set-up and implementation of smart grid demonstrator projects.	0
7	ProCirc	CO2 % saved per pilot	20%	0
		% Virgin materials avoided per pilot	20%	0
		% of waste prevented per pilot	25%	0
7	EMPOWER2.0	Increased uptake of renewable energy by households	1% 14000 households. 50% of their electricity consumption generated either by generation on their own building or on a site into which the household has invested and 100%	0
		Reduction of carbon dioxide emissions in North Sea region as result of transition to renewable energy	14.700 tonnes – Average CO2 reduction per household is 2.1 tonnes with transition to 100% renewable energy. 2.1 tonnes times 0.5 times 14000 households make	0

			14700 tonnes total at the end of the project.	
7	OESA	Increased ocean energy capacity deployed within the North Sea Region	30%	0
		Reduced CO2 emissions in the North Sea Region	102.000 Tonnes of reduced CO2 emissions	0
7	SoilCOM	Utilized amount of water, pesticides and inorganic fertilizers	-5% L/ha per farm or enterprise (water, pesticides); Kg/ha per farm or enterprise (fertilizers)	0
		Crop productivity	10% Kg/ha or pieces/ha	0
		Utilized amount of quality compost	20% Kg/ha at farm or enterprise	0
9	NON STOP	Energy and pollution reduction	10% reduction in port energy consumption and pollution by smart digitalized management systems	0
		Time reduction	10& reduction of the time spent for a pre-set defined port maintenance / operation by introducing smart management platforms	0
9	WASP	HFO Heavy Fuel Oil / Marine Diesel Oil saved with Wind Propulsion Technology (WPT)	Measuring starts with WPT in operation. WASP performance indicators will be used. Measuring methods will be aligned with EU Emission Control Area policies and the Energy Efficiency Design index.	0
		CO2 reduction realized during the project period with WPT in operation	Measuring starts with WPT in operation. WASP performance indicators will be used. Measuring methods will be aligned with EU Emission Control Area policies and the Energy Efficiency Design index	0
		KWH generated with WPT's in WASP during the project with WPT in operation	Measuring starts with WPT in operation. WASP performance indicators will be used. Measuring methods will be aligned with EU Emission Control Area policies and the Energy Efficiency Design index	0
11	CIRC-NSR	Further adoption of CE initiatives and governance models	Through pilots as well as the further processes leading to the improvement of the	0

			governance set-up in the piloting regions	
		CO2 reduction	Tons of CO2 annually saved	0
11	STRONGHOUSE	50 Kiloton CO2 emission reduction	A substantial reduction of CO2 emission of their home	0
		100 million-euro investment in the reduction of CO2 emission of homes in the North Sea Region	Through the instruments shared, developed and disseminated by Stronghouse 0homeowners and neighbourhoods invest substantially in the reduction of CO2 emission of their home	0
		15.000 homes with substantially reduced CO2 emission	Reduction of the environmental footprint of their homes through energy effiency and/or renewable energy sources, after energy renovation	0

The following provides an overview of the projects, their stages of implementation and expected results:

Dual Ports aims to decarbonise regional entrepreneurial ports resources through a shared eco-innovation port programme that minimises their environmental footprint. It is a project whose partnership consists of 16 public authorities and companies from six North Sea Region countries – Belgium, Germany, the Netherlands, Denmark, Sweden and the UK. Together they are exploring how to enhance ports' energy efficiency and performance, facilitating low carbonisation at reduced cost, with added value in terms of knowledge and investment. During 2018, their extension request was approved, adding 7 new pilots that will continue to produce carbon reduction by piloting and / or adopting tangible low carbon products and green technologies that improve utilities in ports by 10%.

Activities, research and insights in 2019 highlighted that ports are more than logistics operators. They also function as energy hubs with the opportunity for multi-energy production using the ports location, infrastructure and surrounding nature. Furthermore, in close cooperation, the SME ports, industry and research institutions within the Interreg DUAL Ports project have continued to work intensely on exploring the possibilities of each pilot project and support responsible growth. Innovation and technology development are growing, and it is continuously revealing the many opportunities of the sustainability of port operational and administration resources for the future.

SCALE-UP (Supporting Clean-tech innovators in Accessing Large Enterprises through Unlocking Procurement) helps clean-tech SMEs bring 40 green services and products onto the market. It is a project whose partnership consists of 8 public authorities and companies from six North Sea Region countries – Belgium, Sweden, Germany, the Netherlands, Denmark, and the UK. Through targeted 'Meet the Buyer' events, SMEs can pitch their innovative concepts to procurement officers of large

buyers. The project has contributed to moving towards decarbonisation by accelerating the uptake of new technology aimed at reducing CO2 levels.

So far 18 success cases have been implemented, leading to an average of over 30% CO2 reduction. Over 30 solutions have been demonstrated in relation to climate change adaptation. In total the project has triggered nearly €29 million in investments. Most of these results were presented in 2019. Efforts in this area must be intensified for the North Sea Region to become climate neutral.

COBEN, which stands for 'Delivering Community Benefits of Civic Energy', is a project whose partnership consists of 11 public authorities and institutions of higher learning from all countries around the North Sea Region countries. Together they are exploring how to improve climate and civic energy uptake. This is mainly being done by facilitating transnational cooperation on local energy promotion within a collaborative civic energy network.

The mid-term conference in 2019 concluded with the unanimous adoption of the European Commission's invitation to set up a European Civic Energy Forum. Keynote speaker Brendan Devlin of the European Commission's DG Energy had urged more initiatives like COBEN and he proposed that COBEN write a European handbook providing examples of civic energy implementation. A permanent European Civic Energy Forum would allow Europe to capitalise on COBEN's results and promote community energy on a large scale. Another highlight during 2019 was that all pilots are now up and running. The project was also granted an extension in 2019 taking onboard more beneficiaries from Belgium and Sweden.

SmartGreen 12 beneficiaries from six NSR countries (Germany, Belgium, the Netherlands, Norway, Denmark and the UK) are working together to reduce the energy use, increase the energy efficiency and optimize the productivity of the North Sea greenhouse industry. The partners are using Big Data analysis of climate and production data to pinpoint unnecessary energy use and to improve the climate control and combine it with research and practical demonstrations in commercial greenhouses.

In 2019, the project partners have continued with the implementation of the project. Highlights include; the setting up of a live data-feed in order to deliver a constant live data flow for partners working with big data; the design of a horticultural ontology that describes the concepts and their semantics in this domain; experiments on the intelligent use of light and the development of a novel open source data driven decision support systems for the prediction of growth, yield and production in greenhouses producing tomatoes, ornaments and other species. Overall, the project has delivered interesting results in terms of cloud computing, data management and ontology development in 2019.

The main aim of **BIOCAS** is to realize concrete Biomass Cascading Alliances (BCA's) for a more sustainable conversion of biomass. 18 beneficiaries from 4 countries (NL, FL, D and DK) are involved. The project connects 18 regional initiatives around technologies, processes, and businesses for the conversion of biomass streams. In 2019, the Ritsumasyl Biobridge designed by the BIOCAS project won the Dutch Circular Award and the Lighthouse Award.It was also nominated for the Infratech

Innovation Award and the Dutch Building Prize. This circular bicycle bridge is made of 100 % biobased composite material including flax and resin.

2IMPREZS empowers school children at 141 schools in the North Sea Region to take a leading role in reaching 30% energy savings, reducing emissions by 7,320 tons of CO2. 10 beneficiaries from 5 countries (NL, FL, D, DK and UK) are involved. The project recognizes the strategic role of school kids who are considered 'agents of change' and are involved in all core activities, from conducting energy audits for school buildings to assess their schools' current energy situation and designing a plan for improvements and energy savings. Each school nominates 'Energisers' amongst the students and engages all school children in interactive events. More than 20,000 students participated in the project's Energy Challenges campaigns over the years. The project won Interact's 'project slam' at the 2019 European Week of Regions and Cities.

SalFar aims to promote resource efficiency by (re)using degraded farmland and reducing freshwater consumption. The partnership consists of 15 beneficiaries from all countries around the North Sea Region. Ten open field labs will be set up in each participating region to demonstrate innovative methods of farming on saline soil with natural adaptation processes in plants and crops.

2019 has demonstrated that great learning process is on-going, and it has led to even more test fields which are already generating results. For instance, in Germany they have been able to harvest Salicornia (which is a genus of succulent, salt tolerant flowering plants that grows in salt marshes) 4 weeks earlier than usual. Field trials are taking place in Norway, UK, Texel, Denmark, Germany and Sweden and next year SPNA will also be conducting field trials.

Multidisciplinary approaches and technologies are needed to solve the challenge of salinization of agricultural land. This was one of the conclusions of the international Saline Futures Conference in Leeuwarden, 10-13 September 2019. The conference gathered over 200 researchers, farmers, entrepreneurs, and policymakers from all over the world to present, discuss and share knowledge and experiences on how to deal with increasing salinization of farmland due to climate change and rising sea levels. Over 30 nationalities were represented at the conference including participants from Australia, Bangladesh, Egypt, India, Iran, Morocco, Russia, Saudi Arabia, South Korea, the USA, and many EU countries, which shows that salinization, degraded farmland and food security are growing global problems. Finally, on 30 January 2019 the Swedish Crown Princess Victoria visited the University of Gothenburg, which is one of the beneficiaries of SalFar.

Crown Princess Victoria visited the Department of Biological and Environmental Sciences to get more information on microplastics in lakes and rivers, but she also learnt about the climate adaptation project SalFar. During the visit she had an hour-long discussion about environmental problems and possible solutions with researchers from the University of Gothenburg. It was during this discussion that she was informed about soil salinization and the global consequences. Henrik Aronsson, Head of Department and Professor of Plant Molecular Biology at University of Gothenburg also handed over the information

leaflet about SalFar to Crown Princess Victoria describing its innovative methods of costal agriculture across the North Sea Region by setting up field labs in each partnering country.

Carbon Farming 7 beneficiaries from four NSR countries (Belgium, Germany, Netherlands and Norway) are developing new and innovative farming methods to reduce the carbon footprint of agriculture in the North Sea region. More specifically, the project is using carbon sequestration methods, which previously have been scientifically validated, but for which the potential for up-scaling and demonstration in practical farming has not yet really been exploited. To mitigate this, the project conducts a feasibility study on the economic viability of carbon sequestration methods for farmers in the NSR and tests and validates economically viable business cases for CS in the whole agri-food chain.

In 2019, the project reached over 500 landowners in their awareness-measuring campaign. It worked in developing an inventory of carbon farming techniques, which shows a concise overview based on scientific literature. The partners have also been working on an overview/best practice report of business models for the economic and ecological viable adoption of CS. In May 2019, the project launched its first call for participation for calls for participants in Carbon Farming show cases and in September, it organized a co-creation brainstorm session on potential incentives for carbon sequestration.

DeComTools 13 beneficiaries (private and public) from six countries (BE, DE, DK; NL, NO and UK) are involved in the project. The partnership aims to develop a sustainable approach to the offshore wind farms' end of lifecycle. Decom tools is doing this by devising and developing eco-innovative processes of decommissioning and repowering offshore wind parks, and by combining innovative and already existing technologies in the areas of logistics, safety, ship design and up-/re-cycling. These are validated by demonstration pilots.

In 2019, the partners continued project implementation, carrying out desk research on process and logistics optimisation and on offshore wind turbines´ composition, dismantling requirements, and recycling/re-powering options. The project designed financial, strategic and pre-operative planning for specific expert workshops and pilot tests in order to be implemented at a later stage. The partners also tested Tecnomatix Jack-Software for Human Modelling to simulate decommissioning operations and crated a 3D-CAD-Model of an Offshore Wind Turbine to virtualise the approach for partners and interest groups. The project also organised local workshops with external partners to map their roles, responsibilities, capabilities, needs and challenges within decommissioning programmes. Lastly, the project raised awareness on the project´s objectives and interim findings in the offshore wind community.

INDU-ZERO was approved in call 5 in June 2018. 15 organisations from six countries (FL, D, NO, NL, SE and the U.K.) are working together to design a blueprint for a factory that can produce these renovation

packages at an industrial scale. INDU-ZERO is taking a bold approach to tackling this challenge: The project is preparing a blueprint for smart factories delivering net zero energy renovation packages at industrial scale and at half the cost. The goal is to quickly provide sufficient capacity to realise affordable energy renovation at scale. In 2019, the project developed concepts for the production of walls, roofs, logistics, and factory industrial processes. The solution includes the ability to choose customised cladding. It also selected three renovation packages covering terraced houses, detached houses, and apartment buildings. Finally, the project met great interest at European conferences including Housing Europe and Sustainable Built Environment (SBE). They joined a meeting of the EU Thematic Group 1 on Construction in November 2019.

ACCESS aims to advance the coordination of future low-carbon energy grids development in cities by increasing the capacity of governments to scale up and plan investments in low-carbon smart grids, thus contributing to a successful transition of the NSR's energy systems. A transnational and transferrable Upscaling Framework will be developed for supporting cities in systematically upscale their smart grid projects with reduced costs and time. The project's aims to reduce CO2 emissions in smart-grid pilots by at least 25% through the uptake of resource-efficient, sustainable technologies and processes enabling increased renewable energy generation, reduced consumption, and optimized management. 10 beneficiaries (public and private) from five countries (NL, SE, FL, UK and DK) are involved in the project.

In 2019, local authorities have focused on the preparation of the four smart grid pilots for testing innovative low-carbon technologies, services and models that could be upscaled and adopted by other cities across the NSR area. The pilots are looking at various areas, for instance at smart energy mobility hub solutions and at different energy solutions for the parking facility pilot.

ProCirc brings together 8 public and 3 private sector organisations from six countries (NL, FL, SE, UK, DK and NO). It is a transnational project that are set-up to experiment, implement and learn how circular economy and procurement can benefit the region. To fully benefit from circular opportunities and to contribute to the international development of circular economy, ProCirc will conduct 30 pilots to demonstrate procurement opportunities. Each pilot aims to reduce 20-25% raw materials, waste and CO2 emissions. Insights and tools regarding specific sectors like construction, furniture and ICT will be disseminated in the North Sea region by creating an active transnational network on the topic.

From December 2018 to August 2019, the project has initiated its first activities: Including project kick off, identification and confirmation of the first pilot projects (circular procurements), a risk management plan, identification of the first Communities of Practice and existing tools and methods for the circular procurement toolbox.

EMPOWER2.0 15 partners from different sectors and from 4 NSRP countries (BE, DK, NL and UK) are addressing entry barriers to citizen-led energy transition in the NSR. Citizens encounter significant challenges (governance, technical, legal, financial) to play an active role in the energy market. Empower

will create a framework to remove these barriers through empowerment of "prosumers" (citizens or social structures that produce as well as consume energy) and local energy communities.

In 2019, the partnership took up project implementation. It worked on the development of a common, transnational framework of definitions, build a methodology to help identify and classify stakeholders and target groups as well as elucidate and classify challenges and best practices. The project took up its communication activities, and partners were represented at various venues and meetings. In November 2019, partners from Haarlem and Zaanstad jointly organized a first B2B meeting. Moreover, the project has started to work on the development of its pilots.

OESA brings together 13 beneficiaries from 6 NSR countries (DE, NL, UK, SE, NO, DK) to create an accelerator programme for SMEs in the marine energy sector. OESA partners work together to develop new services to support accelerated deployment of ocean energy parks in NSR. This is the first project building an alliance between the Nordics and North-West Europe. The partnership will realise the deployment of 5 pilots during the project that will increase the installed ocean energy capacity with 30% and reduce 100.000 tonnes CO2 emission. In addition, OESA engages policy makers, offshore companies and investors to realise even more deployments.

During the kickoff in February 2019 all parties had the opportunity to start working collaboratively on the problems which the developers are currently facing in the development of their technologies and the deployment of the new pilots.

SoilCOM brings together 12 beneficiaries from 5 NSR countries (DE, DK, NL, BE and UK) to develop and implement new quality compost products for specific uses, as economically and environmentally effective soil improvers, thereby increasing the demand for compost and enhancing the recycling of biological waste suitable for composts as part of the growing circular economy. The project also involves a governance element and wants to provide NSR authorities involved in biological waste, compost and water management with tools to regulate and administer the sector.

In 2019, initial work has been set-up. Compost has been sampled at enterprises for analysis for quality of the set-up of the indicators. Controlled and long-term field experiments have been conducted and a waste inventory and a collection of knowledge on current regulations have been initiated.

NON STOP brings together 8 beneficiaries from 4 NSR countries (DE, NL, BE and DK) to implement a green smart digital transition in the management of NSR ports of regional importance. This will be achieved by introducing, testing, and monitoring intelligent technologies and processes in the storage, deployment, sharing and transmission of data related to marine conditions, sea/landside operations and energy production / consumption / distribution in ports. The goal is to reduce by 10% the time of pre-defined logistical / maintenance port operations and lower by 10% the port energy and pollution

by building on collaborative expertise and joint practice. The project was approved in June 2019 and is expected to submit their first report in 2020.

WASP 15 partners from all seven NSR member states are working together to accelerate the uptake of hybrid wind assisted ship propulsion (WPT) on sea in the North Sea Region. WPTs are becoming increasingly economically viable, are future proof and offer great potential for fuel and emission reduction. However, at present, WPT operational expertise is weak and fragmented among different players in the NSR. To mitigate this, the project will deliver third party validation of capital and operational performance to encourage market uptake, set up and connect WPT sea trials and improve WPT concepts. With this, the project will enable WPT market penetration and contribute to greener NSR sea transport. The expected results will be considerable CO2, SOx, NOx emissions reduction as well as a reduction of heavy fuel oil/marine diesel oil consumption. The project was approved in June 2019. The first report is expected in 2020.

Circ-NSR 9 beneficiaries from 6 countries (Germany, Belgium, the Netherlands, Norway, Denmark, and Sweden) aim to bring the North Sea Region on a path to a stronger Circular Economy by supporting better Circular Economy governance structures. They are addressing the fact that at this stage, there are many fragmented initiatives without an overview of the mechanisms and conditions for securing uptake of successful pilots into mainstream policy and wider governance framework. To mitigate this, the project will develop an overview of existing initiatives to uncover enabling conditions and causal mechanisms for success. These will be validated through eight pilots. From both streams of activities, findings are captured in a governance transfer centre including an online toolbox targeted at municipal, regional & sectorial actors to inspire them for adapting practices and improve Circular Economy governance structures. The project was approved in December 2019. Its first report is expected in 2020.

Stronghouse 14 beneficiaries, 5 sub-partners from 6 countries (Germany, Belgium, the Netherlands, U.K., Denmark, and Sweden) aim to change the attitude and behavior of individual homeowners and neigbourhoods. Stronghouse will adjust and redesign these measures based on a better understanding of the drivers that motivate homeowners – individually and on a neighbourhood level - to invest and reduce the environmental footprint of their homes. Together these redesigned measures support homeowners in their journey from initial interest, to planning, financing and contracting energy renovation. The project was approved in December 2019 and is expected to submit their first report in 2020.

3. Sustainable North Sea Region: Protecting against climate change and preserving the environment

(This is a continuation of the text provided in the SFC under this heading):

Priority 3 results expected and achieved:

Call #	Project name	Result description	Quantified target	Achievement through 2019
1	BwN	Climate change resilience increase at target sites.	10 %	17 %
		New catchment areas managed using shared BwN techniques as a result of the effectiveness of project demonstrations, based on Building with Nature principles.	550 km	10938 km
		New coastline plans using shared insights, designs and demonstrations of the effectiveness of the methods of Sand Nourishments, based on Building with Nature principles.	700 km	0
1	FAIR	Increase in the number of functions of the targeted infrastructure in comparison to current mono functions	2 # of functions	0
		Reduction of life cycle costs of flood protection infrastructure	5 % decrease	0
		Increase in the lifespan of targeted infrastructure	5 % decrease	0
1	NorthSEE	Reductions of time spent on application procedures for interconnectors and transboundary EIA procedures	36 Months	0
		Avoidance of stranded investments for application of wind farms in designated shipping routes, and of sunk costs for development of unsuitable environmental areas	60 Mio. €	0
		Cost savings by exchange of data	250.000 €	0
1	TOPSOIL	Water quality. Improvement of quality by 20%.	20%	9%
		Water quantity. Improvement of buffer capacity by 20%.	20%	9%
1	WaterCoGovernance	Long term cross sector commitment (sustainability) to co-governance in pilot areas	3 years	0
		Increased return on public investment by adopting participatory/ co-governance	20 % increase	20 % increase

		approaches to management of NSR ecosystems		
		Improvements to the environmental status of pilot areas	15 % increase	10 % increase
2	BEGIN	Reduced probability of floods from extreme rainfall	30 %	35,16 %
		Reduced expected impact from flood events in NSR by 2020	7 Mio. €	6.1 Mio. €
		Increased long-term financial performance of investments, including social, environmental and financial benefits	200 Mio. €	143.4 Mio. €
2	FRAMES	Resilient authorities: Increase the awareness, capacity and policy drivers for public authorities and practitioners to taking action to reduce the impact of flooding	2 scale increase from baseline; aggregated improved resilience level for 13 flood prone areas measured by increase of average capacity on a scale from 1 to 10	4
		Resilient areas: Achieve an improved level of resilience against the impact of flooding in areas	2 scale increase from baseline; aggregated improved resilience level for 13 flood prone areas measured by increase on 1 to 10 scale	5
		Resilient communities: Achieve an improved level of resilience against the impact of flooding in at-risk communities	432 stakeholders and 2800 inhabitants have an increased level of self-efficacy and resilience in case of flooding through empowerment of inhabitants and sustainable coalitions	0
2	NuReDrain	Direct reuse of P-containing filter material as fertilizer	20 %	30 %
		N removal in demonstration sites	50 %	60 %

		P removal at demonstration sites	70 %	60 %
2	PARTRIDGE	Increased capacity to improve farmland ecosystems across NSR	80 %	40 %
		Farmland ecosystems improved	30 %	10 %
2	Sullied Sediments	Reduced economic cost of disposal of dredged material	10 %	0
		Reduced level of selected watch list chemicals in outflow from waste-water sites piloting spore technology	25 %	0
		Reduced level of selected watch list chemicals in inflow to waste-water sites in catchments piloting behaviour change activity	20 %	0
3	CANAPE	Carbon captured	1640 tons of CO2-eq/year	0
		Profit per Hectare	2089 €	0
		Reduction in flood risk	228600 cubic meters of water per year	0
		Conservation Saving Achieved per hectare	500 €/ha	0
3	CATCH	Reduced costs from flood events due to extreme rainfall	20 %	0
		Reduced probability of floods due to extreme rainfall	30 %	0
		Increased awareness of the need to accelerate the formulation and execution of water sensitive climate adaptation strategies in midsize cities	1000 people	716 people
3	JOMOPANS	Promoting ecosystems services: Proportion of the North Sea for which underwater noise can be managed	90 %	0
		Promoting ecosystems services: Potential for management to reduce the area adversely affected by underwater noise. The capacity to identify and validate measures to reduce the area adversely affected by ambient noise will be built	10 %	0
		Cost reduction	50 %	0
5	IMMERSE	Increased potential delivery of measure benefits, resulting from advances in measure development during the project	25 %	0

		Increased stakeholder acceptance of measure designs and subsequent implementation	25 %	0
5	North Sea Wrecks (NSW)	Increased capacity of key stakeholders for sustainable & efficient management of the North Sea, reducing the risks associated to wrecks, munitions, related pollution and hazardous substances for human-being, life species and blue growth options	14 uptake of management measures by key stakeholders as a part of a holistic assessment of mitigation options for shipwrecks and dumped munitions during user testing (2-4 scenarios x 3 locations)	0
		Improved coordination between the relevant NSR actors and stakeholders, especially for cross-border and transnational agreements, such as OSPAR or providing relevant portals (EMODnet) with decision-relevant data	5 number of national policies (regulations, initiatives, strategies) influenced by the project thanks to the input provided (1 by participant country (NO, DK, DE, NL, BE))	0
		New knowledge used by stakeholder organisations about risks of hazardous substances – better access to knowledge & information: 1. improved access to existing data, 2. providing missing eco-toxicological data 3. applying data for decision support	20 number of square miles with sensitivity indicators, where the inventory and comparable data about risks of hazardous substances in selected/ representative North Sea sub-regions are used (4 pilot studies x 5 square miles = 20)	0
7	C5A	Increased number of multi-benefits (functions / services / outcomes) delivered	3 No. of additional functions of the targeted	0

			infrastructure / system	
		Improving long-term risk reduction for less whole life investment	5 Benefit-Cost Ratio (BCR) of the investment in flood protection, in percentages of increase	0
		Increased adaptability of flood management approaches	3 No. of additional adaptation pathways available to the decision maker to choose from	0
7	GEANS	Improved transnational environmental health assessment	7 competent authorities	0
		Increased time-efficiency	60 %	0
		Cost reduction	40 %	0
9	BEESPOKE	Increase in crop yield or quality on the demonstration sites	10%	0
		Increase in pollinator diversity compared to the baseline on each demonstration site	10%	0

Below is an overview of the projects, including their overarching objectives and main activities. Please note that 17 out of 18 projects had reported on their activities and finances by the end of 2019. A report from BEESPOKE is expected in 2020.

BwN has 13 beneficiaries and two co-beneficiaries from seven countries (The Netherlands, Norway, Germany, Sweden, Flanders, Denmark, and the UK). The overall objective of the project is to make coasts, river estuaries and catchments of the region more adaptable and resilient to the effects of climate change. To achieve this, aim the project wants to demonstrate "Building with Nature" solutions that utilize natural processes to deliver flood risk and coastal erosion management whilst enhancing ecosystem related services. In 2019 the national level analyses on the coastal works was completed and the project started working on the transnational co-analysis of the Eastern North Sea sand nourishment data. The results of this work were presented at highly ranked international science conferences. Also, a report was developed by the project presenting best practices, frameworks, and guidelines about different nature-based solutions, recognized by relevant authorities and the media too. Several partners of the project cooperated with United States Army Corps of Engineers and British Environment Agency on a Natural and Nature Based Features Handbook, which will include several examples from the project. The project's progress was well communicated by project partners and was widely disseminated through its website. The Building with Nature project was also one of three North Sea Region projects presented at UN Climate Action Summit, New York, in September on the use of the

power of nature to reduce climate impacts while creating additional benefits for society, which underlines the global interest in the project and its nature-based approaches.

FAIR has 12 beneficiaries and one co-beneficiary from seven countries (The Netherlands, Norway, Germany, Sweden, Flanders, Denmark, and the UK). The overall objective of the project is to reduce flood risk across the North Sea region by demonstrating climate change adaptation solutions to improve the performance of flood protection infrastructure. During 2019 the project partners met 4 times to coordinate project activities and to elaborate on the main outputs of the project.

The first specific product, a Policy Brief ("A perspective on the future of asset management for flood protection") was distributed among partners. The first outline of the Knowledge agenda was finalized as well, and the end-report was structured and ready to be filled in, with special focus on its content's consistency from all actors contributing to it. Separate pilot reports have been written by the flood protection asset owners, which examples will be used in the end-report. Partners also discussed the dissemination measures during and after the project lifetime, also keeping alive the asset owners' community. It was already discussed by the partners that they are considering a follow-up project for the next generation of the NSR programme, e.g. based on the above-mentioned knowledge agenda produced by FAIR. Since the project closure is due in June 2020, partners started preparation of the final event already.

NorthSEE – with 12 beneficiaries from 7 countries (Germany, the Netherlands, Norway, Sweden, Belgium, Denmark and the UK) is the frontrunner in achieving greater coherence in Maritime Spatial Planning (MSP) and in Maritime Spatial Plans across the North Sea region (NSR). NorthSEE focuses on the fields of shipping, energy, and environmental protection. NorthSEE is promoting sustainable development for the marine space, while also balancing environmental, economic, and social objectives.

The project organized the widely recognized "Connecting Seas Conference" in early 2019 and supported a few unique transnational initiatives on MSP and individual sectoral activities, such as the Meeting of Representatives of North Sea Maritime Spatial Planning Authorities. NorthSEE was able to kick-start and support important transnational initiatives for shipping, as well as overarching maritime spatial planning, by bringing together relevant experts from across the NSR to (1) translate NorthSEE project results into planning practice for shipping and (2) to strongly support the newly set-up Meeting of Representatives of North Sea Maritime Spatial Planning Authorities. The project also published thorough reports on energy infrastructure, transnational spatial planning designation as well as on the role of regions in MSP. Besides the publications, all beneficiaries were highly active in communication and stakeholder engagement activities, such as scientific international conferences, MSP Challenge sessions or European events on the maritime space.

TOPSOIL - implemented by the partnership of 20 beneficiaries and 4 co-beneficiaries from 5 countries (Denmark, Germany, the Netherlands, the UK and Flanders) aims at the joint development of methods to describe and manage the uppermost 30 meters of the subsurface, in order to improve the climate resilience and protect the environment of the North Sea Region. In 2019, the project organized transnational workshops on the topics of climate change scenarios, maize cultivation, and groundwater protection and on subsurface water storage. The project also demonstrated 5 new/improved climate change adaptation solutions in the framework of 16 project pilots, e.g. new drainage approaches, or artificial refill of underground water-bearing layers through surface irrigation. The development and application of a 3D geological mapping system (tTem) has proven to be a great success, taken up by many organizations within and beyond the North Sea region, helping the understanding of groundwater management in many pilots Europe and worldwide. TopSoil hosted a policy day in Brussels, at which partners shared project results with influential policy leads and decision makers such as DG Climate Adaptation and government representatives. The project partners collaborated with other projects working on similar themes in climate adaptation, funded by LIFE and Interreg programmes.

WaterCoGovernance is a project whose partnership consists of ten partners from five different North Sea Region countries (United Kingdom, Denmark, Sweden, Germany, the Netherlands). The overall objective of the project is to develop and demonstrate new solutions and technologies for delivering sustainable ecosystem management of the North Sea Region. The project will demonstrate through the adoption of new participatory, ecosystem service-based approaches that implementation and integration of different water management frameworks can be achieved at the same time as providing additional social, economic, and environmental benefits.

In 2019 the WaterCoG project participated in the People's Festival of Nature, which is an annual celebration of everything nature has to offer. The project was represented by the Limfjord Secretariat who hosted a "Debate on Water Council and stakeholder involvement in water plan efforts". Another highlight of 2019 was the implementation of an evaluation of the participatory processes piloted in the project. Early results were discussed at a project meeting in Copenhagen and a draft report has been produced. Initial results highlight the importance of citizen involvement for successful co-governance approaches.

BEGIN - Blue Green Infrastructure through Social Innoation is a project whose partnership consists of 16 cities and research institutions from six countries in the programme area – Belgium, the Netherlands, Norway, Sweden Germany, and United Kingdom. The project will use their pilots to demonstrate how cities can improve climate resilience with Blue Green Infrastructure (BGI), involving stakeholders in a value-based decision-making process. The BEGIN project helps cities to overcome implementation barriers for BGI´s through Social Innovation (SI) that empowers multiple stakeholders to contribute to the design, construction, and maintenance of BGIs.

The BEGIN partners continued their work in the project according to the work plan – the first 5 pilot sites (out of 28) are concluded and inaugurated. Citizens, NGO's, students, companies, and research organisations are involved in the design (and in some cases, even construction) phases. A highlight of

2019 was several City-to-City (C2C) Learning and Action meetings – project partners working together around concrete and specific challenges. This approach was also expanded beyond the project on several occasions in 2019.

FRAMES is a project whose partnership consists of 16 partners from five countries in the programme area – the Netherlands, Belgium, Germany, Denmark, and the United Kingdom.

More frequent and severe flooding due to climate change is one of the most significant risks for the North Sea region. FRAMES aim to reduce the effects and impacts of flooding and reduce recovery time through enhanced resilience of flood prone areas and communities in several selected target sites. The project wants to combine resilience measures in the Multi-Layer Safety (MLS) concept. The MLS concept is a strategy that integrates measures for: prevention, mitigation via spatial planning and emergency response.

Since the project will close in 2020, the highlight of 2019 was the completion of almost all pilots. As part of one pilot in Kent 173 health and social care properties have been identified as at risk and engagement is continuing to increase resilience. The Flood Resilience Rose for impact assessment was applied at almost all pilot sites and papers derived from this. A focus during the last part of the project was to use time on improving the communication about project results. Different papers were published in academic journals, for example a paper on Flood Risk Governance for more Resilience.

NuReDrain is a project whose partnership consists of eleven partners from three different North Sea Region countries (Belgium, Germany, and Denmark). The North Sea region is recognized as an intensive farming area and nutrient inputs from land have resulted in eutrophication in rivers, lakes, estuaries, and coastal zones. The NuReDrain project aims at developing a technology for trapping phosphorus (P) and nitrogen (N) in agricultural waste streams such as drainage discharges and greenhouse effluents. The project wants to stimulate joint development of cost-effective filter technologies, targeting nutrients removal for different situations and regions, reuse the recovered phosphorus for agricultural purposes and eventually offer guidance to policy makers about implementation strategies.

Filters need to be filled with a material which can adsorb P or remove N. These materials have been provided by NuReDrain partners from Belgium and Denmark or have been purchased. A series of lab tests revealed which materials are suitable for an efficient P removal. Noteworthy is the fact that filter materials used to remove low concentrations of P can later on be reused to remove high concentrations of P. Long term column experiments showed that some filter materials can be used for more than 600 days before P saturation occurs. Several filter materials have already been tested in the field.
With respect to N removal, three different removal systems were tested in 2019.

PARTRIDGE (Protecting the Areas Resources through Researched Innovative Demonstration of Good Examples) which consists of 11 partners in four NSR countries (UK, NL, BE, DE), aims to demonstrate how new best practice management solutions can improve biodiversity and ecosystem services by up 30% in four years, and how these can be transferred across all regions of the NSR and the EU. The project measures are tailored to their flagship species, the Grey Partridge, because existing evidence shows that partridge-friendly measures benefit farmland biodiversity in general.

To ensure that the measures and approaches used by the project find their way into policy across the NSR, the project continued to lobby for the inclusion of their measures into future national Agri-environmental Schemes (AES). Key events during this period include demo site visits of MEP's, VLM's key staff involved in AES design and implementation, and Natural England's arable network experts. Beetle banks and the PARTRIDGE flower mix are now part of several regional Dutch AES, with similar intentions Flanders. At the end of 2019, a minimum of 450 farmers have planted the PARTRIDGE mixes in and outside of the demo sites. This is directly helping to increase farmland biodiversity across the NSR and across the EU.

Sullied Sediments is consisting of 13 partners from United Kingdom, Germany, Belgium and The Netherlands. They are developing and testing new tools, procedures, and protocols to better assess, treat and prevent contamination from emerging pollutants in the sediments in our waterways.

In 2019, the project completed a two-year sampling campaign, comprising six surveys carried out at nine sites in three North Sea Region river catchments. Rarely have such extensive studies been undertaken. In addition, they produced 54 sets of consistent data, containing information on chemical and biological quality, which is enabling the project to look at regional, seasonal and geological differences in these watersheds, and to identify the stresses that we, as humans, expose our environment to. Also, two innovative tools were launched for water managers: 1. OMEGA tool, which shows how to manage relationships between chemical, toxicological, and ecological indicators while monitoring sediment quality. 2. Decision Support System to support decision-making on sediment remediation. Finally, a portable, easy-to use 'dipstick' that measures phosphate levels in freshwater samples was introduced. This 'dipstick' is being deployed to volunteers who are helping us to collect measurements from inland waterways across the North Sea Region.

CANAPE- with 6 beneficiaries and 7 co-beneficiaries from 5 countries (The UK, Germany, the Netherlands, Flanders and Denmark) aims at reducing CO2 emissions, increasing flood resilience, developing new wetland products and restoring unique ecosystems in the North Sea Region, also through several pilots in the region.
During 2019 progress was made on several pilot sites continuing according to schedule, with detailed design work and delivery of the first stages of several sites (e.g. the site for a peat-moss farm in Germany created, new reed-bed outline at Hickling Broad pilot established, creation of a near natural vegetation in Lille Vildmose, Denmark continued). For those sites where construction has not yet started, survey and design work advanced. The project carried out water quality and quantity monitoring activities as well. The methodology for calculating the carbon savings of the project was developed substantially

and in the final stages of drafting. The first peat product hit the market in June 2019, with charcoal made from wetland conservation waste sold to the public at the Royal Norfolk Show. The project partners attended several international events, conferences and exchanged knowledge with Interreg NEW projects in the similar field. The project used various communication channels to the wider public, but one of the noteworthy achievements in this regard was that one of the pilot work (Hickling Broad, UK) featured in the BBC TV Programme Country file Winter Special, watched by approximately 5 million people.

CATCH is a project whose partnership consists of 12 beneficiaries from six North Sea region countries - the Netherlands, Germany, Sweden, Belgium, Denmark, and UK. Regional and local public authorities as well as an institution of higher education and research and an infrastructure and (public) service provider will focus on the redesign of urban water management of midsize cities to become climate resilient cities. The project runs seven pilots that will test out the joint developed decision support tool and roadmap that will help to formulate long term climate adaptation strategies.

In 2019 the investigation on the climate vulnerabilities and the specific needs of mid-size cities and their stakeholders was finalized. During the partner meeting in Vejle (DK) in April 2019 and the second external advisory group meeting in May 2019 in Enschede (NL), the first version of the web application that will guide practitioners through the difficult stages of their climate change adaptation process, was presented. The web application was tested on specific aspects such as usefulness, user friendliness and attractiveness. The test sessions resulted in an extensive list of opportunities for improvement.

JOMOPANS - with 11 beneficiaries from 7 countries (The Netherlands, the UK, Germany, Belgium, Norway, Sweden, and Denmark) is recognised as a leading project on underwater noise monitoring in the North Sea. In 2019, in the frames of its midterm event and a thematic workshop the project shared its results and engaged discussions, involving representatives of noise monitoring projects from all around the world, e.g. Adeon, (North America), ECHO (Canada), JONAS (Atlantic), QuietMed (Mediterranean) and Soundscape.
The project also expanded its operational monitoring programme to full capacity (13 out of 14 measurement stations were operational, accessibility to the monitoring data for all partners ensured by a data sharing system, benchmark test carried out ensuring that measurement data form the stations are comparable). The first sound scape map was produced for the complete area of the North Sea. The project was co-operating closely with major marine stakeholders to make the project output fit for their needs and a web-based tool was developed where marine managers can use soundscape maps and measurements to evaluate the Good Environmental Status. The project team produced also a policy brief (presented officially in October 2019) to reach policy makers. There was a large international, scientific interest in Jomopans project on various highly ranked events dealing with noise monitoring and noise management.

IMMERSE has 11 beneficiaries from 6 countries (Flanders, the Netherlands, the UK, Germany, Sweden, and Denmark). The project continued to advance transnational collaboration on advancing estuary management measures in 2019. Progress was especially strong in addressing several management challenges in North Sea region estuaries. In the Scheldt estuary the project finalized the design and of the field pilot, advanced in planning of sediment nourishment and planning a river side channel to mitigate the risks of increased tidal range as well as the first flood channel was excavated in July 2019 at Wijmeers. In the Elbe estuary the project partners worked on a Feasibility study including design of a sediment management model. In the Gota Alv estuary developed stabilization and metals recovery methods (from contaminated port sediments) for publication and completed the field pilot at the port of Gothenburg (land surface construction with stabilized polluted sediments). In the Roskilde Fjord and Isefjorden analysis of climate-change related flooding and development of a model for assessing future impact scenarios were done with the involvement of the surrounding municipalities.
A joint scoping study on 'soft' barriers for measure implementation was completed in the Elbe region as a joint effort by the project partners. The project also started the 'estuary exchange lab series' with the first one held in Gothenburg, June 2019.

North Sea Wrecks (NSW) is a project consisting of nine partner organisations from five NSR countries (Germany, Belgium, Denmark, the Netherlands, and Norway). The project aims to develop and implement a common approach for facing economic, environmental and safety challenges caused by existing ship and aircraft wrecks, lost cargo, and munitions in order to improve the sustainable management of the North Sea ecosystem. The topic has in 2019 already raised high interest of media - with TV and radio features as well as many newspaper articles, notably in the host country Germany.

The North-Sea specific analysis sampling preparation started in Flemish waters with a case study of wrecks in the Belgian part of the North Sea. These wreck sites will function as pilot test beds for the harmonised sampling approach. The designed wreck selection criteria will be commonly used by all Member States. In addition, the consortium started to collect information regarding possible risk assessment methods (literature review, expert interviews). Finally, the Travelling Exhibition is in the status of conceptual design. Possible locations for the tour will be evaluated. The search for suitable objects (e.g. photographs, ship models, mines, archival documents) for the exhibition started.

C5A is a project bringing together ten beneficiaries from six member states (except Norway) to respond to the challenge of climate change. The project want to delivers a whole-of-system approach that will integrate four constituent systems (catchment, coasts, cities, infrastructure networks) and enable the development of multifunctional and adaptable solutions that deliver more sustainable, integrated and multifunctional solutions across the NSR. To do so, the project will build upon the outcomes of seven ongoing Interreg NSR projects to ensure the approach is both evidence-based and practical.

The C5A project started per January 1st, 2019. The launch event took place on February 7th and 8th 2019 in Brussels, which was combined with the first Coordination Group Meeting and Steering Group Meeting. C5A project manager and Lead Beneficiary Rijkswaterstaat was requested to deliver keynote speeches at the North Sea Commission meeting on Climate Change in Brussels on February 28th, 2019 and at the North Sea Conference on June 26th, 2019. In each case workshops on Climate Adaptation and Governance were co-organised. The project was actively linked to the ERA4CS project EVOKED during the European Climate Change Adaptation Conference 2019 on May 28th to 31st in Lisbon by partner Värmland County Administrative Board. C5A has only just started but is highly visible and making connections to other projects within and beyond the North Sea Region.

GEANS is a project consisting of nine partner organisations from all North Sea Region member states. The project is operating in the field of ecosystem health assessment of the North Sea Region and will promote the shift from morphological species identification to harmonized genetic tools. Steps in the project will be to develop a reliable DNA sequence reference library, carry out a set of pilot studies and develop a decision support framework, which will facilitate the implementation of a transnational uniform DNA-based approach by all competent authorities. A harmonized genetic approach will reduce conflicts and create synergies and improve the environmental health assessment, as demanded by different EU directives.

Based on an inventory of key Noth Sea species of policy relevance, a gap analysis was performed to identify species that are currently lacking a reliable DNA barcode. In addition, a clear overview of the methods that are currently used in bulk metabarcoding approaches was compiled. From this overview, a list of generic recommendations for a harmonization of the SOPs, concerning the use of genetic tools in ecosystem health monitoring, was created.

In 2019 two pilot studies have started. One on hard bottom monitoring, where ARMS (Artificial Reef Monitoring Structures) have been deployed and the other one on soft bottom monitoring. Over a 100 sea bottom sediment samples have been taken during the summer of 2019 within the EEZs of Denmark, Germany, and Belgium. These are currently being analysed both using DNA metabarcoding protocols, and for comparison also by means of traditional morphological (microscopic) identifications.

BEESPOKE Benefitting Ecosystems through Evaluation of food Supplies for Pollination to Open up Knowledge for End users) is a project consisting of 16 partners from all member states – except for Norway.

The overall objective is to increase levels of pollinators and crop pollination at local and landscape scales by providing land managers and policy makers with the new expertise, tools and financial knowledge to instigate bottom-up change creating more sustainable and resilient North Sea Region ecosystems. This is supposed to be achieved by enhancing and improving non-crop habitats for pollinators, by creating more resilient ecosystems for pollinators and crops and by demonstration of improved habitats for pollinators and techniques for measuring pollination. In addition, the project will focus on stakeholder engagement, delivery and uptake of outputs and results to bring change in land management and policy.

The aim of the project is to achieve a 10 % increase in crop yield or quality as a result of enhanced pollination on the demonstration sites with improved flowering habitats as well as a 10 % increase in the measured diversity of pollinators on the demonstration sites with improved flowering habitats. The project only kicked off in September 2019 and the first report is expected in 2020.

4. Promoting green transport and mobility

(This is a continuation of the text provided in the SFC under this heading):

Priority 4 results expected and achieved:

Call #	Project name	Result description	Quantified target	Achievement through 2019
3	#IWTS2.0	Number of companies and institutions adopting new concepts	4	3
		Long distance modal shifts from road to IWT	20,000,000 tkm per year	9,768,975
7	ART-Forum	Removing bottlenecks: Improved efficiency and safety in passenger and freight transport	50%	0
		Increased capacity of authorities in the NSR to future proof their transport strategies – 100 organisations	100 organisations	0
		Revised Transport Strategies	75%	0
11	AVATAR	Volume of goods transported in and out the city centers, during operation test-runs in the project (last year)	15.000 kg transported goods shifted from road haulage to IWT in one city centre per year (with just one vessel)	0
		CO2 reduction realized during the project period with zero-emission vessel, assuming one 20T operational vessel in the last year of the project	750 kg (CO2 saved)	0
		Level of automation for vessels smaller than 100 tonnes	2 Increased levels of automation (as defined in CCNR Resolution 2018-II -16)	0
7	BITS	Reduction of CO2 emission thanks to cycling (instead of using other modes)	9%	0
		Increase in cycling use (kms) of commuters, students, school children and recreational cyclists within the project period	10%	0
		Realisation of a CyclingDataHub as an open platform to share cycling data in the North Sea Region	100 datasets	0
3	G-Patra	Additional passenger transport km using green transport solutions	100,000 passenger kilometers	102,258
		Demonstrate reductions in CO2 emissions from remote, rural and island	10%	0

		transport using lighthouse projects and business cases		
2	HyTrEc2	Reduction in the cost of hydrogen vans, large trucks and other tested vehicles	25%	32%
		Number of public sector organisations and transport operators investing in hydrogen vans and other tested vehicles	18	1
		CO2 reductions from tested vehicles	18 kilograms per vehicle per month	0
5	MOVE	Reducing the use of private cars in local mobility streams	10% reduction of the number of single local private cars trips of target groups individuals	0
		Increase in the usage of sustainable mobility solutions	20% increase in number of passengers	0
		Increase social integration through mobility	20% increase of yearly travel in km using sustainable mobility solutions	0
9	North Sea CONNECT	Cargo handling with sustainable modes	5% increase in cargo handling / shifting to sustainable modes	0
		Efficiency raise	5% cost reduction in sustainable modes	0
		Increased awareness of smart intermodality and comprehensive network	20 smart intermodality users/stakeholders	0
1	SEEV4-City	Increase of real zero emission kilometers in the SEEV4-City Operational Pilots	150 tons CO2 emissions avoided annually	1900 (indicative result)
		Increase in energy autonomy in SEEV4-City sites	25%	5% (indicative result)
		Potentially avoided grid related investments	100,000,000 EUR in 10 years	0
1	SHARE-North	New or improved shared mobility services	60	24
		Cars removed from public streets through car-sharing	10,000	1,539
		Reduction of local and global transport-related emissions	66,000 tonnes of CO2 saved during project lifecycle	4,660
7	Stronger Combined (SC)	Relative increase in number of passengers in rural public transport (implying increase cost coverage and profitability of public transport services)	30%	0

		Decreased aggregated CO2 emissions (CO2e) from private and public transport (as a result of a shift from single-person private car trips to multiple-person shared vehicle trips)	100 tonnes CO2	0
3	SURFLOGH	Increased use of zero emission urban vehicles in last mile distribution	15 zero emission vehicles used in pilots	17
		Reduced conventional freight traffic in last mile by using bundling solutions or zero emissions vehicles	1,800 conventional trips saved by using consolidation options or covering by zero emission vehicles	874
		Increased volume handled, carried out and/or distributed by emission reducing logistics solutions	60,000 parcels handled by emission reducing solutions (e.g. consolidation, lockers, hubs) and vehicles (e.g. cargo bike)	47,610
9	PAV (Former SUV)	Number of urban developers trained by materials developed within SUV such as the handbook on urban planning strategies integrating AV and related public workshops.	200	0
		Value of public/private investments shaped by materials developed within SUV such as the open innovation community platform and the publications about socio-economic impact.	100 million €	0
		Number of people transported with autonomous, shared and electric vehicles through pilots organised by local- and transport authorities.	10.000	0
9	ZEM Ports NS	Total reduction in emissions of CO2, NOx,SO2 and particulates	7000 tonnes of annual CO2 reduction	0
		Expected reduction in the cost of port side energy and services during the project period	15% reduction in the costs of energy and port side services during the project	0
		Reduction in the cost of zero emission vessels	15%	0

Below is an overview of the projects, including their overarching objectives and main activities. Please note that only seven out of fourteen projects – #IWTS2.0, G-PaTRA, HyTrEc2, MOVE, SEEV4-City, SHARE-North and SURFLOGH – had reported on their activities and finances by the end of 2019.

#IWTS 2.0 (#Inland Waterway Transport Solutions) brings together 10 beneficiaries from 5 countries (NL, BE, DE, SE and the UK) and aims at carbon emission reduction by promoting a modal shift from road to water. The project strives to develop solutions for minimum intrusion adaptations of existing, smaller waterways to make them accessible for Classification of European Inland Waterways (CEMT) standard vessels. The project is for example aiming for an improved Aire and Calder Navigation, which allows CEMT class 2 vessels on this waterway. The main bottleneck, the Bullholme lock has been drained and thoroughly inspected. The project also develops and promotes the use of innovative barges and transshipment concepts. In that context the project is for example working on the development of the smaller barge for the city of Gent. Some administrative hinderances must be overcome.

On the 7th and 8th of May 2019 a 4th Partner meeting and 2nd #IWTS 2.0 conference in Bremerhaven (Germany) was organized. A 5th Partner meeting and 3rd #IWTS 2.0 conference in Gothenburg took place on 15th and 16th October 2019. Furthermore, in 2019 a transshipment Manual was developed, and the project developed an innovation inventory (www.project-iwts20.eu), which is about to be published. The project connected to five universities that will contribute to the "Innovation Challenge", a student competition to address IWT.

ART-FORUM's has 13 beneficiaries and one co-beneficiary from 6 countries (Germany, Flanders, Denmark, the Netherlands, and the UK). The project's aim is to create a debating ground for local/regional authorities, address risks and opportunities and help guide policy development with regard to the impact that automated transport could have on the road transport system and life in cities and regions of the North Sea Region. The project started in 2019 and organized its kick-off meeting in Bremen. During the meeting, the structures, and formalities of the Interreg programme were brought close to all partners. All partners signed the Partnership agreement got to know each other.

Mobile Zeiten and the Province of Groningen organised a successful transnational knowledge transfer between the German-Dutch border region. Exemplary through the workshop "Driverless Mobility Experience" in Scheemda (NL) they managed to create a positive environment for sharing good practice. At this event, the participants were able to test a pilot, which is in use at the hospital in Scheemda.

More information about the project will be available in the next annual report.

AVATAR (Sustainable urban freight transport with autonomous zero-emission vessels modal shift from road to water) was approved in December 2019 and the project will officially start in May 2020. The project brings together 7 partners from 3 countries (BE, DE, and NL). The project focuses on the massive under-exploitation of inland waterways (IWW) in the North Sea Region, especially in and around urban environments, which provides opportunities for technological innovations. This project aims to deploy

zero-emission automated vessels that can-do hourly traffic between the Urban Consolidation Centers outside the city and inner-city hubs, focusing on the distribution of palletized goods and waste return.

The AVATAR project will develop, test, and assess adequate technologies and business models for urban autonomous zero-emission (IWT). Through this, the project will unlock the economic potential of urban vessels and corresponding waterways, increase available solutions for full-cycle automation and set up a sustainable supply chain model for urban goods distribution and waste return.

BITS, with 10 beneficiaries from 5 countries (The Netherlands, Germany, Belgium, Denmark and the UK) aims at implementing ITS solutions that directly increase the take-up of cycling and reduce CO2 emission, while collecting and processing reliable and useful cycling data for policy making.
The project already accomplished much in the first 9 months of 2019. At the start of the project many communication activities were carried out, such as the establishment of the communication teams and the preparation of the communication strategy. Presentations have been organized at various conferences and events to create awareness of the project.
The first ITS Academy in Beverley, East Riding of Yorkshire, including an interview with BBC Humberside was a success. One of the first actions of the project was to research existing ITS systems and services for cycling. The implementing partners within BITS have started to develop their implementation plans, and a first implementation with 3D cameras to improve safety of cyclists was carried out in the Province of Antwerp (BE). First co-design events were held in Zwolle (NL) and East Riding (UK), thus involving local and regional stakeholders in the implementation plans.
The project organized an internal workshop in Bruges (BE) to identify cycling data needs. This was then used to start a first discussion on the structure of the Cycling Data Hub, e.g. about data structure, metadata, and data availability.
More information about the project will be available in the next annual report.

G-PaTRA has 12 beneficiaries and one co-beneficiary from six countries (Denmark, Flanders, Germany, the Netherlands, Norway, and the UK). The project aims to promote green transport and mobility by enhancing the capacity of authorities to reduce CO_2 from personal transport in remote, rural and island areas by 1) embedding more zero emission vehicles in rural transport systems, and 2) improving, optimizing, and better integrating available passenger transport resources. In 2019 several lighthouse projects were well under way. HITRANS, for example, implemented their electric bus service, although an accident in July 2019 led to the bus being off the road for an extended period. Aalborg University's village buses service demonstrated reductions in CO_2 emissions. Aberdeenshire Council operated two bus services in and around the town of Turiff, including one primary school service. A secondary school service was also identified as suitable for integration into the lighthouse project. In addition to the pilots, good progress was made on the development of business cases. In Norway, a report on the feasibility of producing and storing hydrogen for use in boats and buses was delivered in September. HITRANS commissioned a report on the feasibility of running a battery-powered train service (in addition to existing diesel trains) between Thurso and Wick as a proof of concept with the aim of introducing battery technology more widely on the Scottish railway system.

HyTrEc2 (Hydrogen Transport Economy in the North Sea Region 2) is a project whose partnership consists of eight partners in the UK, Sweden, Germany, and the Netherlands. Together they are exploring how to improve conditions for hydrogen-fueled transport across the North Sea Region.

The project has had Work Package meetings in Aberdeenshire and Aberdeen, Scotland on 27-28th March 2019. At the meeting progress was made on all work packages. Cenex continued to monitor Partner's fleets for HyTrEc2 hydrogen and baseline vehicles. A number of hydrogen vehicles arrived during this period including Aberdeen City Council's HyTrEc2 cars which have been rolled out on the Aberdeen Co-wheels car club/ car sharing fleet and three retrofitted electric-hydrogen Kangoo vans and one hydrogen car leased for roll out to public sector partners. The three large vehicles at Geemente Groningen and Aberdeen City Council have also progressed.

About the Work Package Low Carbon Hydrogen Production, Storage and Distribution, the Geemente Groningen's solar powered hydrogen refueling station continues to operate successfully. Province Drenthe are also working on the business case for solar produced green hydrogen production, while Aberdeen City Council has commissioned a tender for the business case for produced green hydrogen produced from wind. RISE has also been gathering information for their off-grid house deliverable.

MOVE (Mobility Opportunities Valuable to Everybody) is a project whose partnership consists of eleven beneficiaries (including one local partnership) from the Netherlands, Belgium, Germany, Denmark, and the UK. The project wants to develop and disseminate innovative, environmentally sustainable and economically viable mobility initiatives through multidisciplinary co-creation, bringing together different stakeholder. The project will use local specificities to create practical solutions in four pilots based on unlikely combinations. MOVE supports the greening of the transport sector by offering solutions aiming at a reduction in the use of individual vehicles and by using alternative greener options. The overall objective is to enhance accessibility of small and middle-sized cities/ towns and their surroundings within the North Sea region.

The project is behind schedule, mainly due to the delays about the pilots. However, the organisations involved in the project are busy finding ways to circumvent this challenge. More progress is expected in the next reporting round, which will cover August 2019 onwards.

North Sea CONNECT (CONNECTing North Sea Region’s TEN-T nodes - Support intermodality growth in the North Sea Region through smart efficiency enhancements) was approved in 2019 and brings together 10 partners from 5 countries (DE, BE, NL, UK and SE). The project focuses on intermodal nodes in the North Sea region, which are outstanding for the transportation of goods to and from the supply and demand markets. To increase attractiveness of a location along with its market potential, i.e. the achievable market, efficient, smart, and ecological transportation networks are needed. Intermodality should enable a concentration of transnational traffic and long-distance flows, and as a result of their integration, provide for a highly resource efficient infrastructure use.

After some initial delays, the project is planning to start project activities and organize a kick-off meeting in the first half of 2020.

SEEV4-City Smart, clean **E**nergy and **E**lectric **V**ehicles **4** the **City**) is a project whose partnership consists of 11 public authorities, institutions of higher learning, and companies from Belgium, the Netherlands, Norway, and the UK. Together they are demonstrating smart electric mobility solutions, integrating renewable-energy sources, and encouraging take-up of both in cities.

In 2019, the SEEV4-City project reached the stage where the findings of the operational pilots and research could be shared. The project was carrying out intensive communication and dissemination activities. An impressive number of visitors to ArenA were national and international delegations of energy experts, research and educational organizations, policy makers and the press. Similarly, more than 200 international delegations and the press visited Vulkan during the European Green Capital 2019.
In addition, efforts were continued to improve the complex calculation method that allowed an evaluation of the key performance indicators, namely reduced CO2 emissions, energy autonomy and avoided and deferred grid investments. Indicative results for CO2 emission reduction already show more than a twelve-fold achievement.

SHARE-North has 10 beneficiaries from six countries (Germany, Flanders, the Netherlands, Norway, and the UK), which focus are the shared mobility modes and their potential to address challenges in sustainable transport in the North Sea Region. The mobility hub concept has continued an incredibly positive path during 2019. Discussions about mobility hubs and lessons learned from the project partners active in this area led to an expansion that goes beyond Bremen, Bergen, Flanders, and the Netherlands.
The project is successful in promoting the concept of mobihubs in Flanders. It has led to many corporations with new transport regions, individual municipalities, and the Flemish government. The knowledge from an experienced city like Bremen and of shared mobility policies in the UK has been crucial to convince Flemish stakeholders. On the other hand, the Flemish partners are inspiring other countries to create multimodal hubs.
The partners have also put effort into both national and transnational exchange of ideas and experience around mobility hubs this period. In May 2019, Bergen hosted the second Mobihub Planning Academy: a two-day workshop on mobility hubs for the Nordic Smart Cities Network, with participants from Iceland, Denmark, Finland, and Norway.
Significant gains have also been made with respect to impact on policy. In Bremen, the importance of shared mobility in solving urban transport challenges was validated by the unanimous passing of the Bremen Carsharing Law in March 2019. It is the first of its kind in Germany and will be used as a baseline for developments in the remaining project region. Taxistop and Autodelen.net have also been advising Flemish policy makers. In this reporting period, Autodelen.net gave a presentation at Flemish Parliament at a hearing about mobility hubs and shared mobility as a solution for the new Flemish Law on Basic accessibility.

Stronger Combined (SC, Combined Mobility in the rural public transport system to build sustainable rural public services in symbiosis with private mobility providers and citizens). The Stronger Combined partnership consists of 15 beneficiaries (including two local partnerships) from all seven member states in the North Sea region. The project wants to investigate the future role of public transport authorities regarding combined mobility in sparsely populated areas. By presenting open data infrastructure, validated service models and public-private mobility cooperation, the project wants to stimulate the take-up and application of green transport solutions for personal transport. As a result of a shift from single-person private car trips to multiple-person shared vehicle trips, CO2 emissions are expected to be decreased.

Stronger Combined was officially kicked-off with the first partner conference hosted by lead beneficiary Region Värmland in Karlstad in March 2019. The conference focused on getting to know the consortium and communicating expectations and planned activities as well as inspiring workshops and seminars addressing common challenges and solutions. The first eight months of the project have been focused on creating detailed implementation plans for each work package, establishing contacts with key stakeholders and setting up project routines and work groups.

A scoping report has been completed to better understand the planned activities of the living labs and gather input for the coming evaluation process and planning of the joint innovation process. Data quality and availability is a prerequisite for creating combined mobility services and has been another focus area for the initial part of the project.

SURFLOGH (Smart Urban Freight Logistics Hubs) is a project whose partnership consists of six beneficiaries from four North Sea region countries - The Netherlands, Belgium, Sweden, and UK. Regional and local public authorities as well as an institution of higher education and research are focusing on the improvement of the role of logistic hubs in the structure of urban logistics. By investigating, evaluating and implementing different actions, techniques, organizational forms and logistic tools, the goal is to increase the efficiency of last mile logistics between hubs and to stimulate green transport solutions.

During the Mid Term Conference in May 2019 all partners shared their preliminary project results with stakeholders from multiple countries. Much debate was generated, with key issues emerging around (1) the ideas of business establishment through bottom up rather than top down approaches, (2) the importance of key partnership working in the form of both public-private and private-private, (3) the need to increase public awareness and (4) the importance of validating the concept of the last sustainable mile in order to increase commercial confidence.

An extensive literature review has been carried out by Napier University incl. over 60 carefully selected research articles, from which the main themes have been drawn regarding the establishment and operation of urban freight hubs. On top of that, a contextualised framework to specifically address the issue of sustainable last mile logistics has been developed, termed the SURFLOGH Business Model Canvas.

PAV (Planning for Autonomous Vehicles) was approved in June 2019 brings together 13 partners from 6 countries (the UK, SE, BE, NO, DK and NL). The project will promote Autonomous Vehicles (AV), or self-driving vehicles, to become widely available, low-cost, clean, door-to-door transport for people and goods. Widespread use on Europe's roads is anticipated by the 2030s and is expected to have numerous societal implications for equity, health, economy, and governance resulting in potential impacts on city development and design (from street to district- and regional development). Many cities (plan to) start experimenting with AV in Europe. However, integration of AV in spatial planning has yet to start. This is urgent as cities plan district (re)developments, transport infrastructure and related investments decades ahead. SUV aims to stimulate the uptake of electric, shared AV by developing green transport and spatial planning strategies that incorporate AV.

The project's kick-off meeting took place in November 2019.

ZEM Ports NS Zero Emission Ports North Sea) was approved in June 2019 and brings together 8 partners from 5 countries (DK, NL, the UK, SE and BE). The project will facilitate the use of zero emission fuels (electric and hydrogen) in the NSR ports and maritime sector. The project looks at the role of ports in the interface between zero emission vessels and port infrastructure. It especially addresses the integration of zero emission fuels into the port refueling infrastructure and local energy systems as well as port and on-ship energy storage. It will develop refueling infrastructure for vessels and training for the crews of zero emission vessels and staff using associated infrastructure.

The project's kick-off meeting took place in November 2019.

3. IMPLEMENTATION OF THE PRIORITY AXES

3.1. Overview of implementation

Table 4: Financial information (…) and Table 5: Breakdown of the cumulative financial data (…)
A short résumé of the tables 4 and 5 are presented down below.

Table 4

Present information on reported information submitted to the Commission via the SFC system by the end of 2019. The table contain information on total funding allocated to operations and to technical assistance, how many operations they programme by the end of 2019 is supporting and the amount of eligible expenditure these operations has reported to the programme and entered into the accounts of the Certifying Authority.

Table 5

Represent a detailed breakdown on the eligible expenditure reported to the programme. The detailed perspectives include a breakdown in the format of the template provided in the SFC system, including breakdown on the dimensions of territory, delivery, thematic objectives, economical and location. The interventions are detailed and outlined in the cooperation programme, however, the location dimension is not outlined in the cooperation programme as this information has been requested in the SFC template after the delivery of the programme has been initiated. The location dimension is a bit unclear and challenging for a transnational programme to report on, this due to the nature of the operations being of a transnational scope and not located in individual territories. The point of departure of the programme when reporting on this dimension is to demonstrate in which country the lead beneficiary of the largest economic activity of an operation is located at the time of reporting.

3. IMPLEMENTATION OF THE PRIORITY AXIS

5. Technical Assistance

(This is a continuation of the text provided in the SFC under this heading):

In total, 3 calls for applications were launched in 2019, one for expressions of interests (EOI's) and two for full applications (FA's). 18 EOI's were submitted for decision by the Steering Committee of which 10 were approved. 19 FA's were submitted and 13 were approved. The approval rate for EOI's was 56% and for FA's it was 68%. For EOI's the approval rate was slightly better than in 2018 where the approval rate was 43% and for FA's the approval rates was the same – the 2018 approval rate was 66%. Given the small number of applications it is important not over-interpret the percentages as small changes in numbers have disproportional effects in percentages.

The trend, however, remains that the approval rates for FA's significantly exceed the approval rates for EOI's. This is a sign that the two-step application procedure used by the programme has the anticipated effect, where the EOI phase works as an initial screening, followed by the final decision in the FA phase. Looking back to the previous programming period where a one-step applications procedure was used, the approval rate was approximately 50%. It is, however, not possible to compare the two systems directly as the current two-step approach include a number of "less-elaborate" applications in the first stage and thus has a lower barrier of entry when compared to the previous programme where only FA's were allowed.

Prior to each call for applications, the secretariat together with the relevant National Authorities and the Contact Points arrange an Interwork event. The Interwork events serve as a powerful tool to prepare the potential applicants for the application procedure and as a vehicle for troubleshooting in relation to rules, regulations and the Intervention Logic. The events are always well attended and the feedback from the participants is positive.

In addition to the Interwork events, the programme has intensified its overall communication activities significantly, a process which took pace already in 2017. The new efforts are described later in this report and are covering both more traditional means of communication making use of the programme website but also and increasingly by way of social media and a close cooperation with the other transnational programmes.

3. IMPLEMENTATION OF THE PRIORITY AXIS

3.2. Common and programme specific indicators

Priority axes other than technical assistance

PROGRAMME INDICATOR	Baseline value (2015)	Target value (2023)	Achievement toward target (2017)	Achievement toward target (2019)
1.1 Capacity of knowledge partnerships in the North Sea Region to deliver marketable product, service, and process innovation	2.8	3.3	2.92	3.03
1.2 Capacity of authorities / practitioners to increase the scope and quality of innovation in enterprises	2.6	3.1	2.71	2.87
1.3 Capacity of authorities / practitioners to increase the scope and quality of innovation in public service delivery	2.3	2.8	2.45	2.59
2.1 Capacity of enterprises and organisations to adopt new or improved green products, services and processes	2.6	3.6	2.81	3.08
2.2 Capacity of authorities and practitioners around the North Sea to identify and implement new ways of reducing their environmental footprint	2.8	3.8	3.1	3.31
3.1 Capacity of relevant authorities / practitioners around the North Sea to identify and implement solutions for improving climate change resilience	2.7	3.7	2.95	3.29
3.2 Capacity of North Sea regions to improve the quality of the environment	2.9	3.9	3.17	3.43
4.1 Capacity of transport and logistics stakeholders to increase the proportion of long-distance freight carried on sustainable modes in the North Sea Region	2.7	3.7	2.96	3.21
4.2 Capacity of authorities and enterprises to increase the use of green transport services	3.0	4.0	3.24	3.55

Explanatory Note for calculation of 2017 value

Linear interpolation in four steps:

1. Calculating the difference between the 2015 baselines value and the 2019 achievement value by subtracting the one from the other and dividing it by 2. We call this the "expected amount of increase in 2017".

2. Noting the percentage of respondents that saw a value increase between 2015 and 2017. We call this the "expected percentage increase in 2017"

3. Taking the "expected percentage increase in 2017" of the "expected amount of increase in 2017". We call this "calculated increase in 2017".

4. Adding the "calculated increase in 2017" to the 2015 baseline value.

Please note that methods for the calculation of the baseline values, the target values and the capacity scale was agreed during developing the current programme. There is a reference to the paper made by **EPRC**: North Sea Region Programme: 2014 – 2020: Baseline and Targets (Note to accompany indicator sheets) (May 2014).

Clarification / Comment to the Communication activities: There has been an increased use of electronic and social media to increase the reach of programme information. This success was quantified in previous year's Annual Report and it will be revisited and followed up within the Final Report.