TOWARDS A RESILIENT NORTH SEA REGION

REFRAMING POLICY FOR TRANSITION

Interreg North Sea Region RIGHT
European Regional Development Fund
EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Reframing Policy for Transition

An Interreg North Sea Region Project

RIGHT Project

RIGHT SKILLS FOR THE RIGHT FUTURE

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Contributions from the RIGHT Partners

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The RIGHT policy recommendations are very much in line with the new EU Skills Agenda and offer insights into regional policy that puts transitions at its core

THINKING IN TRANSITIONS

- create a sense of urgency to support systemic change even as many continue with 'business as usual'
- identify common challenges, directions, governance structures and support deeper collaborations

DEVELOPING ECOSYSTEMS

- connect diverse parties across various industries for new value chain development to create critical mass
- dedicated agency, intelligence and policy engagement and support are critical to develop ecosystems of new value chains

DEVELOPING INFRASTRUCTURE FOR NEW DEVELOPMENT MODELS

- support innovative development models in order to reach climate neutrality in transitioning maritime, energy and other sectors
- facilitate infrastructures for development models for lifelong learning, new business models and new horizontal/value chain developments

INTEGRAL AGENDA FOR TRANSITIONING

- address skills shortage as part of larger regional transitions with adequate and timely support
- focus on systemic policy interventions rather than mitigating symptoms
- reframe skills and innovation agenda in terms of regional and economic transitions for viable and inclusive economies in the face of global competition and external shocks

Policy Recommendations

FACILITATE NEW MODELS OF TRAINING AND EDUCATION

- ensure a steady and realisable stream of new workers for existing and emerging SMEs and industries by supporting skills training for a diversity of needs
- broaden scope of new models of education and training to include the attraction, retention and uptake of new skills and knowledge of young and inactive members of the population and placement of workers from declining sectors

THINK INTERREGIONAL AND LEVERAGE THE NORTH SEA REGION (NSR) COMMUNITY

- recognize the urgency and complexity of challenges facing NSR regions
- support deeper collaborations in the area of skill and innovation capacities, labour mobility and knowledge development and transfer exchanges across the NSR area
- create NSR green value chains for regional self-sustainability by enlarging market scope and segmentations in critical blue and energy sectors

MAKE 'ATTRACTIVENESS' A PRIORITY

- make learning attractive: put learning at the core of social and economic communities and civil society as a whole
- promote (attractiveness of) joint exploration and collaboration in ecosystems of emerging value chains to businesses for resilient futures
- make regions attractive for individuals and businesses: increased attractiveness of regions and availability of better skilled labour, attracts new investment and business developments, which in turn, support new value chain developments and potentially, attracts more individuals and businesses to the region

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The RIGHT Project

The North Sea Region Interreg Project *RIGHT SKILLS FOR THE RIGHT FUTURE* is a collaboration of partners from Antwerp, Belgium Vördingborg, Denmark, Hamburg, Germany, Groningen, The Netherlands, Fife Council, Scotland, Skåne, Sweden and Vestland, Norway. The partners represent private and public sectors that include profit and non-profit organizations, educational institutions, government, and intermediary organizations. The project started in November 2019 and concluded in May 2022.

The project identified at the outset "shared territorial challenges with regards to Smart Specialization Strategies (S3):

Challenge 1: Lack of knowledge about long-term growth potential in the partner regions, a need to ensure innovation capacity is developed accordingly.

Challenge 2: Existing skills gaps as a barrier to innovation and growth in the chosen blue and energy sectors and related fields."[i]

The project explored Regional Innovation Ecosystems (RIE) to uncover skills and innovation gaps in the partner regions. These insights provided guidance in selecting and facilitating pilots within the region and one across the regions. Transnationality underpinned the project through shared commitments and support, sharing of methodologies, pilot outcomes and exploration of transferability.

From the individual Regional Innovation Ecosystems audits from the partner regions, common challenges were identified. These included the following:

- Businesses, particularly Small and Medium Enterprises (SMEs), find it difficult to innovate.
- The speed of change in global and regional economies meant that workers became redundant even as there were labour shortages.
- Technically skilled personnel at lower and higher education levels were inadequate.
- Shortages hindered innovation.

Common challenges due to globalization and modernization include digitisation and automation for all businesses in all regions.

These common challenges were embedded in different regional contexts. Rural and urban differences in availability of skilled labour, with rural areas being more disadvantaged with higher unemployment populations; the larger dependence and jobs in

the gas sector in Groningen faced an urgent challenge as gas extraction will end in the near future; and, in Fife the closure of coal mines still impact current developments in the region.

At the company level, businesses operate in regional and national systems that hinder or support innovation and response strategies in the face of change. A culture of collaboration, as reflected in clustering and partnership practices of triple-helix (business, government, and education), support knowledge sharing and co-creation that is important to business and social innovation.

For individuals, the need for continual education and training is essential due to digitisation and automation but also increasingly, due to sustainability requirements. The provision of adequate and timely continual education for individuals is an important challenge for partner regions.

Next to the RIE audit, the project investigated the needs of SMEs in the partner regions and identified common themes for cooperation and learning and these were:

- connecting to new networks and value chains;
- getting access to new knowledge and competences;
- increasing innovation capacities related to markets, technology, products, and partners;
- financing strategies;
- focus on quality and customer needs.[ii]

The second part of the project provided the opportunity to delve into different aspects of skills and innovation through pilot initiatives. These included

- connecting to local stakeholders and networks;
- forming new alliances or developing new models;
- creating awareness and interest for jobs in the energy and maritime sectors amongst young and old;
- tapping into new gaming trends; adapting simulation games and workplace immersion for better understanding of jobs in these sectors;
- reviewing embedded innovation and programmatic approaches;
- crossing borders to share new approaches and methodologies to partner regions.

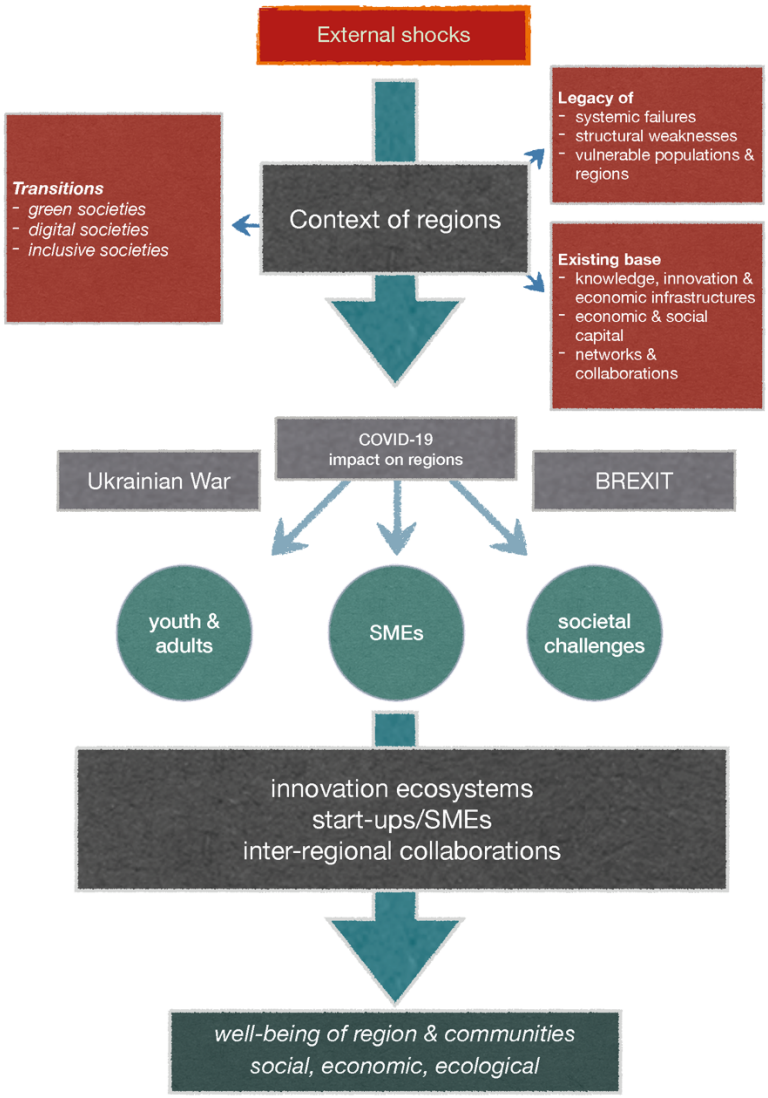
Finally, the project embarked on improving the pilots and to embed them into regional programmes. This part of the programme was also time to reflect and share the lessons learnt and new approaches. The engagement of other stakeholders and holding policy dialogues during seminars were important to expedite change and the support for change. Various

documents have been produced and made available on the project website and also on the Marine Training Platform. The current document completes the series to translate the project outcomes into policy recommendations for Regional Smart Specialization Strategies but also of interest to policies at national and EU levels.

The regional skills and innovation agenda is embedded in local, national, European, and global structures, agenda, and developments. The COVID-19 pandemic exposed vulnerabilities of global supply chains and inherent systemic failures including social inequalities. The need for resilience and the high degree of dependence on global value chains and a lack of self-sufficiency in areas of energy, food, technology, etc. has been reinforced by recent events in Ukraine. There is an increased sense of urgency to innovate, adapt and acknowledge unpredictable but interconnected futures. Some of these drivers of change include greying populations, urban and international migration, declining resources, accelerated deforestation leading to dwindling wildlife habitats, increased and erratic climate change and decreased biodiversity as well as technology developments leading to algorithms and machine learning that are propagating disinformation, polarization and increased threats to social justice and democratic values. These broader developments form the backdrop to the current challenges of regions.

Complexity of Regional Futures

Regions have their own institutional and cultural DNAs that are visible in their regional systems. The partners in the RIGHT project have dominant, traditional sectors, particularly that of energy and, or maritime sectors. In the face of climate change agenda and the need to diversify the economies to become more resilient, the partner regions need to address systemic weakness (knowledge and skills based on dominant traditional industries) whilst faced with greying populations and in some regions, with limited growth potential. The historical and current contexts of regions are embedded in national, European, and global systems of governance and practice. The EU response to major structural weakness and global contexts has been captured in the illustration below as transitions to become green, digital, and inclusive societies. The Ukrainian invasion and the need for self-sufficiency in energy and other resources has had an added impact and sense of urgency in how Europe and therefore its member states and their regions need to respond to external shocks.



Regions and all actors in these regions need to be able to meet multiple transitions and become more resilient whilst continuing with their regular business activities and jobs. These demands, addressing market failures and structural weaknesses and preparing for external shocks, need specific support for regional actors.[iii] This urgency for specific support is specifically acute in regions dependent on traditional energy and maritime sectors.

Changing contexts mean changing agenda: Digital, green sustainable EU agenda

The changing context has shaped the EU agenda for 2020 to 2024. This includes mandates for all European regions and member states to realize its digital, green, and sustainable goals. These goals are

- A European Green Deal[iv]
- A Europe Fit for the Digital Age[v]
- An Economy that Works for the People[vi]
- A Stronger Europe in the World[vii]
- Promoting our European Way of Life[viii]
- A New Push for European Democracy[ix]

The EU has framed its future and provides support with various policy tools and programmes. The agenda and policy support form an important context for regional development of the partner region. The exception being Norway, which is not a member of the EU. However, Vestland fylkeskommune has developed Smart Specialization Strategies, embracing EU policy strategies for its regional development.

The Green Deal and the Digital agenda are important drivers of the skills agenda. Businesses and other organizations need to deliver. They need to digitize, innovate for circular and green strategies. Part of the Next Generation EU Recovery Plan to soften the impact of COVID-19 includes additional funding for The Green Deal.

The next section describes in more detail decarbonization strategies that impact energy and blue sectors.

Key Transitions in EU (Energy and Blue sectors)

The need to reduce Europe's dependence on fossil fuel, particularly Russian fossil fuel imports, is accelerating the transition to clean energy. The underlying objectives of climate neutrality by 2050 and 55% reduction of greenhouse emissions by 2030 are part of the European Climate Law. Decarbonization of EU industries and the need to speed up related innovation (technologies) to market are high on the EU agenda.[x] The urgency for energy intensive industries to shift to clean energy and, or low-carbon solutions has been increased by extreme price hikes of energy since the invasion of Ukraine.

Green electricity and hydrogen are important options in decarbonizing energy-intense industries (EIIs). This marks an opportunity for regions and EU member states to accelerate development of new value chains and business models, through cross-border collaborations where such interests and needs overlap. EU policy agenda includes green technology roadmaps for low-carbon and circular industrial innovations that complement actions to accelerate green and digital transitions for important industrial ecosystems, including the EIIs.[xi] The North Sea Region lends itself to such interregional collaborations. This is discussed in the policy recommendations.

Energy-intensive industries accounted for 17% of the EU's total greenhouse gas emissions in 201920. These emissions mainly come from (fossil) energy use or from emissions from processes. That makes the decarbonisation of industry crucial for EU and global pathways towards carbon neutrality21. Without further major steps in industrial innovation for low-carbon technologies, the EU will not be able to reach its climate goals22. Industries producing key materials (steel, refinery products, fertilisers, and cement) and chemicals emit around 500 million tonnes of CO2 a year, 14% of the EU total 23. The EII ecosystem has a high percentage (99.4%) of SMEs, which represent 31.3% of the EII ecosystem's turnover and 36.9% of its value added.[xii]

The EII industries' share of jobs and SMEs in their ecosystems shown below[xiii] reflect the importance of supporting skills developments and SME innovation competences. Antwerp, Bergen, Fife, Groningen, and Hamburg (RIGHT partners) have important EII ecosystems in their regions. RIGHT partner regions also need to support EII chemical industrial sectors in their decarbonization transitions. The EU frames its transitions in terms of industrial ecosystems, which resonates with the approaches used in many of the RIGHT pilots.

7. Energy-Intensive Industries Ecosystem

7.8 million people employed [270]

4.55% of EU value added (EUR 549 billion)

548,000 firms 99.4% of SMEs

Transformative initiatives

The EIIs will need a substantial amount of decarbonised energy at an internationally competitive price

The transition of EIIs to climate neutrality requires access to substantial amounts of decarbonised energy across the EU. The cost of decarbonised energy will be crucial for international competitiveness of the EU's EIIs.

Creating markets and stimulating demand for green and circular products is key for accelerating the twin transition

The markets for green products are still underdeveloped both within the EU and globally. Creating markets for green and circular products is **the key step for large-scale green transition of the EIIs Ecosystem.** Actions under the Circular Economy Action Plan and the Sustainable Product Initiative[271] will be important in this regard. Public buyers can play a role in creating demand.

Full scale transition of EIIs to climate neutrality will require to address unprecedented investment challenge

The EII ecosystem needs to accelerate investments into research and innovation, demonstration, and the rollout of breakthrough technologies. It is a **precondition for the full scale green transition of the EIIs.** Actions under Horizon Europe, Recovery and Resilience Facility will be important for some aspects of this.

The ERA Roadmap for low-carbon technologies in energy-intensive industries explains how SMEs "can play a significant role in creating further synergies at industry level to develop and mainstream the use of new industrial technologies aiming to decarbonise EIIs. Around 38% of SMEs reported to not yet use environmental technologies, with an ever-higher share of SMEs not using low-carbon technologies (49%)"[xiv]

The EU agenda for combatting decarbonisation of EII combines exiting policy tools to facilitate the transition needed in this industrial ecosystem.[xv] The EU policy toolbox for decarbonization frames how multiple pathways and tools are important to reach set goals. This policy practice will have a cascading effect on regional practice and policy developments in the near future.

Towards an EU policy toolbox fit for purpose

Green transformation A combination of all relevant policy tools could be used to create lead markets for green and circular products and support the business case for private investments. No single tool will be sufficient, but **availability of large amounts of decarbonised energy at a globally competitive prices** is at the top of the list.

Digital transformation **Digitalisation of EIIs requires major changes** in (1) collection and use of industrial data and (2) development of digital product passports to increase traceability of material flows and (3) Artificial Intelligence and High-Performance Computing based simulation and prediction to enable better integration of renewable energy sources into EIIs and improve the quality, efficiency and speed of safety and sustainability assessments.

Access to Finance Needs to reflect industry's needs during the transition to climate neutrality. **De-risking of initial investments through tools like Contracts for Difference** need to be explored.

Industrial Networks Important for **enabling transition, pooling resources and sharing risks**.

Developments in the Russia-Ukraine war has resulted in gas shortage and price hikes and the need to remove natural gas from the road map of decarbonisation of EII industries. Key shifts in focus include:[xvi]

- Electrification of industrial processes through clean energy
- Use of green hydrogen produced using renewables, i.e., 'green' electricity
- Materials efficiency, secondary resources, and waste reuse, including waste gases to replace natural gas in industrial production
- Bio-based fuels and alternative (synthetic) fuels and energy carriers and biogas, next to hydrogen
- Reducing natural gas as transition fuel with alternative materials and energy efficient processes

The accelerated removal of natural gas in decarbonization of EII industries demands greater innovation for industrial transitions. Related to this shift in strategies is the key industrial ecosystem of the Renewables Energy.[xvii]

The North Sea Region is bound by a common area of interest in offshore wind parks, which in turn, connects to regional current and future economies of the RIGHT partners.

Once more, the number of jobs and SMEs involved in the Renewables ecosystems is captured in the infographics below, underlining the importance of skills development and SME support.[xviii]

8. Energy – Renewables Ecosystem

1.2 million people employed[283]

1 % of EU value added (EUR 122 billion)

111,000 firms 99.4% of SMEs

Transformative initiatives

Scaling up investments in renewables to achieve the 2030 climate targets

The **renewables market needs to double** and at least an **estimated EUR 50 billion per year is needed in both production of and infrastructure for renewables to achieve the increased climate ambitions for 2030**. Significant growth in the use of renewables in transport, industry and buildings is needed, as well as increases in public and private investments in R&I[284] and public procurement. The Recovery and Resilience Facility includes a 'Power Up' flagship to direct investments towards renewables.

Transforming towards an integrated energy system

The **decentralised nature of renewables** will require seamless data exchange between producers, infrastructure, aggregators and storage providers, together with consumers and their appliances all through an **energy data space.** Better data-driven energy services to consumers, interoperable appliances, services, platforms and management systems will be crucial for an integrated energy ecosystem. A Digitalisation of Energy Action Plan is scheduled for 2022.

Strengthen the European renewables ecosystem as global leader in technology development

The European supply chain will need to be strengthened to facilitate access to rapid growing markets within the EU and globally, including activities to **support the supply and end-of-life options for the critical raw materials for renewables production, digitalisation, and for the production of batteries and electrolysers**. The Clean Energy Industrial Forum has been re-launched to support the competitiveness of the industry.

A related industry to renewables is the mobility-transport-automotive ecosystems. The transition to cleaner and more sustainable mobility involves cross-over technologies, sectors, and frameworks to facilitate new services and products as described below. Once more, the share of SMEs and jobs in the transition to green transportation requires new skills and innovation.

10. Mobility – Transport – Automotive Ecosystem

14.6 million people employed[318] (at least 16 million including indirect jobs)

7.5% of EU value added (EUR 906 billion)

1.8 million firms 99.7% of SMEs

Transformative initiatives

A Fit For Purpose Legal Framework

The recently adopted Sustainable and Smart Mobility Strategy set out a predictable pathway for the ecosystem. Together with existing initiatives, they foresee major legislative adaptations (Euro7, CO2 standards, FuelEU Maritime, Rail Freight Corridors regulation, Combined Transport and batteries regulation). The ecosystem as a whole has to face huge investments both in legacy and green technologies at the same time. In the automotive sector alone, each car maker will have to spend up to €50 billion to address automation, connectivity and electrification challenges[319]. Clarity on legal framework is therefore a must.

Shift To Clean Mobility

So far, the **European Battery Alliance catalysed more than EUR 20 billion of private and public investment from 60 companies in 12 Member States. It shows how strategic dependencies can be successfully addressed.** It is expected that by 2025, EU battery cell production would reach **200-300** GWh. This would allow to produce 4 to 6 million electric vehicles[320]. The Clean Hydrogen Alliance will also be key for the whole ecosystem.

Fostering Automation

EU already has a legal framework for the approval of autonomous vehicles (General Safety Regulation) and for increased interoperability and capacity of rail transport (European Rail Traffic Management System). **Ensuring the deployment of key digital enablers and removing barriers to data sharing will be critical to improve efficiency and develop new market opportunities.** A vehicle will soon generate up to 4,000 gigabytes per day[321].

The need to support cross-sectoral collaborations, increased learning and knowledge sharing are at the heart of the key transitions outlined by the EU's Single Market Report of 2021. Such collaborations will accelerate faster deployment of multi-sectoral transitions whilst sharing and mitigating risks (industrial symbiosis).[xix] This includes digital innovations powered by increasing computational capacities.[xx]

The World Economic Forum's The Future of Jobs Report 2020[xxi] was published in the midst of the COVID-19 pandemic and a recession forecasting the outlook for jobs and skills and the impact of technology uptakes for the next five years. Technology integration in the form of *'cloud computing, big data and e-commerce'* meant a forecast of 85 million jobs to be displaced globally due to shifts of work between people and machines and up to 97 million new roles globally due to shifts in *'labour between humans, machines, and algorithms*. This translated into new skills needed on the job for up to 94% of employees according to business leaders interviewed.

Another key finding was how remote working, made necessary during lockdowns for many office jobs, is accelerating digitalized work processes with businesses expected to expand their share of remote workforce in the future. The impact of digital technologies is expected to lead to greater inequalities for lower wage/younger workers and women as seen during the pandemic. Similarly, online trainings have a different reach and use between employed and unemployed populations, reinforcing the need for nuanced approaches to skills and training support. An additional factor is the hesitancy to reskill and upskill within employed and unemployed populations due in part to concerns over return of investments linked to rapid shifts in jobs and skills sets and a lack of guarantee of jobs. The challenge for businesses, in the face of technology adoption and a looming recession according to the report is, to invest in skills training to retain some or all of its workforce even as returns of investment for this is expected to be on a mid- to long term. This in turn, begs the question if they are able to do so.

An important benefit of retaining and reskilling workforce by businesses is its huge societal value. The future of jobs report therefore highlights the importance of public sector support for upskilling and reskilling employees at risk of retrenchment or those displaced. They point to the potential role of governments to incentivize human capital investments in preparing for jobs of the future; creating safety nets for people transitioning between jobs and those displaced; and to review and act on improving education and training systems.

A recent Cedefop[xxii] report on the European job market 2020 and 2021indicated that ICT remains the top growing sector with post-pandemic recovery in some specific sectors (wholesale, retail, transport, storage, and construction) were also creating new jobs. In this report, sectors providing specialized or high-end services through remote work fared better than those in direct customer contact sectors (accommodation, food, trade, and administrative serves such as travel, employment, rental, and

leasing) as expected. They also indicated that technologically advanced sectors were more resilient to job losses than those that were least technology intensive ones. The report reflects some optimism on the impact on jobs and employment numbers with signs of recovery in 2021.

European Skills Agenda[xxiii]

The European Skills Agenda acknowledges the context of transitions and the urgent need for new skills sets to deliver on its promise of *'sustainable competitiveness, social fairness and resilience'* and therefore anchored to its European Green Deal, new Digital Strategy, and new Industrial and SME strategies.

The Skills Agenda was introduced in 2016[xxiv] with 5 building blocks:

- Mobilizing collective action within EU's industrial ecosystems and across value chains
- Defining a strategy that safeguards skills development to jobs
- Reinforces lifelong learning as the norm
- Identifying financial resources to foster investments in skills
- Setting ambitious upskilling and reskilling objectives for the 5-year period.

Lifelong learning is therefore key to its skills agenda objectives to be met by 2025:[xxv]

Indicators	Objectives for 2025	Current level (latest year available)	Percentage increase
Participation of adults aged 25-64 in learning during the last 12 month (in %)	50%	38% (2016)	+32%
Participation of low-qualified adults 25-64 in learning during the last 12 months (in %)	30%	18% (2016)	+67%
Share of unemployed adults aged 25-64 with a recent learning experience (in %)	20%	11% (2019)	+82%
Share of adults aged 16-74 having at least basic digital skills (in %)	70%	56% (2019)	+25%

As part of the Skills Agenda, the Commission has outlined 12 actions to achieve the objectives set for its Agenda. These actions

- A Pact for Skills
- Strengthening skills intelligence
- EU support for strategic national upskilling action
- Proposal for a Council Recommendation on vocational education and training (VET)
- Rolling out the European Universities Initiative and upskilling scientists
- Skills to support the twin transitions [green and digital transitions]
- Increasing STEM graduates and fostering entrepreneurial and transversal skills
- Skills for life
- Initiative on individual learning accounts
- A European approach to micro-credentials
- New Europass platform
- Improving the enabling framework to unlock Member States' and private investments in skills

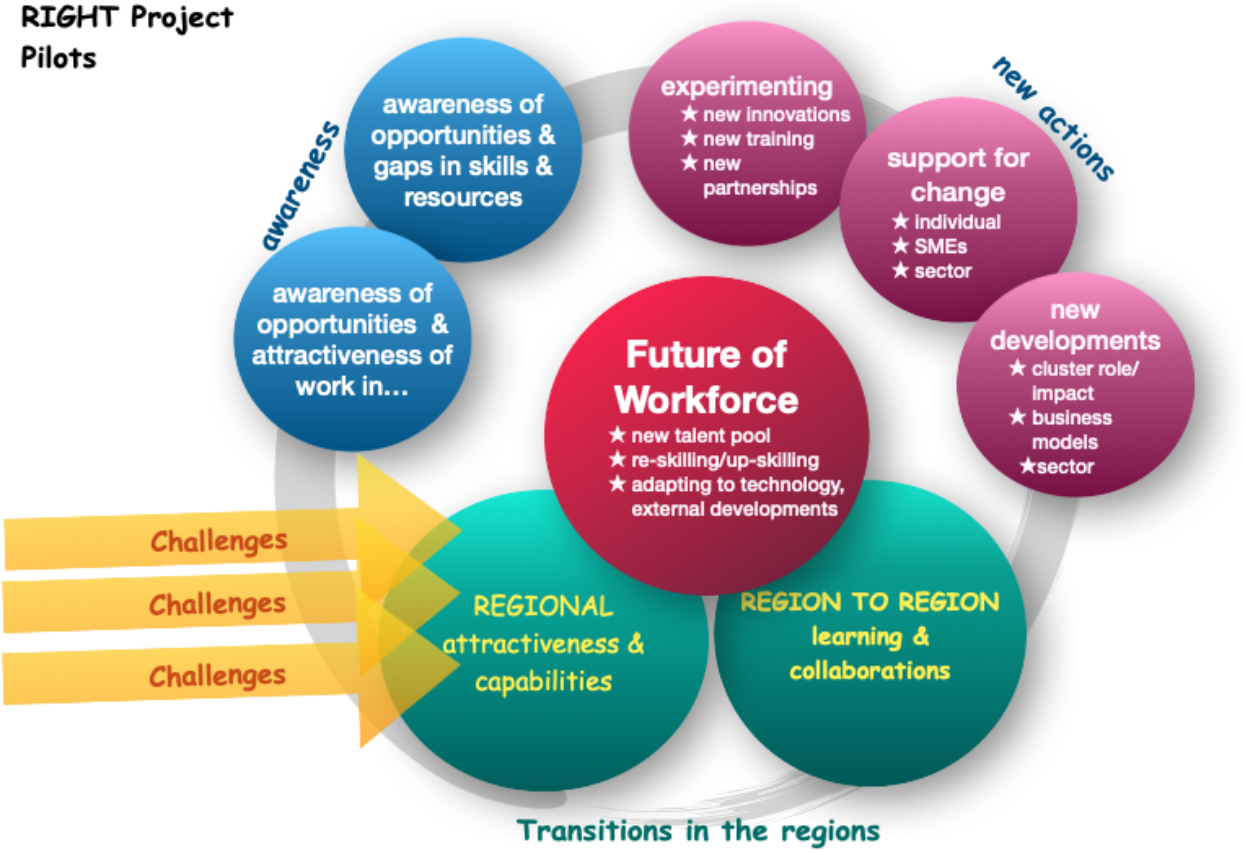
New actions will strengthen customized, flexible education and training frameworks to support the diversity of upskilling and reskilling needed. The introduction of micro-credentials promises to pave the way to more accessible lifelong learning pathways. Financial aspects and awareness of opportunities and benefits of continuous learning are other areas highlighted in the European Skills Agenda.[xxvi]

Common challenges and diverse settings

The RIGHT partners identified common challenges due to reliance on traditional energy and blue sectors. Regional transformations needed to become greener and more digital in the face of globalized value chains. These regions, much like many regions in the EU, have large proportions of SMEs with limited or no innovation capacities, workforces with outdated skills sets, facing shortages of skilled technical labour pool whilst new recruits had inadequate educational levels. The also identified challenges of SMEs in developing new business models and connecting to new value chains due to limited knowledge on new markets, technology, product development opportunities and potential partnerships to innovate. Access to finance was also a key issue for SMEs wanting to innovate. The Project initiated various pilots to address the skills and innovation gaps faced by businesses. In order to do so, a range of pilots were carried out and they addressed different aspects of the skills and innovation gaps. The illustration below captures these various aspects, including the context of the regions.

The regions were aware of the complexity of connected challenges of skills, innovation, and structural weakness in the face of multiple crises of Brexit, COVID-19 and more recently the Ukraine invasion, impacts of climate change, increased political and social fragmentation and threats to democracy due to disinformation and polarization, etc. The challenges of both external shocks and internal weaknesses meant that regions needed to change, hence, transitions in the regions. The project benefitted from the interregional collaborations and knowledge sharing and is captured as the region to region learning and collaborations. The core of the pilots addresses the future of workforce as enabling individual, organizational and sectoral transitions through new business models and horizontal chains. See separate documents on new business models of education and training developments and of emerging value chains.

RIGHT Project Pilots



The RIGHT project, particularly the pilots were catalysts for change in the different arenas and regions.

The project's Regional Innovation Ecosystems audits from all regions, the JOE's tool (anticipated job vacancies and competences) and an analysis of SME needs prepared the grounds of the project in each region by connecting and initiating dialogues with SMEs and policy makers. The regional reports and a transregional report set the stage to identity skills and innovation gaps for each region and chosen pilots.

The pilots captured how transitions and the need to change were perceived; the different speeds of change amongst skills providers and businesses; incentives, the motivations, and abilities to change at individual, business, and sector levels; the support for change, also at the different levels; and experiments and new developments. The range of pilots covered in essence:

- pilots focussed on creating awareness of opportunities for jobs in specific sectors (blue, ports, offshore wind parks) and the impact and attractiveness of technical jobs (Antwerp's Port Chance and Card Go, Fife County, Gas 2.0);
- pilots working with SMEs/businesses to become aware of opportunities and potential gaps in their skills and competences (Skåne's Mind the Gap and Inventory of Competences, Hamburg's Marine and Energy Industries, Fife's ENV Industry Access and Blue Growth Consortium, Groningen's Green Hydrogen Booster and iBOSS, Vordingborg's Skill Mill, Vestland's Mongstad and RAS pilots)
- pilots connecting to new training (Marine Training Platform, Antwerp's Triple E, Gas 2.0, Mongstad, RAS)
- pilots providing support to individuals, SMEs, and sectors (Vestland's RAS and Mongstad, Skåne's Mind the Gap, Groningen's Gas 2.0, Green Hydrogen Booster, and iBOSS/RIF-N,
- pilots connecting to new partners and developing ecosystems (Green Hydrogen Booster, Blue Growth Consortium, iBOSS/RIF-N, Skåne's Mind the Gap?)
- pilots supporting changing roles of clusters, development of business models and business models (almost all pilots)
- a transregional pilot on energy programmes from partner regions (Ghent's Marine Training) and collaborations and learning from other regions (all partners)

Whilst designing and working on the RIGHT pilots, policy themes were identified. The table below captures these themes in relation to individuals, businesses, educational pathways, ecosystems, and governments.

LEVEL	POLICY THEMES
INDIVIDUAL	Career choice and upskill Initial Vocational Education Employment Lifelong Learning
FIRM	(Access to) finance Product/service innovation (including new markets) Process innovation HRM - Recruitment HRM - Training
PATHWAY/TRACK	New school New/ improved pathway (Re-)Train the trainer
ECOSYSTEM	Education & training partnership (triple helix) R&D Value Chain
GOVERNMENT	Funding, regulation, policy Cross border cooperation

The pilots and framing of policy themes evolved as the project progressed, immersed in a pandemic.

The COVID-19 pandemic impacted pilots and decimated physical collaborations and meetings both within and across regions. The pandemic highlighted the urgency of upskilling, reskilling, and increasing innovation capacities of individuals, businesses, and regions but also the interconnectedness of skills, innovation, and resilience agenda. The pandemic accelerated the speed of digital transitions, the need to respect and nurture habitats of all living creatures (deforestation and cross-contamination sources of new viruses), to address social and economic inequalities, understanding and developing adaptive competences to deal with unpredictable complex challenges and through shared and collective efforts. The project's lessons learnt were further enhanced by the context of the pandemic and the recent Ukrainian war. Various transnational workshops allowed deeper understanding and reflection on the project activity, impacts, and implications for policy within and outside the project area.

The key RIGHT lessons are described below.

Regions in transition

- dealing with rapidly changing and unpredictable challenges; reviewing past legacies and opportunities for new futures
- meeting EU briefs on green, digital, and more inclusive goals
- weaning off (dominant) traditional industries, dependence on fossil fuel industries and boosting low technology uptakes of SMEs (Mongstad, Groningen, Hamburg, Fife, Vestland, Skåne, Vordingborg)
- facilitating emerging energy and blue industries; reviewing skills and innovation frameworks;
- attracting new businesses and workforce to mitigate labour shortages
- exploring cross-border and interregional connections
- reviewing Smart Specialization Strategies to mitigate external shocks and increase skills and innovation capacities

Business in transition (SMEs)

- sense of urgency needed in understanding the need to innovate and be able to articulate their skills and innovation needs (Mind the Gap, Hamburg's Marine and Energy Sector, RAS, Fife's Environmental Industry Access Academy)
- diversity of needs of businesses in transition; flexibility and customization required
- difficult to connect to new horizontal value chains (Skill Mill, Triple E, Green Hydrogen Booster, iBOSS) and embracing lifelong learning as part of business development (Skill Mill, Mongstad, Race to Zero, Gas 2.0)
- funding gaps to go 'green/blue/digital'; incentives and support needed
- dealing with shortage of skilled workers and pool of redundant workers (Race to Zero, Skill Mill, Blue Growth Consortium)
- understanding that new horizontal value chains and emerging industries are complex and need coordinated and favourable framework conditions

Business and education divide: need to re-think training and education

- different cultures, time horizons, agenda, and priorities (Blue Growth Consortium); need to bridge the gap (Port Chances/Pro Academy, Mongstad)
- changing skills and training needs mean that initial and continual education and value of formal and informal learning need to be reviewed
- need for collaborations with businesses to identify skills needs and between educational institutions for more flexible pathways (Gas 2.0, Port Chances, Vestland Skills Forum)
- new business models needed: short and flexible training, hybrid models, small group workplace classes; industry-education collaborations to customize skills offer (RAS, Gas 2.0, Hamburg's Marine and Energy Sector)
- challenges related to funding need to be addressed – balance between public versus private (business/individual) funding even as labour shortages, in part due to lagging education systems, rest in the public domain
- exploring good practices (Fife's Pathway to Apprenticeships) to attract and create new pathways of learning and skills developments; decentralizing campuses to rural areas to support lifelong learning and connecting students to rural businesses and communities to boost innovation capacities (Norway, Netherlands' iBOSS/RIF-N)
- lower thresholds by addressing deficiencies (RAS, Gas 2.0)
- review focus on individuals (career counselling) to include business counselling (Norway, RAS, Port Chance/Pro Academy, iBOSS/RIF-N)

Innovation and skills gaps

- innovation support is broader than skills gap and skills agenda needs to be integrated into business development strategies and support
- motivation, work ethos and attitudes are also part of the skills and competences continuum that need to be addressed
- use clusters to support SMEs and identify skills and innovation gaps (Skåne, Mongstad)
- programmatic approach needed for systemic change (Gas 2.0, Mongstad)

- motivation to upskill or reskill needs to be incentivized as there are no guarantees of jobs for the individual whilst management may be afraid to lose workers after re- and upskilling
- labour mobility across sectors is desirable but needs coordination (Mongstad)
- the challenges faced in skills and innovation competences need to be addressed collectively by public and private sector and in a coherent manner (see Ecosystem developments)
- funding to solve innovation and skills gaps raises various questions:
    - Who pays for broadening skills? Is salary paid?
    - Is it during work time or after work?
    - What about older workers – do we reskill or retrench them?
    - Funding for pilots do not include upscaling/mainstreaming new training initiatives – who is responsible?
    - Innovation vouchers are often limited – access to credit for upscaling remains a barrier (Green Hydrogen Booster)
- There are regional differences to skills and innovation funding; but also, in general in the skills gaps and these need to be addressed;
- A general shortage of workforce is present in Vestland but also in other European regions due to retirement and local unattractiveness of specific (technical) jobs, location/competition from other areas or sectors (all partner regions)
- Training could be made available beyond regional and national markets to increase offer greater trainings/education but also to facilitate regional labour mobility: the Marine Training pilot provides information on energy courses available from the partner regions. This initiative needs to be further developed for greater impact.

Developing ecosystems

- Support for individual, business and industry/sector alone was considered inadequate; facilitating ecosystem development, particularly in emerging industries and sub-sectors, was important (Green Hydrogen Booster, Gas 2.0. and Groningen's Hydrogen Valley developments, Blue Growth Consortium, Skåne's Mind your Gap, Mongstad)

- Ecosystems with clusters and other intermediaries bring regional actors interested or vested in the same developments together but also supports building trust, dissemination of knowledge (RAS, Triple E, Blue Growth Consortium, Skåne's IUSyd, iBOSS/RIF-N); other actors mentioned were business representatives, trade and worker representatives, other public agencies involved in skills and innovation support.
- Ecosystems include triple or quadruple helix (business, education/research and government, and civic organisations/citizens). For more information, see Transnational and New Value Chains Reports.

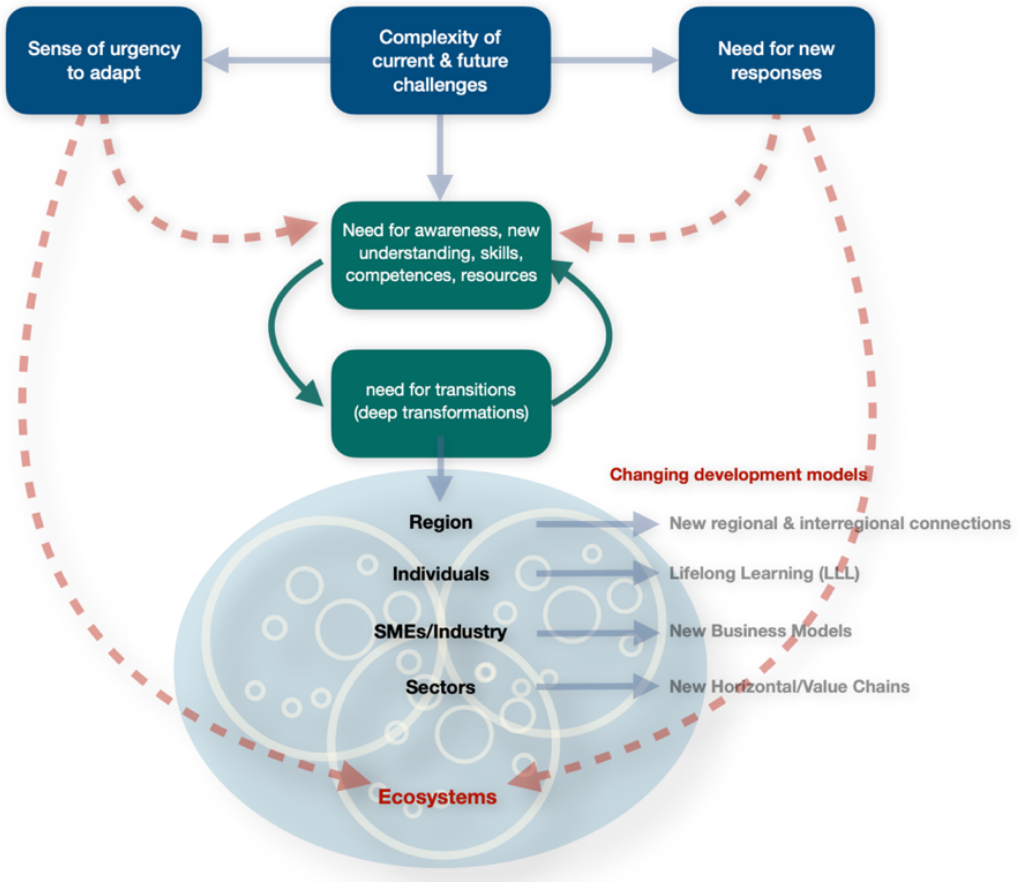
Policy gaps

- Skills and innovation policies are separate domains and often at different government levels; there are differences in regions in policy mandates and governance
- Fragmented policy domains need to be addressed in dealing with skills and innovation gaps, as part of the necessary transitions
- Skills and labour shortages are systemic in nature and need systemic solutions: see ecosystem developments
- Dealing with skills and innovation challenges needs closer collaboration of actors involved, including governments to bridge cultural gaps and priorities.
- Nurturing a culture of learning to facilitate lifelong learning needs to be addressed (EU Skills Agenda)
- Exploring and facilitating new growth sectors, particularly blue and renewable/hydrogen sectors
- The North Sea region has common challenges related to offshore wind parks, maritime and energy industries; the RIGHT project shared tools, insights, and good practices during the project; and connected to other NSR and European projects (see New Value Chains Report)

The Embedded Region

The policy recommendations are based on the project's activities and dialogues of the past 3 ½ years. It enabled engagement with regional stakeholders, room for experimentation, reflection and learning from partners and other good practices. Central to the policy recommendations is the realization of the embedded nature of regions. Regions are steeped in their own past legacies and cultural identities, sensitive to business and societal developments within and outside their regions and are often bound by national and European policies and directives (which in turn are bound by global covenants). This demands flexibility and adaptability of regions to be able to respond adequately.

The illustration captures how the RIGHT regions perceived, responded, and acted in the face of complex challenges, including shifts in their developmental models at the different levels. Many of these may not be new but the emphasis and the centrality of these shifts is what marks the policy recommendations. They are grounded in the specific experiences and intelligence of the partners in this project. These recommendations are very much in line with the new EU Skills Agenda directions as described earlier and offer insights into regional policy directions that puts transitions at the core.



Policy Recommendations

Regional policy needs to be framed in terms of transitions: Thinking in transitions

This applies to policy targeting all levels – individuals, businesses, industry, sectors, regions – and across all policy areas. The *thinking in transitions* includes acknowledging that transitions are complex, unpredictable, unprecedented and need room for experimentation. Policies need to create a sense of urgency to support systemic change even as many continue with 'business as usual'. Identifying common challenges, directions, governance structures and supporting deeper collaborations form part of the *thinking in transitions* approach.

This means that Smart Specialization Strategies need to place transitions at the core and that all policy areas need to support and contribute to transitions (digital, green, inclusive) at different levels, be it individual, business/industry, sectors, region or inter-regional. In doing so, attention needs to be given to *Just Transition,* particularly in regions with painful legacies such as Fife with its historical closure of its coal industry and Groningen with its earthquake damages due to gas extraction. These regions have infrastructure and skills/knowledge bases that need to be leveraged into developments in renewable energy and related industries. In addition, good practices from these regions show that inclusive strategies offer room and support for bottom-up initiatives. Some examples being, Plan4fife with Opportunities for All, Thriving Places, Community led Services and Inclusive growth at Fife; and Taukomst in Groningen for citizen and local community initiatives.

A different example of policy *thinking in transitions* is that of Denmark that has set itself up as a green pioneer country for green fuels and technological solutions. Vordingborg set up a 70% CO_2 reduction by 2030. Framing high ambitions by policy boosts green investments as also seen in Vestland where Greenspot Mongstad aims to diversify its economic activities on the long term.

Regional policy needs to support transitioning industrial sectors: Developing ecosystems

This applies to outdated and, or fossil-based industrial sectors that are in the process of transitioning to become more digital, modern, and sustainable. Higher value-adding and creating niche positions could also be part of such transitions. The focus

on *developing ecosystems* includes alignment of policy across multiple government agencies, policy domains and government levels. This means identifying and supporting emerging local and regional ecosystems that increase interactions and collaborations across sectors. This means better alignment across industry-education-policy divides. Civil society (citizens and social institutions) are also an important part of any ecosystem and attention to connecting all parties is important in pursuing new systems change.

Policy, through clear directions made in the Smart Specialization Strategies, could be an important accelerator and coordinator of chosen transitions and their related ecosystems. Public procurement is an important policy tool that could accelerate ecosystems of new value chain developments. The example of the Northern Netherland's choice to become the 'hydrogen valley' and the decision to adopt hydrogen fuel for part of the municipality's heavy vehicle fleet illustrate policy interventions that boost development. Providing subsidies and accelerating new regulatory frameworks for new technology uptakes are other examples of policy interventions supportive of emerging ecosystems.

Ecosystems can be related to creating new horizontal chains of SMEs to partake in off-shore and large-scale infrastructure opportunities as in Vordingborg by facilitating new skills certification and training offers that meets standards for such cross-border developments. Championing and supporting cross-sectoral cluster developments such as the Blue Growth Consortium in Fife is another example of policy advocacy that needs to be supported by policy coordination aimed at exploiting synergies within emerging ecosystems. In Vestland, industrial symbiosis frames policy decisions as part of value chains that cross industrial sectors in interdependent value creation systems. This covers R&D through end-user delivery. The fluidity of value chains across new and traditional industries includes skills and innovation frameworks.

Cluster policy in particular, is a specific policy area that is important in increasing the potential of ecosystems and to support exploitation of value creation that is both sustainable and inclusive. Connecting diverse parties across various industries to develop new value chains requires dedicated agency and intelligence. Crossing boundaries of culture, knowledge, interests, time horizons and capacities require resources and room for experimentation. Policy arrangements can support such initiatives through close liaison with those involved and therefore necessitates a demand-driven policy agenda, including skills and innovation needs, support, and

alignment across different domains. Policy interventions could be as simple as inviting experiments or pilots to create better networks, interactions and collaborations around emerging sectors and business models.

When supporting ecosystem development, scale becomes an important element in which policy can play a role. Creating critical mass is an important aspect of ecosystems and value chain developments that often need policy engagement and support. More on this aspect in the recommendations on the need to support emerging development models and on interregional collaborations below.

Ports, like cities, serve as natural ecosystems for new developments due to the diversity of economic activities and their position in global logistics and value chains. The proximity to heavy industries requiring decarbonization transitions also makes ports and the wider industrial ecosystems ideal basins for developing innovative ecosystems. Policies focussed on decarbonization of heavy industries, development of alternative energy (LNG, Hydrogen, Biofuels) sources for maritime transport and industry, and circular economies could leverage ports as natural ecosystems for industrial symbiotic transitions.

Regional policy needs to support emerging development models: Developing infrastructure for new development models

The need for demand driven policy is at the core of this recommendation. Development models of strengthening regional and interregional connections, lifelong learning frameworks, new business models and new horizontal/ value chains have been identified and highlighted in the RIGHT project in this and other documents.

Policy needs to adapt to changing landscapes of regional and business developments. As traditional industrial bases and value chains re-build and re-configure themselves, alignment and support for emerging development models are important. This includes the need to strengthen and initiate collaborations for innovation and skills developments (strengthening relevant ecosystems). This also includes public-private partnerships.

Policy has an important role in determining the governance of new value chains and markets. Regulatory and legal frameworks determine who may participate and under what conditions, in the interest of safeguarding public interests, even as end-user rights and obligations are made transparent.

There is a need to support innovative development models, particularly, in the face of climate neutrality in the maritime and energy sectors, but also across all sectors, to ensure that overarching policy targets are met. This translates to support for market creation, developing relevant infrastructure and facilitating public support. In addition, policy needs to ensure that the quality and exchange of information and transactions in newly developing business and industrial models are transparent and open to all parties to avoid market dominance by a select few. Access to finance and low thresholds to entry are important to ensure that local uptake and capacity building is assured for both small and larger players. At the same time, opportunities for large scale pilots and financing these are also essential for new value chain developments.

There is a need for policy to incentivize businesses to partake in emerging value chains and industries, support them in investing in skills and innovations and creating demand through procurement and fiscal policies. Grants, loans, and investment programmes are also instruments that could be deployed to support new development models to industry and SMEs. Policy intelligence on business transition processes, needs, and challenges, is key to include SMEs in new development models.

Policy support for SMEs acknowledging *business in transition* models requires a deeper appreciation of the multiple demands to go green and digital whilst running on-going business activities. Businesses may not always be aware of or be able to articulate the innovation and skills required to make the transitions needed. Innovation support could be facilitated by new models of support that offer customized counselling that connects business strategy, capacity building and skills needs inventory as was the case in Skåne and as planned in Vestland and Hamburg. An integral approach for innovation and skills agenda is addressed in the next recommendation.

Regional policy needs to reframe Skills and Innovation Agenda: Integral agenda for transitioning

Skills and Innovation agenda needs to become part of an integral agenda anchored in regional transitions towards resilient futures. This policy recommendation demands coordinated and aligned policy arrangements that service regional, business, and individual transitions.

Skills development is aimed at individuals, young and older populations, in anticipation of work needs. Creating current and future workforce in changing landscapes of businesses and

economies require continual and updated training and educational models that need to be in sync with changing industrial needs. Lifelong learning and capacity building development of businesses go hand-in and therefore close collaboration between industry and training sectors are important. Education and innovation policy therefore need to be aligned to meet labour market needs. A shortage of skilled labour pushes competition between sectors for labour, increases demands for migrant workers and professionals as well as for up- and re-skilling of current work force. It is important for policy to address the skills shortage as part of the larger regional transition to ensure that policy interventions are systemic and not symptomatic.

Supporting SMEs (making up 99% of the economy) needs to be an *integral part of the transition agenda*. SMEs need to become aware of the need for transition, opportunities, threats involved if neglected and the urgency to act. Support includes needs articulation and business development guidance as well as access to funding as described earlier. Policy instruments need to boost and scale up support mechanisms for SMEs. Connecting SMEs to clusters and innovation alliances (such as Fife's Blue Growth Consortium or Mongstad's Greenspot) can be facilitated by policy incentives and information campaigns. Pact for Skills by clusters organizations can be accelerated by policy as they customize and integrate skills and innovation support for SMEs. Trade unions can also play an important part in pushing integral transitioning agenda from the worker's perspectives and could be deployed to stimulate continual upskilling models that work for employees.

An important part of successful deployment of an *integral agenda for transition* is the funding of skills development. Policy arrangements needs to be designed that contribute towards a sustainable model of re- and upskilling of the current workforce even as the onus of staff development may be argued to be one for businesses. Reframing skills and innovation in terms of regional and economic transitions begs for a broader perspective of viable and inclusive economies in the face of global value chains and competition that could negatively impact regional economies if transitions are not adequate and timely. Over reliance on dominant traditional industries demands diversification and decarbonization and this in turn, demands new skills and innovation. Private and public cooperation is needed to ensure that systemic and timely change is realized. The systemic mapping of emerging or potential green value chains and the prospects for new jobs and investments in Vestland is an example of public-private collaborations to identify and commit to longer term changes in the region

whereby collaborations for new cross sectoral business and industrial models have emerged. The policy initiative to map and involve all stakeholders to corroborate overarching interests, opportunities and goals for green, circular value chains helped tie skills and innovation agenda into a broader, sustained strategy for the future. This is initiative is highly recommended to all regions to create common understanding and collective action based on an *integral transition agenda*.

Regional policy needs to re-think training and education: Facilitate new models of training and education

This policy recommendation applies to breaking down traditional notions of learning and creating room for new models of education and training. Educational institutions need to become more flexible and adept at responding to the diverse and changing needs of the workforce. Initial and continuing learning models need to anticipate and create new forms of learning models, on-line, off-line, hybrid, modular and accumulative. Incentives to reframe education and training delivery and offer need policy directives even as educational policies may be framed at national policy levels. New models of training and education can always be supported by locally grounded needs through pilots and regional policy instruments.

Greater support for models of learning on the work floor, or close to work, is important as these models could lower thresholds for training by eliminating additional travel time and costs, a hindrance for workers with limited budgets.

Digitization impacts all sectors with greater impact on routine cognitive tasks being replaced by computers. More complex and higher technical processes are expected to increase the skill sets needed on the work floor of many industrial businesses with new software and advanced technological processes changing at a pace that on-site and on-the-job training and working with suppliers of machines will see greater part of competence development in industrial workplaces.

Acknowledging formal and informal modes of learning is an important first step to make room for new forms of non-formal learning credit systems. Gamification (serious gaming, VR simulations, etc.) resonates with new technological trends and is attractive to younger but also suited to non-cognitive learning styles that offers immersive learning experiences with direct feedback. More user-friendly models of training and attracting new recruits are an important element in meeting the urgent need for a higher skilled workforce.

Policy focus should also include incentivizing individuals and businesses to embrace learning as being at the heart of working life and to support new narratives on reinventing learning and working as part of a lifelong professional and personal development continuum. Traditional boundaries between work and training, knowledge as a commodity to be developed and guarded within organizations, understanding the need for collaborations to up the skills and knowledge base of workforce are all part of facilitating new models and perceptions of training and education. Bringing campuses and students to rural areas and to local businesses as was the case in Norway and in Groningen and bringing students into ports and company at very young ages to incentivize them to embrace careers in technical and industrial port settings as in Antwerp are all examples of breaking down barriers between education and industry/business.

To foresee new skills needs for emerging value chains and industries, coordination across different educational levels and domains is necessary. An example of this has been seen in *Hydrogen Works* and *Gas 2.0* in the Groningen area and the Vestland Skills Forum initiative. Regional investment programmes should include training and innovation collaborations and arrangements as part of fiscal incentives and framework condition development supporting new economic industrial and ecosystems developments.

New models of education and training need to include the attraction, retention and uptake of new skills and knowledge of young and inactive members of the population as well as placement of workers from declining sectors to ensure a steady and realisable stream of new workers for existing and emerging SMEs and industries. These new models need to include a diversity of activities that go beyond traditional 'lessons' to include work orientation, induction, and growth models. Apprenticeship models are an important part of vocational education that could be revisited (good practice at Fife's Pathways to Apprenticeships) to draw youth and inactive populations into the labour market through steppingstones of apprenticeships.

The pilots of RIGHT have shown the variety and array of initiatives that cover awareness of opportunities and attractiveness of jobs and sectors, awareness and opportunities and gaps in skills and resources, room for experimentation in different domains, levels, and settings, including support for change and partnerships for new economic and professional development. Policy needs to spearhead reframing skills agenda and the packaging of education and training models to broaden the playing field,

change the rules of the game and to invite new business and value chain development for this domain (see RIGHT documents on these topics).

Rural and lagging communities, under the threat of youth migration to more attractive urban centres elsewhere, have also seen a revival of interests due to the pandemic. Digital and remote working models and the quality of life in rural settings have generated an interest in rural regions. Regional policy in these parts could hone into the newly discovered attraction of such areas to boost education and business developments and therefore catalyse such impulses for building new business and training models to regenerate local economies. Timely policy interventions in close collaboration with business communities and school are important to leverage the current attraction of rural living. Policy interventions would need to connect to broadband and other infrastructure conditions to attract new work and lifestyle choices on the whole.

Facilitating start-ups and (e-)enterprise amongst student and latent work force populations needs to be part of reframing educational and training offers. Service innovation and servicing local communities are domains of local enterprise, even as e-commerce is offering new business models for rural communities that can serve global marketplaces. Many local communities are creating new types of cooperatives to improve service facilities in rural villages and to be more self-sustaining (examples are abundant in Groningen and in rural communities in Europe in general). To support these developments, upskilling and upscaling business models are important areas for policy support to strengthen rural and isolated communities whilst retaining their numbers and lifestyles. Finding a balance between rural and cultural identities and the need for new types of energy production, storage, and distribution, including carbon capture and redistribution, has become an important policy area that could offset 'loss' by creating new livelihood and business models through training and support for job mobility and new business entrepreneurship.

Regional policy needs to look beyond its borders: Think interregional and leverage the North Sea Region community

This policy recommendation underlines the shared interests, common challenges and opportunities made available through the resources that the North Sea offers. The marine and energy dominated *RIGHT* regions need to expand their horizons to leverage and harvest knowledge, innovation and skills capacities and infrastructure, and a basin of cultural and economic

heritages that is boosting individual regional transitions. Pooling resources, facilitating knowledge transfer and labour mobility through coordinated policy arrangements, leveraging EU programmes and initiatives that facilitate this, would accelerate off- and on-shore developments with a backdrop of achieving climate neutrality in the North Sea regions (NSRs).

Regional Smart Specialization Strategies are key to coordinating and boosting cross-border and interregional collaborations for realizing sustainable value chain transitions for industrial renewal and creating new industrial ecosystems that are circular, geographically contained and create new areas of industrial symbiosis as seen in the Vestland region.

The potential to upscale and create new business models for green hydrogen production and distribution, building on North Sea offshore infrastructure and industries, offering new life to decommissioned oil platforms and infrastructure, reusing gas pipelines for transporting hydrogen instead of electricity, thereby reducing costs and loss of energy in transport, are important opportunities for interregional NSR collaboration. Projects developing green hydrogen both on- and offshore are not new (PosHYdon, NortH2 Project HY3 and Heligoland are examples) but concerted policy ambitions linking Smart Specialization Strategies to joint North Sea development will reframe regional and ecosystem developments. This would, in turn, create embedded systems accelerating skill, innovation and *business in transition* agenda to be led by NSR joint frameworks.

The EU green, digital and inclusive agenda is framing EU regional policy. Therefore, common grounds within the NSR would amplify context specific opportunities and challenges to connect regional agenda to accelerate through the larger scope and scale that such a policy choice would offer. Impediments as with any cross-border collaborations will be present but the urgency and complexity of challenges facing the NSR regions allows deeper collaborations in the area of skill and innovation capacities, labour mobility and knowledge development and transfer exchanges, creating NSR value chains for regional self-sustainability by enlarging market scope and segmentations that would otherwise not make new green value chain initiatives viable. Coordination and alignment of standards and regulatory frameworks would be some of the steps needed for policy making. Once more, demand driven policy making needs to be the norm as described earlier with close collaboration with market and social partners.

Regions are currently discovering industrial interlinkages due to the circular economy frameworks and emergence of interdependent infrastructure, skill and knowledge bases,

shared resources, and value chain elements. These fragmented developments (Antwerp, Vestland, Fife, Groningen and probably in most port and heavy industrial zones) pushed by decarbonization activities and scarcity of materials and digitization, can be accelerated by connecting them through NSR collaborations and frameworks. New value chains for sustainable fuel alternatives and electrification of water transportation (inland shipping, ferry services, recreational and commercial vehicles) could profit from collective efforts at the NSR level. Policy can facilitate and expedite collaborations and interactions through coordinated policy tools and joint programmes across the NSR. Other value chains related to marine transport, (on shore) aqua farming, shipbuilding, infrastructure and offshore developments, recreational and other manufacturing sectors, etc.

Developing ecosystems at the NSR as part of a joint action plan for regions in transition would include policy recommendations described on this topic but then with a coordinated policy framework to increase alignment and support cross regional interactions and deeper collaborations. Examples of such projects in the NSR are available (Periscope, Heavenn, etc.) but these are projects that could be made more permanent through programmatic approaches such as the S3 Platform. The S3 Platform is an important platform that facilitates thematic partnerships across regions. A designated NSR S3 Platform, following examples of the Baltic Sea and Danube region, could serve to realize and accelerate more localized and shared interests, projects, and programmes for the NSR. Such initiatives need to consider developing/boosting key ecosystems in potential blue and energy sectors, create joint NSR skills programmes and innovation support for regionally embedded areas of interest. Marine Training Platform already provides information on marine training in Europe, but a designated NSR skills and training offer could be considered for key areas. New developments in the EU skills agenda point to possible individual learning accounts and development of micro-credential training offers. Coordinating and consolidating such efforts make sense at a NSR rather than a local regional level, something for regional policy makers to consider.

A NSR business and industrial development framework or initiative would make investments for larger outlays more attractive and yet could also create opportunities for SMEs through low-threshold programmes. It would reduce fragmentation and duplication whilst leveraging resources and capabilities across the regions.

The RIGHT project has demonstrated the value and impact of interregional collaboration and learning in the section on lessons learnt and spin-offs in this and other documents. These projects have allowed reflection, learning, upscaling and transferring pilots and good practices, expanded networks and knowledge resources and capacities. The sum of the parts has been exceeded by the whole. Interregional collaborations and programmes need to be at the core of regional policy rather than a secondary or tertiary priority. Working together increases local and interregional impacts. The lesson from the S3 Platform is also, 'learn and connect'.

Regional policy needs to focus on 'attractiveness': *Make 'attractiveness' a priority*

This final policy recommendation is an overarching priority of *making attractiveness a priority*. Lifelong learning for individuals and businesses needs to be made attractive. Businesses and industries need to stimulate and supported to embrace the multiple transitions of decarbonization, digitalization and increasing technological adaptations whilst dealing with business as usual.

Policy makers need to promote and highlight the added value and attractiveness for businesses to embark on transitions, and where possible, through joint exploration and collaboration in networks and ecosystems of emerging value chains. In addition, promoting cluster developments and supporting ecosystems transforming regional and business capabilities and value adding activities, is needed for realizing green, digital, and inclusive economies.

Expanding the scope and scale of promising and essential value chain developments such as that of green hydrogen and green innovation services and facilities for traditional industries to the North Sea Region would attract investments in key industrial ecosystems and skills and innovation programmes. Making the NSR attractive for joint regional development is an important policy consideration that would help ease bottlenecks whilst possibly accelerating local and regional economic transformations. The NSR offers greater scope for cross-border training and apprenticeships, particularly in relation to North Sea offshore developments, making interregional training programmes lucrative and attractive. Setting up cross-border programmes with apprenticeship elements in different regions allow harmonization of certifications, standards and credit recognition and generates a larger international talent pool already steeped in multi-contextual settings and it promotes on-

site learning as important components of new learning programmes. Public procurement policies could prioritize tenders that include interregional work-based training programmes to stimulate market demands.

The attractiveness principle for policy frameworks needs to embrace learning at the core of economic and social policies. The need for purposeful lives is not limited to economic sectors but also to the third of charities, non-profit and voluntary sectors. Learning needs to be at the core of social communities and civil society. As citizen-led initiatives, self-learning and self-sufficiency trends expand, and the influence of digital communications and information flows are borderless. Here too, digital literacy and critical censorship become important skills. Learning to live and leverage the advantages of online is an important part of lifelong learning.

The simple principle of *attractiveness as a priority* for policy works as an underlying accelerator of feedback loops that feed into different development pathways. Making regions attractive for individuals and businesses, pulls new talent and business potential to the region whilst making it attractive for incumbents to stay and creates new opportunity for careers and business development. Increasing the labour pool facilitates new skill and innovation development due to larger and more diverse talent pool and therefore scope for specialization and mobility programmes. The increased attractiveness of regions and availability of better skilled labour, in turn, attracts new investment and business developments, which in turn supports sub-value chain developments and potentially, more scope for new or better value chain development. Similarly, creating attractive regions make collaborations with other regions more attractive as success breeds success.

Making regions, communities, jobs, learning, collaboration, and common purpose attractive creates regions with rich sustainable futures.

Conclusions

This document describes how the *RIGHT* regions, faced with changing context and EU agenda frames regional development and regional policies even as external shocks of BREXIT, COVID-19 and the Ukrainian invasion accelerate the need to become more resilient. Key transitions needed to decarbonize EU industries to meet climate mitigation and sustainability goals are also important to regional contexts. The EU skills agenda reflect new policy directions for regions and EU as a whole.

The report documents RIGHT pilots and lessons learnt during the project and builds on these in formulating policy recommendations. The interconnected and embedded nature of regions in a time of major transitions frame the essence of policy directions offered.

The RIGHT regions are faced with multiple transitions in businesses, with urgent needs to reskill workers in declining industrial sectors (oil and gas and traditional outdated industries), and to create adequate and timely skills and knowledge pools for emerging and greening economic sectors. The demands for policy responses to anticipate unprecedented and complex challenges require policy solutions that support fluid and transitional developments and development models. Policy making in itself may be subject to transformations that require deeper collaborations and participation in change models.

This policy document frames recommendations that need to be customized to local and changing contexts despite the challenge that they may become outdated before they are implemented. Such is the inevitable nature of rapidly changing contexts of regional and societal change.

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TOWARDS A RESILIENT NORTH SEA REGION

REFRAMING POLICY FOR TRANSITION

Interreg North Sea Region RIGHT
European Regional Development Fund
EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE