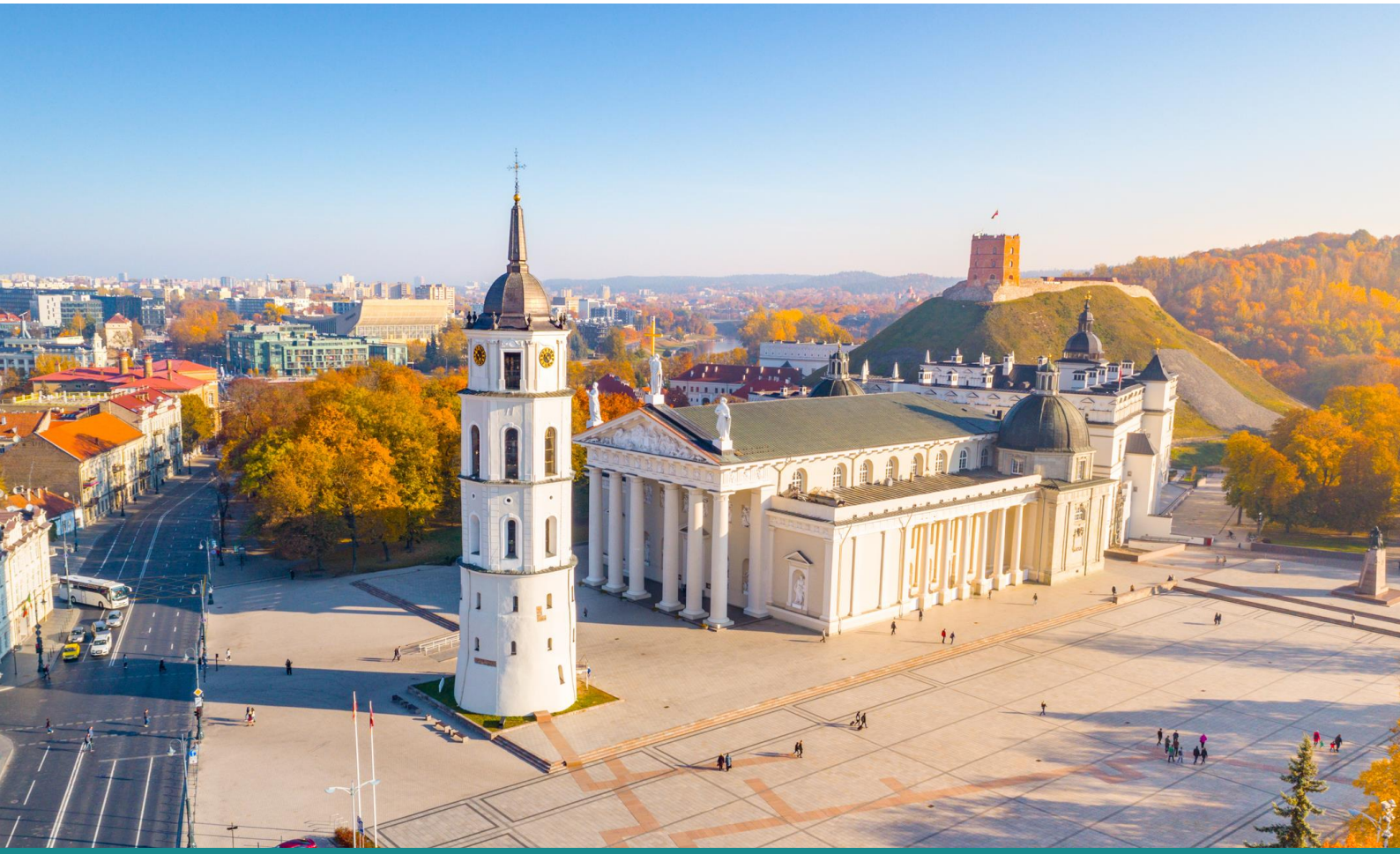
EC-OECD Pilot Action: Regions in Industrial Transition



Lithuania's High Impact Action:

Roadmap for Lithuania's Industrial Transition to a Circular Economy

In-depth assessment

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In Brief

Industrial transition in the Republic of Lithuania

Since regaining its independence from the Soviet Union in 1990, the Republic of Lithuania has undergone significant economic and social changes as it has shifted from a centrally planned economy to a market-based system. This industrial transition has not been without its challenges, which include limited innovation capacity, limited access to innovation funding and finance, insufficient investment in research and development, low labour productivity, a lack of skills, and low circularity and resource productivity.

One way to leverage existing research and innovation opportunities is through investing in the circular economy, which holds strong potential for more knowledge-intensive production. The circular use of materials in Lithuania has remained close to 4% since 2010. It was 4.4% in 2020 – almost three times lower than the EU average of 12.8% - which would justify a more ambitious approach to developing a circular economy. In addition, Lithuania's resource productivity could be considerably improved[1]. Lithuania ranks 5th lowest in the EU, with 1.3 purchasing power standards (PPS) generated per kg of material consumed in 2020, compared to the EU average of 2.2 PPS per kg.

Lithuania's High Impact Action (HIA)

Lithuania's HIA was designed to kickstart a shift towards a circular economy in industry by providing a comprehensive analysis of the circular economy potential of different industrial sectors and developing a dedicated Circular Economy Roadmap. The Lithuanian approach stood out for its distinct specificity, with a deliberate emphasis on the industrial domain. By concentrating efforts on this focal area, the pilot action showcased a profound commitment to tackling environmental challenges and advancing sustainable practices within the industry. This tailored approach facilitated a more targeted strategy, allowing for the identification and implementation of sector-specific measures and solutions.

The circular economy Roadmap focused on five demonstration sectors established through the Circularity Analysis of the Lithuanian industry: (i) food and agriculture, (ii) construction, (iii) textile, (iv) furniture and wood products, and (v) plastic and packaging. The Roadmap outlined policy measures that could support the transition to a circular economy. In particular, these measures included institutional improvements, the development of circular economy business models, and the training and education of professionals.

Governance and management of the HIA

Several elements led to the success of the HIA's implementation. First, the Roadmap development relied on two complementary expert teams, one local and one international. Second, the Roadmap was developed based on an extensive co-creation process, with input provided from a broad range of different stakeholders in the public, private and non-governmental sectors through a Roadmap Co-ordination Group. This helped to ensure that the professional backgrounds and interests of different

[1] Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets (OECD, 2021[4])

groups were taken into account during the Roadmap's drafting, while building a common contextual understanding among stakeholders. It also aligned top-down policy decisions with bottom-up proposals, helped to build new links between key players in the circular economy value chain, and promoted a step-change in the attitudes of key industries.

Third, an Industry 4.0 platform that was set up by the Ministry of Economy and Innovation provided important guidance and advice. The platform serves as an official mechanism to co-ordinate the collaborative efforts of businesses, academia, and the public sector. Its primary objective is to enhance competitiveness and facilitate a seamless industrial transformation through constructive dialogue among social partners.

Fourth, monitoring and evaluation of the HIA's implementation progress was provided through a Steering Group. Regular HIA progress checks, in addition to any necessary corrective measures to improve implementation, were ensured through 21 Steering Group meetings that took place over the HIA's 15-month implementation period.

Results of the HIA and impact on Lithuania

The HIA helped to address industrial transition challenges in a number of ways. First, it improved the overall understanding of the circular economy in Lithuania on a political level. Second, it raised awareness of the fact that specific policy levers and a comprehensive roadmap are necessary for the transition to the circular economy. Third, its bottom-up co-creation approach helped to encourage stakeholder participation, ownership, and raise awareness of the circular economy. Fourth, the policy recommendations and action items that were derived through the bottom-up approach and endorsed through stakeholder discussions provided a valuable foundation for the Lithuanian government to promote the circular economy in the future. Fifth, the Circular Economy Roadmap strengthened institutional capacity for the circular economy by disseminating knowledge, supporting co-operation with industry and providing financial mechanisms that enabled industry to take advantage of circular economy opportunities. Sixth and finally, strong industry involvement in the Roadmap's extensive co-creation process led to significant stakeholder learning and industry ownership of the document.

Policy experimentation and lessons from the HIA

The HIA constituted an experimental initiative in a number of ways. First, at the time the HIA was being prepared, there was little experience with a comprehensive strategy aimed at promoting the circular economy. The HIA not only developed a strategy for an entirely new policy area in Lithuania, but also provided the Lithuanian government with an action plan and roadmap for how to implement the strategy. Second, the HIA's extensive co-creation process, based on systematic dialogue, was unprecedented for policy development in Lithuania and fitted well with the experimental ambitions of the HIA.

The HIA's implementation also generated a number of valuable policy lessons, which are outlined in more detail below:

- Experimental policy approaches require high levels of political commitment and leadership to be successful.
- Policy roadmaps can be effective planning tools to advance the industrial transition in new policy areas.
- Involving stakeholders in the development of policy roadmaps can lead to more effective and sustainable policy implementation
- Moving into new fields of policy development for industrial transition can encourage innovation.
- Bringing in international expertise can be a valuable asset in advancing industrial transition.

Introduction

This case study provides an in-depth assessment of the High Impact Action (HIA) carried out by the Republic of Lithuania. Lithuania's HIA was designed to begin a shift towards a circular economy in industry by providing a comprehensive analysis of the circular economy potential of different industrial sectors and developing a dedicated Circular Economy Roadmap. The circular economy transition was not considered a policy priority in the 2014-2020 European Programming period. The HIA raised awareness of the value added of the circular economy for industry and helped to include the circular economy as an explicit funding priority in the new smart specialisation strategy 2021-2027.

This case study highlights the value of the HIA as an experimental policy tool and offers an assessment of how the HIA contributed to industrial transition challenges in Lithuania. Experimental governance can be defined as an iterative process of goal setting, exploring alternative approaches, and learning and monitoring (Wolfe, 2018[1]; Morgan, 2018[2]). Adopting such an approach is not without preconditions and challenges but may help advance industrial transition if its learnings are well integrated into future industrial transition and smart specialisation strategies. The case study may serve as inspiration for practitioners and policy makers from other regions and countries in industrial transition trying to advance their transitions, and notably those that did not participate in the industrial transition pilot.

This case study consists of five sections. The first section describes the industrial transition and smart specialisation policy frameworks and challenges in Lithuania. The second section analyses the HIA, including its objectives, activities, governance mechanisms and contribution to industrial transition. The third section elaborates on the experimental nature of the HIA. The fourth section looks at policy learnings derived from the HIA and continuity of the HIA beyond the pilot. The last section concludes the case study.

Industrial transition challenges and policy frameworks in Lithuania

Lithuania has undergone significant economic and social changes since its independence from the Soviet Union in 1990. One of the most important transformations has been the transition from a centrally planned economy to a market-based system. This transition has not been without challenges, particularly in the industrial sector, where outdated technologies, low productivity, and environmental concerns have hindered competitiveness. To address these issues, the Lithuanian government has implemented various policy frameworks aimed at advancing industrial transition and supporting innovation. In recent years, Lithuania has become increasingly focused on developing its innovation capabilities and promoting economic growth through smart specialisation.

Industrial transition challenges in Lithuania

Lithuania is facing a series of industrial transition challenges, which include limited innovation capacity, limited access to innovation funding and finance, insufficient investment in research and development, low labour productivity, a lack of skills in the workforce, and low circularity and resource productivity (European Commission, 2022[3]). Industry plays a significant role in the development of the Lithuanian economy. It is well integrated into global value chains and generates about 20% of Lithuania's GDP (Gross Domestic Product). The manufacturing sector employs over 220 000 people and ranks second in terms of the number of employees after the wholesale and retail sector with 230 000 people (European Commission, 2022[3]).

Lithuania does not yet make the most of the opportunities provided by investment in research and innovation. Lithuania's labour productivity per hour worked was at 69.9% of the EU average in 2020. The productivity gap is closely related to the economy's structure, which remains less knowledge-intensive than in the EU as a whole. Research and innovation capacity is not spread equally in the country: around 40% of small and medium-sized enterprises and 75% of research institutions are concentrated in the Capital

region. Ensuring a balanced geographical spread of R&D investment, including the economic centres of Central and Western Lithuania remains difficult (European Commission, 2022[3]).

One way to leverage existing research and innovation opportunities is through investing in the circular economy, which holds strong potential for more knowledge-intensive production (European Commission, 2022[3]). The circular use of materials in Lithuania has remained close to 4% since 2010. It was 4.4% in 2020 – almost three times lower than the EU average of 12.8% - calling for an ambitious approach to circular economy development. In addition, Lithuania's resource productivity could be considerably improved[2]. Lithuania ranks fifth lowest in the EU, with 1.3 purchasing power standards (PPS) generated per kg of material consumed in 2020, compared to the EU average of 2.2 PPS per kg (OECD, 2021[4]).

Smart specialisation policy in Lithuania

Lithuania allocated around EUR 800 million to its Smart Specialisation Strategy during the 2014-2020 programming period. The main implementing ministries were the Ministry of Economy and Innovation and the Ministry of Education, Science and Sport. They initiated 22 measures, targeting business-academia collaboration projects. The S3's design was based on six broad priority areas[3], one of which was supporting a sustainable environment. At the end of 2018, an Interim Evaluation of the S3 Program Progress was carried out, leading to an updated S3 with some adjustments to the chosen priorities (Ministry of Economy and Innovation of Lithuania, 2019[5]).

In August 2022, the Lithuanian government adopted the "Smart Specialisation Concept 2021-2027". The revised Lithuanian strategy tries to achieve a substantial breakthrough in the three priority fields, including a) health technologies, biotechnologies and safe food, b) new production processes, materials and energy efficiency and c) ICT technologies, inclusive and creative society. Around EUR 600 million will be made available over seven years to stimulate innovation. The Ministry of the Economy and Innovation remains the sole institution responsible for implementing the Smart Specialisation Concept 2021-2027 (Ministry of Economy and Innovation of Lithuania, 2022[6]).

The HIA for Lithuania is aligned with the 2014-2020 S3 and Cohesion Policy programming in that both the HIA and the S3 share common objectives, such as stimulating innovation through the circular economy. For example, *Food and Agriculture* is among the five demonstration sectors suggested in the final HIA output (the Circular Economy Roadmap). It is also one of the priorities of the S3. Furthermore, the S3 includes several circular economy related themes, such as the development of renewable biomass and solar energy, and waste recycling (OECD, 2022[7]).

The HIA is also incorporated in the 2021-2027 round of Cohesion Policy programming. According to the 2021-2027 partnership agreement between the EU and Lithuania, advancing the circular economy is part of the second policy priority for smart specialisation, and investments will target the transition to a circular economy. Among the agreed upon objectives are a significant reduction in waste that is disposed of in landfills – from 21.5% in 2019 to 5% by 2030, which would increase Lithuania's ecological innovation index from 88 (2021) to 133 points (2030) (European Commission, 2022[8]). The HIA's deliverables are contributing to Lithuania's Action Plan for a Transition to the Circular Economy for 2035, and is currently being prepared by the Ministry of Environment (see also further below on scalability and continuity of the HIA) (OECD, 2022[9]).

[2] Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving resource productivity can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets (OECD, 2021[4])

[3] The six priority domains were (i) agricultural innovations and food technologies, (ii) energy and sustainable environment, (iii) new production processes, materials, and technologies, (iv) health technologies and biotechnologies, (v) transport, logistics and ICT, and (vi) an inclusive and creative society.

Lithuania's High Impact Action

The HIA was a pioneering endeavor in Lithuania as it crafted a comprehensive Roadmap for the transition of the industrial sector towards a circular economy. The HIA deviated from a conventional approach, where general and encompassing Roadmaps for the circular economy, spanning multiple sectors, are commonly initiated.

The Lithuanian approach stood out for its distinct specificity, with a deliberate emphasis on the industrial domain. By concentrating efforts on this focal area, the pilot action showcased a profound commitment to tackling environmental challenges and advancing sustainable practices within industry. This tailored approach facilitated a more targeted strategy, allowing for the identification and implementation of sector-specific measures and solutions. The Roadmap focused on institutional improvements, developing circular economy business models, and training and educating professionals. The circular economy Roadmap included five demonstration sectors established through the Circularity Analysis of the Lithuanian industry: (i) food and agriculture, (ii) construction, (iii) textile, (iv) furniture and wood products, and (v) plastic and packaging. It was developed following an implementation process that was clearly set out (Box 1).

Box 1. The High Impact Action implementation process

The HIA was implemented through a series of five work packages (WP) that were created during the design of the HIA. Four out of the five work packages were realised. The final adoption of the Roadmap (WP5) did not take place due to a change in government.

- **WP1. The Inception Phase** included the following deliverables**:** project kick off; a methodological report by international experts; a first stakeholder workshop (Project Launch); and the inception report by Lithuanian experts.
- **WP2. The Circularity Analysis of Lithuanian Industry** consisted of a review of European and Lithuanian regulatory frameworks and examples of relevant policy responses in EU Member States, a metabolism and material flow analysis, the completion of a consultation draft, a second stakeholder workshop and the subsequent finalisation and endorsement of the Circularity Analysis of the Lithuanian industry.
- **WP3. Policy proposals to support the industrial transition to a Circular Economy** were delivered by the international experts together with a final report. This WP also included a third stakeholder workshop for consultation on policy proposals, followed by the finalisation and endorsement of the policy proposals.
- **WP4. The creation of the Roadmap schedule,** including an assignment of institutional/stakeholder responsibilities for the different agreed-upon policy instruments, as well as a fourth stakeholder workshop to discuss the Roadmap schedule with subsequent finalisation and endorsement.
- **WP5. The formal adoption of the Roadmap** to be followed by a launch event in the form of an HIA Final Conference.

Source: (OECD, 2022[7])

Governance and management of the HIA

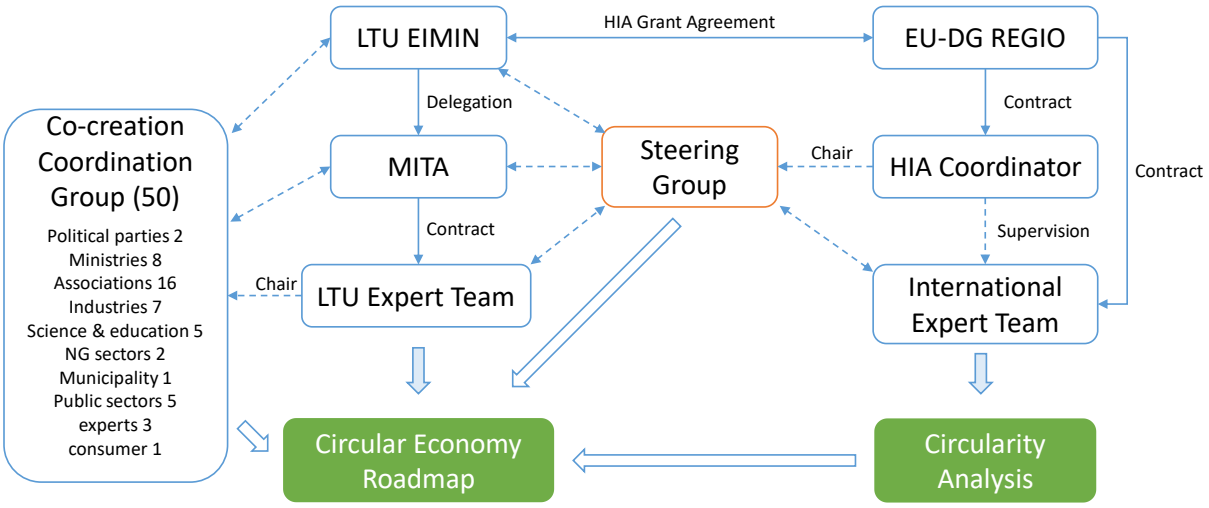
EIMIN signed the HIA Grant Agreement with DG REGIO, but designated the Agency for Science, Innovation and Technology (MITA) to handle day-to-day implementation of the HIA. The HIA started in

October 2020, which was slightly later than other HIAs because of a change in the Lithuanian government and subsequent settling-in of the new government. The agreement was completed on 31 December 2021.

The implementation of the HIA involved two expert teams: one local and one international. The responsibility of preparing policy proposals and finalising the Roadmap was entrusted to a consortium composed of Kaunas Technology University and Ekokonsultacijos, an environmental business support organisation. On the other hand, Circle Economy, a non-profit organisation based in the Netherlands, conducted the Circularity Analysis of Lithuanian Industry. These two teams collaborated and provided mutual support in their respective tasks. In addition to these two teams, the HIA also profited from an HIA co-ordinator to provide support in the implementation of the HIA.

Overall co-ordination of the HIA was conducted through a Steering Group. The Steering Group meetings were presided over by the HIA Co-ordinator with the participation of representatives from EIMIN, MITA, and both expert teams (Figure 1).

Figure 1. HIA Governance Structure

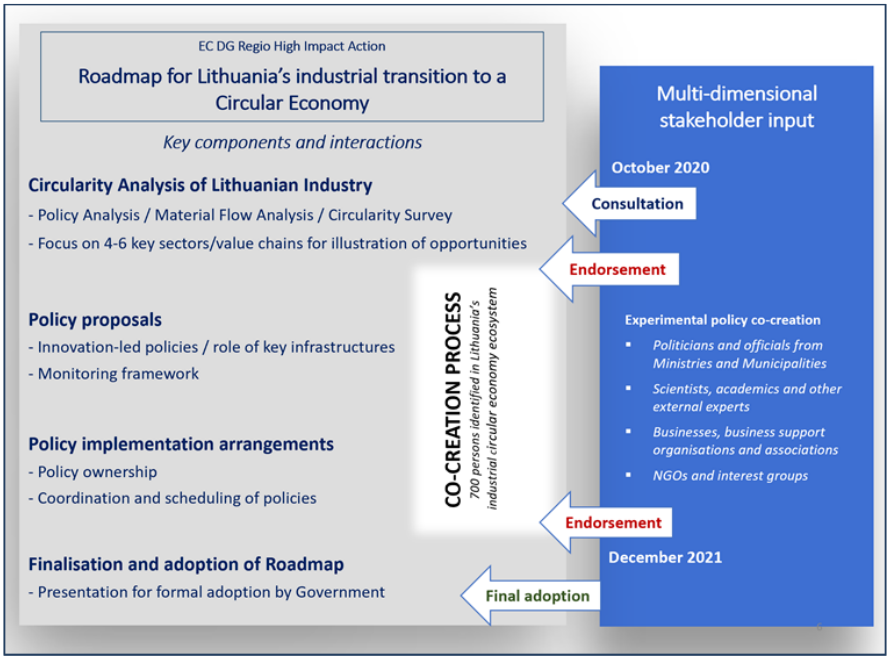


Source: OECD elaboration

A strong co-creation process was instrumental to the success of the HIA

Central to the design of the HIA was an experimental co-creation process for the Roadmap. The methodology of the HIA was built around the endorsement of each of the main components of the Roadmap from a wide range of stakeholder organisations in the public, private and non-governmental sectors (Figure 2).

Figure 2. Stakeholder interaction in the development of HIA components



Source: HIA Co-ordinator's final report (2022).

As the initial step in the co-creation process, the Lithuanian expert team conducted a thorough mapping of stakeholders involved in the circular economy within Lithuania. They identified approximately 700 individuals representing public authorities, higher education and research institutions, various industrial sectors and their value chains, business associations, waste management bodies, consumer groups, and non-governmental organisations.

Subsequent to the stakeholder mapping, a Roadmap Co-ordination Group was formed, consisting of 50 representatives and experts from governmental, industrial, business, non-governmental, municipal, waste management, consumer, science, and education institutions. The Co-ordination Group was developed through the overall HIA process to help create and shape the best project solutions. Fifteen meetings of the co-ordination group took place during the project period. The primary objective of this group was to ensure equal representation of diverse interest groups, information centres, knowledge sources, competencies, and sources of influence. Their role was to motivate participants, facilitate the timely implementation of the Roadmap, and articulate the relevant needs of various stakeholders. The Co-ordination Group also made decisions regarding the development, topics, and agenda of the Roadmap discussions (OECD, 2022[9]; HIA Co-ordinator, 2022[10]).

During the co-creation process, an extensive series of over 30 meetings played a vital role in cultivating a strong sense of ownership among a diverse array of stakeholders. Among these meetings, 10 were designated as large events with the specific objective of acquainting stakeholders and a broader range of ecosystem actors with the principles and objectives of the circular economy. These events were designed to inspire active participation in the subsequent co-creation activities. The two largest events held as part of this initiative showcased exemplary circular economy practices and presented various circular approaches and scenarios. The first event featured an engaging exploration of different circular approaches, attracting an impressive attendance of over 200 participants. The second event centred around showcasing best circular economy practices, drawing a similarly remarkable participation of over 200 individuals. Additionally, the Lithuanian Expert Team established a dedicated website to facilitate communication among the stakeholders involved in the co-creation exercise (OECD, 2022[9]).

An Industry 4.0 platform provided important guidance and advice

The Ministry of Economy and Innovation took the initiative to establish and develop an Industry 4.0 platform. This platform operates in accordance with the Decree of the Government of the Republic of Lithuania and serves as an official mechanism to co-ordinate the collaborative efforts of businesses, academia, and the public sector. Its primary objective is to enhance competitiveness and facilitate a seamless industrial transformation through constructive dialogue among social partners.

In the specific context of the HIA, the Industry 4.0 Platform played a pivotal role as the dominant advisory body. It comprised three key entities: the Circular Economy working group, the Co-ordination group, and the Competitiveness Commission, with leadership provided by the Minister of Economy and Innovation.

During the presentation of the final version of the HIA, the Platform approved its findings and made a collective decision not to submit it for immediate approval by the Government of Lithuania. Instead, the Platform opted to integrate the actions for transitioning the Lithuanian industry to a circular economy into the forthcoming "Guidelines for the Lithuanian Transition to the Circular Economy until 2035", which is currently being prepared by the Ministry of the Environment. This approach allowed for the consolidation of efforts and the adoption of a comprehensive set of guidelines, ensuring a co-ordinated and cohesive approach to achieving the circular economy objectives within the country.

Several monitoring and evaluation mechanisms were set up for the HIA

The HIA Steering Group meetings were the main tool to monitor and evaluate the progress of HIA. In addition to major decisions related to HIA implementation, regular HIA progress reports and responses to unexpected situations were made through 21 Steering Group meetings that took place over the 15-months implementation period of the HIA. Five separate meetings between the HIA co-ordinator and DG Regio were arranged as a complementary monitoring scheme, which reportedly worked well for monitoring the HIA's progress (OECD, 2022[9]). In addition, the HIA's Circular Economy Roadmap suggested establishing a national circular economy monitoring and evaluation mechanism with a recommended set of indicators for assessing the effectiveness of the circular economy (OECD, 2022[7]).

Industrial transition challenges that were addressed by the HIA

The HIA improved the overall understanding of the circular economy at political level. It also raised awareness that specific policy levers and a comprehensive roadmap were necessary for the transition to the circular economy. EIMIN pointed out that the analysis of the good practices of other countries provided extremely useful policy reference cases (OECD, 2022[9]). The co-creation process proved to be a remarkably effective tool for encouraging stakeholder participation, ownership, and raising awareness. In addition, policy recommendations and action items derived through the bottom-up approach and endorsed through stakeholder discussions are a valuable foundation for the Lithuanian government to promote circular economy in any form in the future.

The Circular Economy Roadmap built institutional capacity for the circular economy by disseminating knowledge, building co-operation with industry, and providing financial mechanisms to enable industry to seize the opportunities presented by the circular economy (OECD, 2022[9]). Strong involvement by industry through the Roadmap's extensive co-creation process – including industrial companies as well as industry associations – led to significant stakeholder learning and ensured ownership of the roadmap by industry (HIA Co-ordinator, 2022[10]).

The HIA's experimental nature, its challenges and scalability

Lithuania's HIA implied a shift away from traditional top-down approach to policymaking, and instead emphasised collaboration, participation, and the co-creation of policies with stakeholders. The HIA depended on a large co-creation process for the Roadmap's development, which had been tested and refined based on ongoing stakeholder feedback.

The experimental nature of the HIA compared to previous policy approaches

Exploring new policy topics for Lithuania

The HIA in Lithuania was regarded as an experimental endeavour within the national context. Prior to the preparation of Lithuania's HIA, there was little experience with a comprehensive strategy aimed at promoting the circular economy. Although individual measures existed, such as support for eco-innovation, recycling strategies, and analysis of the potential of the bioeconomy, there was a lack of an overarching strategy that connected these various aspects and offered a cohesive framework for addressing them through complementary interventions.

The HIA not only developed a strategy for an entirely new policy area in Lithuania but also furnished the Lithuanian government with an action plan and roadmap for implementing the strategy. By doing so, it bridged the gap and provided a cohesive approach to address the circular economy, offering guidance on how different measures could be integrated and implemented effectively.

The co-creation process was new to Lithuanian policy-making approaches

This was the first time an important strategic document was made using a co-creation method in Lithuania. The process garnered active participation from stakeholders representing diverse sectors, including science, business, public authorities, experts, NGOs, and more. Ensuring the involvement of stakeholders across all sectors was of paramount importance to ensure inclusivity and prevent anyone from being left behind, right from the initial stages of the process. This inclusive approach fostered a sense of shared ownership and built momentum for the successful development and implementation of the strategic document.

Challenges encountered during the HIA implementation process and solutions found to overcome them

While the HIA and its co-creation process was deemed a success by stakeholders, some obstacles hampered the success of HIA's implementation despite the concerted co-operation efforts from the local and the international expert teams.

Improved allocation of roles and responsibilities between ministries in charge of environmental sustainability

Improved allocation of roles and responsibilities between the Ministry of the Economy and Innovation (EIMIN) and the Ministry of the Environment (MoE) could have potentially benefited the HIA. Enhancing the clarity of duties and fostering closer collaboration between these two ministries might have resulted in a more effective integration of the Roadmap into the MoE's comprehensive Circular Economy Action Plan. Over time, co-operation improved and the Roadmap was integrated into the Circular Economy Action Plan.

A two-tier governance structure was beneficial to the project but needed close co-ordination

The governance structure of the HIA had distinct teams dedicated to local and international collaboration, providing benefits by involving relevant experts from both global and Lithuanian backgrounds, in line with their specific duties. However, one challenge faced by these teams was that their contracts did not align as originally planned. As a result, the international expert team had to commence their work independently, encountering certain obstacles in conducting the circular economy analysis, which led to delays in drafting the roadmap. Nonetheless, once both teams were able to commence their work, they managed to make up for the initial setbacks and regain lost time.

Continuity and scalability of the HIA

The main objectives of the HIA implemented by Lithuania were to analyse the circularity of the Lithuanian industry and produce a Roadmap for the transition to a circular economy. Although the Roadmap was not formally adopted by the Lithuanian government as set out in the HIA grant agreement due to the change in government in late 2020, it has been useful in several ways:

- The Circularity Analysis and the Circular Economy Roadmap will be the cornerstone of the new government's Circular Economy Action Plan for 2035 led by the Ministry of Environment (MoE) and the renewed National Energy and Climate Action Plan led by the Ministry of Energy (MoEN).
- Instead of adopting the Circular Economy Roadmap as a stand-alone document, EIMIN plans to merge it with two more recent roadmaps: one on digitisation; and another on integrating businesses into strategic value chains, which would also reduce the number of existing roadmaps. The government also plans to conclude a "national agreement" with industry on the implementation of the merged roadmap document. Having such an agreement will ensure stability for industry during future changes of government and contribute to making sure that the hard-won trust from industry will not be lost.
- As a result of the Roadmap, Lithuania's Smart Specialisation Strategy for the period 2021-2027 will have an important (new) focus on sustainability transitions, including through the circular economy.

Policy lessons from the HIA for advancing industrial transition

A series of policy lessons emanate from the HIA implementation process:

- **For experimental policy approaches to succeed they need extraordinary political commitment and leadership.** Experimental policy approaches such as the HIA, by nature, involve testing innovative ideas and solutions that have not yet been used or proven to work. As such, they require a higher level of political commitment and leadership than traditional policy approaches, to gain traction and produce meaningful results.
- **Policy roadmaps can be effective planning tools to advance industrial transition in new policy areas.** Policy roadmaps, such as the circular economy roadmap, help policy makers identify and prioritise actions necessary to achieve specific goals. The HIA showed that a successful roadmap must be clear about its purpose, objectives, and expected outcomes. By providing clear objectives, stakeholders know what they are working toward. This makes it easier to gain support, and measure progress in achieving roadmap goals.
- **Involving stakeholders in the development of policy roadmaps can lead to more effective and sustainable policy implementation**. The co-creation process, undertaken as part of the HIA, ensured that the roadmap reflected the needs and perspectives of all affected parties. This enhanced the probability that the policy will remain relevant and sustainable over time. It also

helped build a sense of ownership among a broad group of stakeholders, thus reducing the risk of resistance or opposition and increasing the likelihood of successful implementation. This was a principal factor in ensuring that private sector actors would contribute to the roadmap's implementation.

- **The HIA co-creation process was highly valued by all stakeholders, but also resource intensive.** The Roadmap's co-creation process was extremely useful for building trust among a broad range of public and private sector stakeholders, especially in private industry and for raising awareness of the circular economy. It helped stakeholders – particularly those in different business sectors – understand their options in applying circular economy concepts at different points in their industrial value chains. However, the task of collating and integrating stakeholder inputs into the draft Roadmap proved to be a significant undertaking for the Lithuanian Expert Team. It required considerable effort and dedication to incorporate the diverse perspectives and feedback received. This experience serves as a valuable lesson for future co-creation processes, particularly when considering initiatives like the revised Smart Specialisation Strategy for the EU Funds period 2021-2027. The need to allocate sufficient resources and ensure efficient co-ordination should be carefully considered in order to streamline the process and maximise the effectiveness of stakeholder input integration.
- **Moving into new fields of policy development for industrial transition encourages innovation**. Industrial transition is a complex process, and it requires a well-planned and executed policy framework to ensure its success. By exploring new policy fields, which was the case for the HIA, policy makers can gain a deeper understanding of the challenges and opportunities that arise during industrial transition. This understanding can then be used to design policies that encourage innovation and creativity, leading to the development of modern technologies and ideas that can help drive economic growth and sustainability.
- **Bringing in international expertise can be a valuable asset in advancing industrial transition**. The process of transitioning from a traditional industrial economy to a more sustainable and innovative one can be complex and challenging. Collaborating with an international team in HIA implementation showed that tapping into the knowledge and experience of experts from different countries can help regions and countries in industrial transition gain fresh perspectives and insights into the effective transition strategies and practices. In the context of the roadmap development process, the international experts provided valuable input on a range of issues, including policy development, technology adoption, and workforce training. This input helped to identify potential industrial transition challenges and opportunities and informed the design and implementation of strategies that can help drive forward industrial transition in Lithuania.

Conclusion

Although the Circular Economy Roadmap was not formally adopted in the end, the implementation of the HIA has yielded several valuable policy lessons for advancing industrial transition in Lithuania. It played a significant role in increasing awareness about the circular economy in Lithuania, particularly among industry actors, at a time when little policy experience in this field existed. Both the local and international Expert Teams successfully delivered a comprehensive Circularity Analysis of high quality, which held significant relevance for Lithuanian industry. The co-creation process implemented throughout the HIA was regarded as experimental and successful. Stakeholders actively involved in the process greatly appreciated this approach, recognising its benefits and positive impact.

The HIA has also shown that policy roadmaps can be effective planning tools for industrial transition if they are clear about their purpose and involve stakeholders in their development. Additionally, the HIA has shown that exploring new policy areas encourages innovation and creativity, while bringing in international expertise can provide fresh perspectives and insights. These lessons can go a long way in informing future

policy development efforts in policy sectors that support regional development or industrial transition in Lithuania and beyond.

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Annex: The EC-OECD Pilot Action on Regions in Industrial Transition

In 2018, the European Commission/DG REGIO with support from the OECD launched the pilot action *Regions in Industrial Transition* to support ten regions and two countries[4] in industrial transition prepare their Smart Specialisation Strategies (S3) and innovation policies for the 2021-2027 period. The pilot action was designed in two phases. The OECD supported the first phase with a series of five thematic workshops held with two cohorts of participants, each including five regions and one country. The findings from these workshops were collated into an OECD synthesis report, Regions in Industrial Transition: Policies for People and Places.

As part of the project, eight of the original regions and the two countries received a EUR 300 000 grant from DG REGIO as well as tailored advisory services to design a High Impact Action that could support their industrial transition strategies.

The OECD is supporting the European Commission with an assessment of each High Impact Action. The aim is to take stock of the potential benefits of diverse types of High Impact Actions on industrial transition and of the policies that support them. Each assessment considers the actual or expected results of individual High Impact Actions through an understanding of their objectives, activities, governance mechanisms and experimental nature. The in-depth analysis also explores how each pilot region/country expects their individual High Impact Action to contribute to their industrial transition and advance their smart specialisation strategies and governance.

[4] The regions are Cantabria (Spain), Centre-Val de Loire (France), East North Finland (Finland), Grand Est (France), Greater Manchester (UK), Hauts-de-France (France), North Middle Sweden (Sweden), Piedmont (Italy), Saxony (Germany) and Wallonia (Belgium). The countries are Lithuania and Slovenia.

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The Organisation for Economic Co-operation and Development (OECD) is an international organisation that works to build better policies for better lives. Together with governments, policy makers and citizens, the OECD provides a unique forum and knowledge hub for data and analysis, exchange of experiences, good-practice sharing, and advice on public policies and international standard-setting.

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