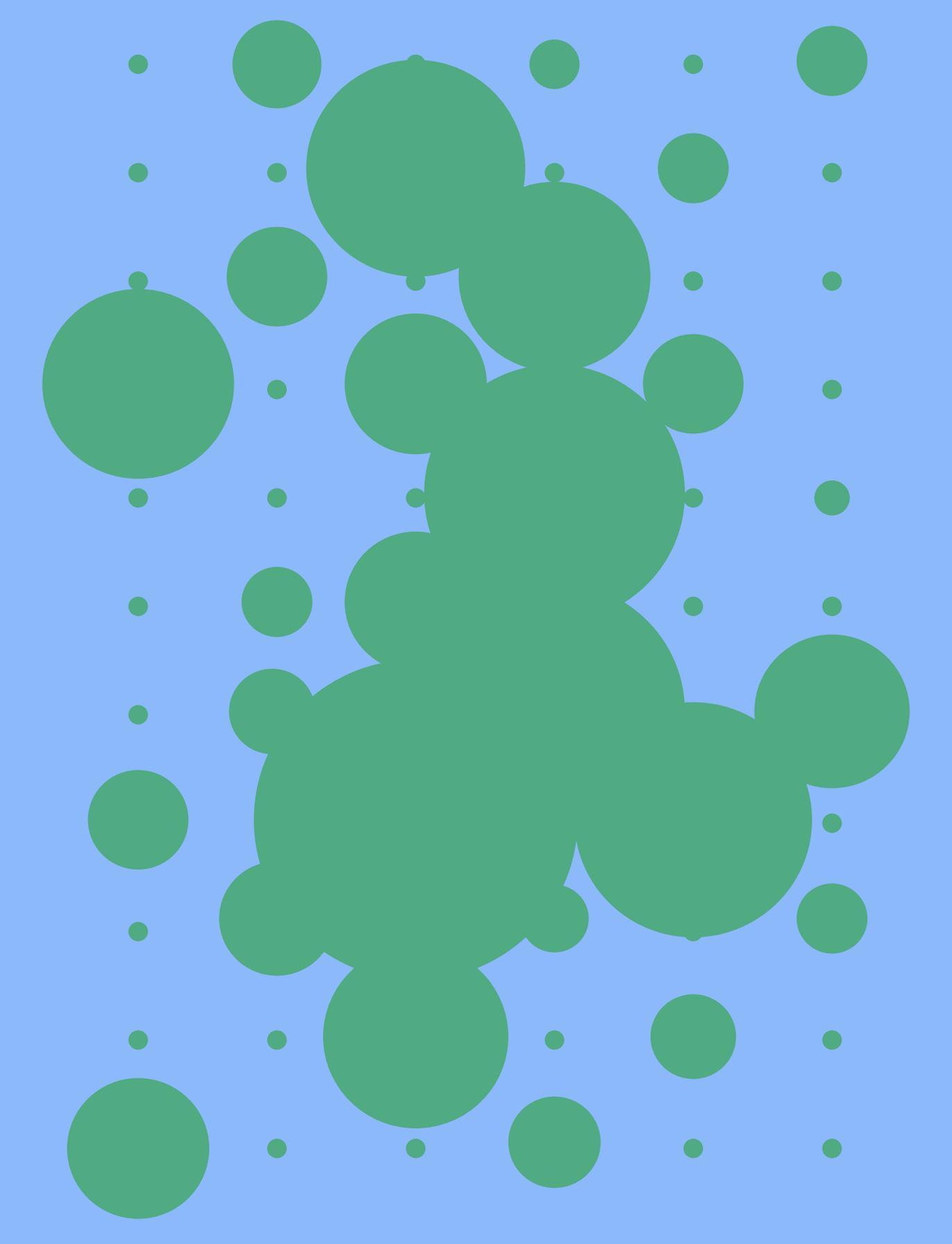




Circular (City) Ports Shaping future changes

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Ports
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1010au and AWB

Circular Flanders/OVAM, Delta Atelier

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Delta Atelier 'Circular Ports' Program



Image: Four scales by © AWB

The Delta Atelier positions itself as an autonomous P2P knowledge and action platform among more than 50 actors who work in innovative ways to make the urban landscapes of our joint Delta, composed by: Netherlands, Flanders, Brussels and, by extension, the regions of North Rhine-Westphalia and Nord-Pas-de-Calais.

The platform bundles scattered knowledge and practical experience about the spatial impact of different transitions (mobility, energy, water, biodiversity, circular economy, agriculture, care) and organizes interaction between peers - both designers and policy makers and organizations as experts - so that they learn from each other and jointly formulate and realize new breakthroughs. The Delta Atelier sets out a program of debates, workshops, project initiations, design research, a physical workplace, exhibitions, virtual exchange (documentaries, podcast) and a community-driven online exchange platform.

The research trajectory on Circular (City) Ports position itself within the Delta Atelier 'Circular Ports' Program. The hypothesis that ports will play a crucial

role in the transition towards more circularity, is bundled within the Delta Atelier within an agenda of collective work programs, building new types of transformation projects from new coalitions. Within the 'Circular Ports' Program, the planning authorities are working together on a Circular Main Frame (scale XL) on the Delta as a whole; a regional test is being set up around the North Sea Port based on cooperation between the provinces of East - and West Flanders and Zeeland (scale L); exploring the bridge between the port cities and the ports, the "city ports" (such as Antwerp Eilandje II or Rotterdam Makers District) as catalysts of a new manufacturing and circular economy, together with Circular Flanders/OVAM, 1010au and AWB (scale M); the IABR and the municipality of Rotterdam together with the port authority are strategizing around the Rotterdam Makers District within Test Site M4H, towards the realization of a pilot for a circular building economy integrated with logistics functions in the Merwe Vierhavens, experimenting on the scale of the building typology (Scale S).

Publications of this explorative research are:

Workbook 1:

Circular Initiatives in the Delta

Lessons Learned

Workbook 2:

Building Blocks

These publications can be found on:

www.deltaatelier.eu

www.circularports.eu



Image: Rotterdam, Google Earth

This document presents 12 action lines to strategize upon in order to develop a more structured approach to the implementation of circularity in ports, in connection with cities, regions and the Delta as a whole. These action lines are the result of the Circular (City) Port explorative research from October 2018 until May 2020 and have been finalized with comments from three online webinars held in late April 2020 with a core group of different actors. Based on the key arguments of these webinars, five conclusive work packages have been formulated, combining different essential aspects of the action lines. These work packages are the steps that can be taken in order to go further structurally in the transition to circularity.

Ports possess a vast potential in the transition towards circularity

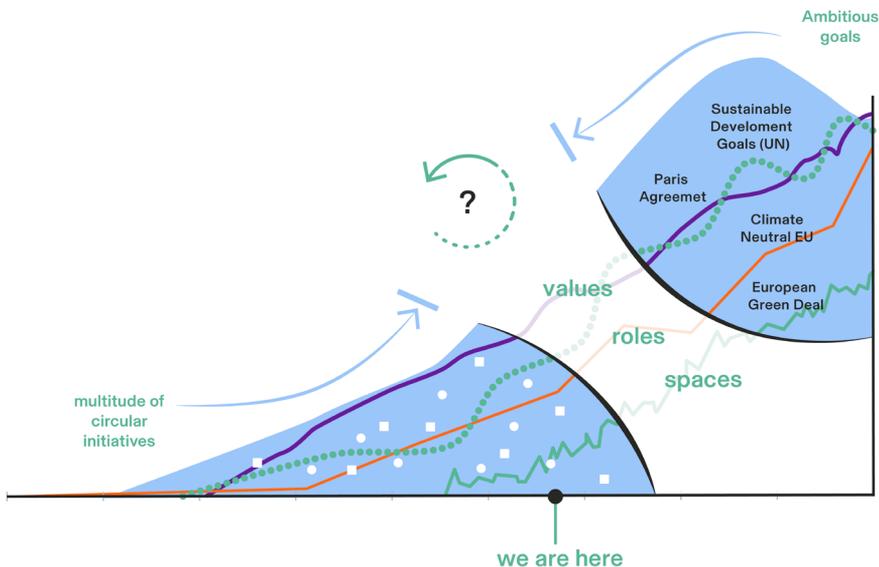
Ports possess a vast potential in the transition towards circularity

The circularity gap: between ambitious goals and first movers

Circularity is becoming one of the key priorities on the European, national, regional and local levels. The set goals impose very high standards for the future circular functioning of our everyday life, questioning the production and consumption mode and the systems in which it is embedded. Looking at the past and future steps that have to be taken to actualize such systemic transformation, it is apparent that a defined framework is lacking as well as an interpretation of the goals into smaller stepping stones. The question is how these fundamental changes – related to sustainability policy, energy transition, the introduction of the non fossil-based economy, together with digitization and automation – will actually become operational in our reality.

At the same time, within the broad field of production practices, many innovative circular initiatives are blooming. These are strongly active in strategizing upon the upcoming transition, looking for new kinds of functioning, new economic value and collaborations in order to accelerate the needed shift to circularity. However, they lack a structured framework in which they position themselves and where their efforts can be multiplied, upscaled and spread out.

The gap between the ambitious goals formulated on all levels and the many innovative practices is clear. It is the starting point of conversations, research and collaborations, in order to understand how the bigger goals can land in the field and how the ongoing practices can be steered structurally to have a substantial impact.



In this changing scenario, ports can be seen as key locations in which the transition can be operationalized. In fact, on the one hand, they have crucial expertise and activities that can frame and facilitate this transformation. In addition, circularity, in its broad spectrum, has only been put on the agenda in the last decade. It will be realized and improved by learning-by-doing, in which ports can play a huge role as a ground for testing and experimenting.

which this critical mass of ports can play a role in pushing this whole system to shift.

The shift from a linear and global trade-oriented model is reframing the relation and the value that the port areas represent for their surroundings.

Cities, ports and regions will be more intertwined, constituting a new system and recognizing different specific chains functioning at the local level.



Image: Zeebrugge, Google Earth

The change that circularity announces needs a systemic upheaval of our modern industrial system, of which ports are a crucial node, having enough critical mass to initiate and accelerate the transition. This operationalization along the whole system does not just consist in closing materials loops at the local level, or envisioning a new business model. It also touches upon a societal mental shift and the steering of infrastructure and services development, alongside the transformation of political and legislative frameworks in the planning of our cities, ports and regions. Hence, the systemic change asks for a broader, more comprehensive and integrated vision, in

Therefore, each scale and level of these systems needs to be revised in order to embrace and function in a circular perspective. At the same time, no level can work in isolation. The interrelation and enhancement at the different scales will play a key role.

Ports are conscious of the shift that is taking place and are actively looking for different ways to tackle it. However, the complexity of this transition has not been fully translated in the actions taken by the ports in implementing circularity in their local system. The current main activations happening at the port level are looking for strategies on the recycling hub, industrial

symbiosis, and renewable energy investments. But in fact circular transition goes beyond these aspects and looks at a broader spectrum of actions and frameworks: circularity is all-encompassing and complex, and there is not a singular way to be circular. It interrelates with our environment and society, constituting different values and connections, for which the ports have not yet developed any concrete strategies. Local leverages should be brought up, starting to work on circularity not from scratch, but to find ways to deeply root it in the local circumstances, using specific opportunities.



Image: Port of Amsterdam © AWB

a ‘period of grace’, a period of investments and adjustments in which companies, regulations, policy, cooperation, value chains, etc. will need to adapt and improve to fit the new circular economy. This period of grace will help to analyse the problems, strategize solutions and roll out experiments together. It is crucial to start now with the initiation of this process of change in order to face the transition in a non-disruptive way.

The development of a structured approach in tackling the transition requires specific actions, with ports and specific actors being crucial players. Envisioning collective and strategic actions to guide this process should stimulate all parties involved to take the next step. In order to foresee those actions, the main changing factors that the transition implies should be considered. First, the shift to a circular system requires a rethink of the values that our economies have in ports and beyond. At the same time, it also implies a crucial shift in the roles that the different actors play, envisioning a new system of connections and collaborations between ports, cities and regions. Thirdly, the translation of these progressively mutating elements into a spatial environment needs to consider how the physical dimension of those dynamics is taking place.

This means envisioning an overarching shift to bridge the gap of circularity, challenging strongly the contemporary systemic structure of our ports. What is certain is that, as for each big structural change, the transition to circularity needs



Image: Rotterdam, Google Earth

The following action lines focus on these changing factors of values, roles and spaces. They want to frame the pathways in which the next steps to accelerate the process of transition can be taken. The action lines are derived from reflections and lessons learned during Circular (City) Ports , a research project which consists of benchmarking, analysis, work sessions and bilateral talks with key actors active in the mobilization towards the transition.

Values in transition

- 1 Learning from present initiatives to steer future changes
- 2 Implementing hidden values and interdependencies through regulation
- 3 Supporting new economic models via innovation-steered investments
- 4 Investing in research, training, public sensibilisation and innovation around circularity

Roles in transition

- 5 Setting up a strategic common agenda for ports and cities
- 6 Bridging the gap between supra-regional goals and local opportunities
- 7 Creating a neutral ground for all parties to share, exchange and learn
- 8 Starting a think-tank that puts circularity on the agenda and looks at the next steps

Spaces in transition

- 9 Investigating the current circular spaces and imagining the future ones
- 10 Indexing vacant, underused and old plots for new circular ideas
- 11 Conceiving more agile and adaptable planning possibilities
- 12 Making a multidisciplinary team, with spatial thinkers, to tackle the circular transition

Values in transition

Reaching the next economy, which has to be circular in order to reach the sustainability goals, means seeing opportunities in what is already there: the old, existing and already established economy. This economy will have to be transformed with new values, which are often not yet known. This means the circular transition is an uncertain path, since we have to restructure our economy as an economy that is not fully known. To get a better grip on this next economy, different kinds of values should be brought into the picture and investigated.

The value of the economy itself is changing. The already established and paid-back old economy has to be replaced by a new one, which requires investments, different value chains and renewed business models. The value chain will change as well as the overall model of circular economy. Many of these aspects are unclear or else not demanding enough to actually push for changes.

The value of the environment is at stake. Climate change is currently opening the eyes of many different parties to look differently at their way of working and what its impact is on the environment. As a broad concept, circularity is a transition of many aspects in the field of sustainability: it is a material transition, but it also touches on the transition of energy, mobility, ecology, etc. These transitions all needed to be worked on in order to keep our living environment healthy and liveable. Next to that, the value of ecology itself is now simply considered as compensation for the old economy. Circularity by nature is a

regenerative practice, playing a crucial role in protecting the environment, and eventually also in actively improving the ecology and biodiversity in which the production is embedded.

The social value of the circular economy, its human capital, has not yet been fully explored. The new skills and knowledge that will be generated are going to be translated in different jobs for both thinkers and makers. This social aspect creates a new value impacting the circular practices, ports, cities, regions, etc., but is currently not clearly integrated and valorized in the strategy to make the shift to circularity happen.

There is no ready-made answer to find and integrate these new significances. Circularity is a broad concept, for which each of these value changes could be interpreted differently. Circularity is therefore a practice of learning-by-doing.



“We need to have a structured kind of platform to communicate and share good practices.”

Jan Blomme, Regional Port Commissioner

The field of the circular economy is a wide and varied one, and could also be considered as the ‘umbrella theme’ in which many specific systems are developing and evolving: recycling of goods, green logistics, new ways of energy production, new industrial technologies, but also social inclusion, environmental impacts, the relation with ecology, etc. In order to steer and multiply the steps in the circular transition, it is important to collect the knowledge of the constellations of strategies and initiatives active in these fields.

The constitution of a tool making it possible to observe the innovation taking place in the field would facilitate the construction of a constant process of learning. The innovative practices in the field of circularity, active in the port areas, are in a process of continuous evolution. The observation of the practice and the monitoring of their development leads to a progressive renovation of the status quaestionis in regard to the state of the transition to circularity in port areas. In fact, it represents, on the one hand, the new findings coming directly from the innovative practices, and, on the other hand, the new challenges and potentialities to be handled within the transition period.

Besides monitoring the projects, it is as important to observe how ecosystems are developing at a port, country and/or European level. All this would lead to study and discover new business models, not only to set up new circular initiatives, but also to steer the entire functioning of the ports and the connected practices in the system. It is crucial to consider how the gathered data is translated into different concluding elements. It can help build up a common knowledge and make the complex circular transition more graspable, as well as foreground the benefits of practices and ports to share and be transparent if they want to achieve a more circular mode of operation. Port authorities could play a role in demanding this transparency from their practices, not only at one moment in time, but on a regular basis.

A first step to start this way of observation and learning could be an annually updated ‘yearbook’ of projects, which enables this continuous gathering of the latest status of the transition. Collecting the initiatives and their functioning in one place would provide direct access to learn from these innovations, to formulate the issues at stake and to steer the opportunities to future changes.



“We need to set up good instruments measuring the impacts of good practices, and share the resulting insights.”
Jan Blomme, Regional Port Commissioner

Today there are many hidden values in our community and environment. Since they are not incorporated in the mode of operation of our economic system, shifting towards this new and circular economy is neither easy nor even logical. A good example of a hidden value is the incorporation of the environmental value of water transport in comparison with truck transport: the cost of water transport is much higher, but it can carry more goods in one go, it doesn't have to deal with traffic congestion, and it is cleaner. These values are hidden and not considered in the overall regulation. Other examples are carbon taxes, job creation, environmental pressure, etc.

In order for the new economy to compete with the old one, the hidden values of circularity should be uncovered, the external costs of the old economy should be internalized, and the value chains should be more thoroughly investigated. It can range from unbalanced costs between water, rail and road transport to the benefit of the less-carbon-producing new economy in comparison with the polluting old industries. These hidden values and the internationalization of external costs should be researched and uncovered and be put into action through regulation. New kinds of indicators could come as a result of field observation, where the setting up of a set of instruments, in which impacts

of circularity can be measured, is crucial. It can start with the revision of the old indicators, such as KPIs, giving them different bases to measure the efficiency of old and new initiatives, but with adding new kinds of added value. 'Doughnut economics' (Kate Raworth) already presents a way to integrate social and environmental parameters. The constitution of these overarching tools should steer circularity on a general level, overcoming the lock-ins in which first movers are stuck. With this, it is important to state that these hidden values often look at the long term, while it is crucial to formulate short-term solutions as well. With these short-term solutions, more companies could be convinced to go towards a more circular functioning, if the win-win is proven.

A measuring index which determines the impacts of the circular economy can be a concrete action to take. Different ways to index and measure the evolution of the circular economy could help to quantify this new transition in order to guide the new implementation of regulation. For example, a tool be able to compare products made in a circular economy with those of the traditional value, where the price of the difference is the hidden value. Another example could be to look at the old economy and see which elements and values can be implemented in a circular system. This could facilitate the transition in the field, also on a political level.



“Help and support first movers developing sustainable business models, and not punish them for being innovative.”

Turi Fiorito, Director of the European Federation of Inland Ports

The transition towards the circular economy is today seen as too costly. Nevertheless, the high ambitions at the European and national levels are pushing for this transformation to happen in the next decades. Shifting to a new type of economy, with its related systemic change, means investing in experimentation that tries out new models, new technologies and new ways in which the circular economy can take place. As for every transition, there is a need for a 'period of grace' in which the many try-outs can take place and find ways in which this shift can land in the realities of port and city. Many companies, parties and other actors are currently not properly supported in this shift as first movers, but find themselves facing higher operationalization costs accompanied by a series of lock-ins due to the contemporary regulations.

A crucial stepping stone in this process of change is the construction of a framework that could lead investments to support the first movers and the many different initiatives in the field. Investments should be done smartly, helping projects that foresee future changes or projects that require support to take the risk to experiment. These investments should create the possibility and the environment in which risks can be taken and where failure can

happen in order to find the right way of working, facilitating this 'period of grace'. The investment in experimentation and innovation practices could also focus on shared infrastructure. Europe took a first step towards these innovation-steered investments via the research of Prof. Mariana Mazzucato's 'Mission-oriented research and innovation in the European Union: A problem-solving approach to fuel innovation-led growth'.

A first step to be taken is to investigate new investment guidelines. Through a participative process with different actors, various investment guidelines could be defined which set out a focus to the future incentives. These guidelines would focus more on the needs, lock-ins and dreams which current innovative initiatives have in order to be able to define the investments that other new innovative projects need.



"We need to influence people, and they need to be more end more aware about sustainability. The only way we can achieve this mental shift is by education, to empower and steer a change in society."

Antoon Van Coillie, CEO Blue Line Logistics

The circular economy also means changing our behaviour. It is not only about how we produce and consume things and how we handle material and waste flows, but also about how we create a new kind of society in which living and producing are strictly related. Circularity concerns the organization of a new industrial system and its inherent division of labour. The envisioning of a new economy requires new kinds of roles and tasks, but there is still no clear understanding of what new jobs the circular economy requires. So it is necessary to clarify what kind of labour will be needed in the future. A deeper understanding of those other values generated by the shift in the production system to a more circular one is crucial to forming the new economy. An important factor for the gathering of this added value at a social level are demonstration projects, where you can steer a process of learning-by-doing and, simultaneously, visualize the development of those different value chains and jobs.

Accelerating the transition towards a circular economy in port environments means implementing a societal programme for circularity to raise awareness of the human capital for this new economy. This should envision different strategies of engagement and raising awareness, in order to make the circular economy part of our daily life, closely intertwined with the different dynamics coming together in our cities. On the one hand, it will help to clarify the positive impacts that a circular port system can bring in the city and for the environment. On the other hand, it

also represents a big opportunity in implementing strategies for social issues. Unemployment, low education and other aspects of human capital can find new opportunities in the implementation of a circular system. Therefore, the set-up of educational pathways, where cities and ports work together to build up employment strategies at the city and regional level. As a public authority it is important to set a good example in order to make clear that it can be done: this is a first step towards this behavioural change. Moreover, strategies regarding the improvement of the natural environment should be built up, not only as a compensation measure, but also by actively respecting and regenerating throughout water management actions, nature implementation, soil care, etc. The creation of this programme is crucial to stretch and raise awareness on circularity beyond the ports' borders. The circular transition represents a big opportunity in rethinking our society, our ways of living and our landscape in a more complex environmental logic.

To trigger this mental shift, the initiation of public programmes could be a first move. By involving local organizations and port initiatives, potential interrelations and collaborations can be brought to the fore. These try to integrate circularity as a response to the social issue at the local level.

Roles in transition

The transition towards circularity affects many different players, directly and indirectly.

Practices are transforming: new initiatives position themselves where there are missing links between the current economic system and its circular transition, others are looking for alternative ways of working to transition to a circular mode of operation ... The roles that the initiatives are playing in this field of change range from the first mover trying to steer new and different circular dynamics to a more gradual, experimental one, looking for the right sequence of strategic moves to transition to a circular model.

At the same time, port authorities are evolving from a landlord role towards new pro-active roles as regulator, facilitator, matchmaker and community builder. With this changing role they are challenged to adapt the sustainable trends to new forms of governance, different regulations and choosing wisely new initiatives, not only within their own borders, but also in relation to cities, regions and the hinterland.

The city, with its authorities but also its inhabitants, will play a crucial role in the future of the circular transition. The city is not only a consumer system and a source of resources and waste, but also a pool of thinkers and makers. Therefore, the connection between the city with its economic activities with the port and hinterland will be important. Furthermore, the city can play a clear role in this as awareness-raiser and first mover in setting new kinds of governances facilitating circular processes.

The shift to a circular mode of operation also means to not work in isolation, but to enhance collaboration and exchange. Therefore, overarching platforms and the more regional actors, both connected to ports or sustainability visions, on the one hand, have a broad overview of what is going on and, on the other, position themselves in support of one aspect of circularity. Moreover, experts and academics of all fields will have to adopt a position in the circular transition. The transition concerns knowledge and expertise of all disciplines: from scientific innovation to economic changes, from spatial design to a societal evolution ... Incorporating circularity in their agendas is crucial to implementing the transition into people's everyday lives. So it is crucial to implement their shifting and also forming role.

Reaching a circular world means that all these players have to make the move. An important driving force behind the enabling of these actors is to set a common goal with clear interrelated stepping stones, actions and roles. The changes need to happen on all sides, and this for different reasons. Firstly, it enables the players, who are the moving pioneers, to exchange difficulties and opportunities and to build further on their knowledge and expertise. Secondly, circularity is based on chains, each player being a node in a changing network. Different parties will have to make a move at the same time in order to have a significant impact. The current intertwining of various players will have to be enhanced if more circularity is to be achieved.



“Cities and Port authorities have really large opportunities to build common knowledge and co-create together.”

Gabriëlle van Zoeren, Manager International Innovation RVO

The role of port authorities is evolving: a shift is occurring from being a landlord to taking a more pro-active role. At the same time, city authorities are becoming involved in the field of circular economy in relation to port areas, by starting dialogues and exchanges with the ports.

City and port authorities have the overview and power to accelerate and steer the systemic change that is needed. Strategizing upon a common agenda is a crucial step on the way to envisioning an overarching circular system, where the collaboration and interdependencies of cities and ports guides both new and already active actors. Both city and port authorities can start up virtuous dynamics to support the transition by envisioning common actions involving the different communities of practices. In this sense, they can take on a new leading role, as the facilitator and initiator of key processes and matching new dynamics with the ongoing one, while constituting specific regulations that avoid lock-ins and ease the process of change. By collaborating around specific topics, both authorities can share legitimacy and be stronger in the economic field. Building up a common agenda can be an incremental

process, where the port and city can first focus on one barrier, flow, process, etc. This gives them the opportunity to take the specific knowledge they need and create a road map and business case. Building up a common agenda is not only valuable on the graspable scale of ports and cities, but can be interesting for other scales too. Strategizing can be done on the corridor or even the Delta scale.

By defining the shared ambitions and goals between port and city, or between city and region etc., a first step can be taken in building a common agenda. This could be the basis for a structured and durable collaboration between the two parties and form a joined strategy towards circularity. From the setting up of this agenda, an incremental process of new initiatives can be launched: looking first at a certain flow, initiative or scale, before moving on to bigger projects.



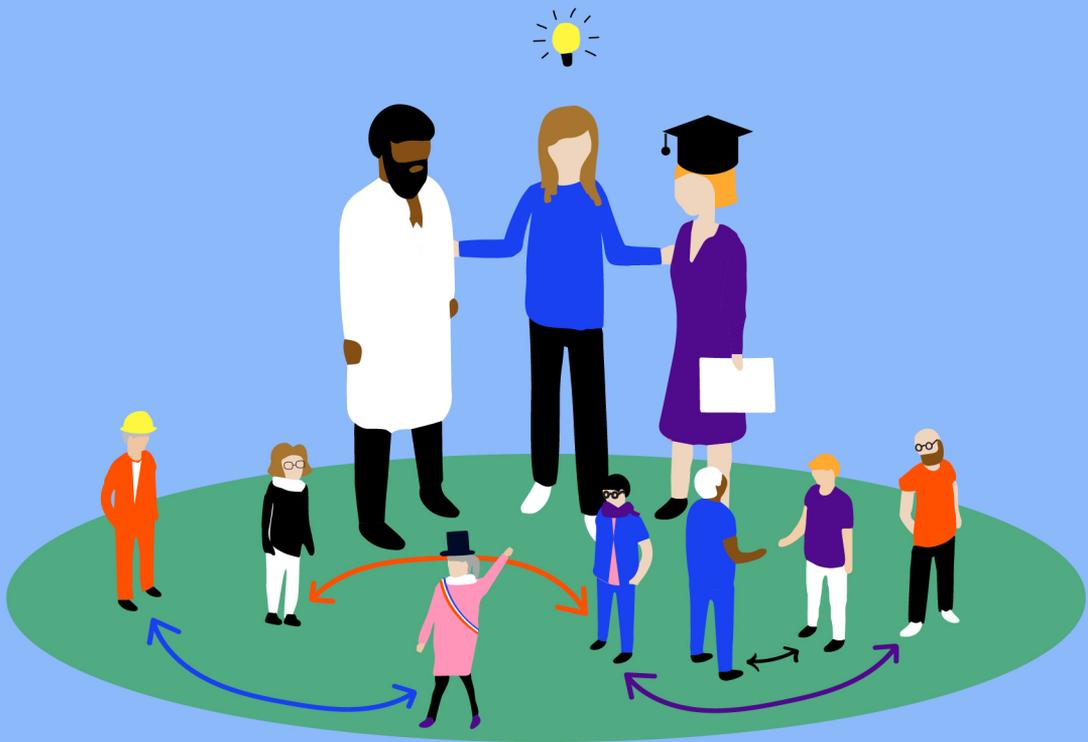
“My feeling is that there a lot of policies on sustainability are very abstract, and there are a lot of pilot projects but there is nothing in between. You need a step from the policy level to the implementation level, and the implementation level is very complicated.”

Walter de Vries, urban planner at City Development Rotterdam

Legislation around circular economy development and goals is usually framed at a higher level. The operationalization and the translation into policies, programmes or specific interventions, at the regional and city level, never finds its way through a clear and linear process.

Appointing a supra-regional institution enhances the operationalization of European and national legislative frameworks in the development of circular port areas. In fact, the constitution of a mediating figure that can govern this change – by leading and translating certain norms and rules in order to feed the local questions in this transformation process – seems strategically important. This would facilitate the constitution of specific processes, accompanying local parties in the development of a site-specific circular port system. This figure can represent the middle ground in which legislation and ambitions find their way through operationalization at the local level. The Delta is a valuable scale to work with, where the translation of the European goals can be seen on this specific border-crossing region. This mediating figure on the Delta scale will then translate the specific stepping stones of the bigger goals to smaller regions, but can also look for collaborative co-financing at the scale of the Delta.

To get this going, a facilitator at the Delta level could play a crucial role. This ‘Delta scale facilitator’ can support local initiatives in setting up tailored strategies that aim to contribute to the higher policy ambitions. With having this knowledge of both the bigger goals and the smaller initiatives and ideas, this facilitator can more easily and proactively react and steer these initiatives towards the ambitions.



“To face the transition to circular economy, we as a port do not have all the expertise, we need to cooperate with other public and private partners and constitute some kind of structured platform around circularity where different insights are shared.”

Anthony Callens, Head of strategy at the Port of Brussels

Nowadays, the field of innovative practices, active and working towards a circular system, is growing faster and faster. The know-how, innovation and specific learnings are great tools to facilitate the development of new practices. On the other hand, many different studies on the topic have been developed, but the knowledge resulting from those studies and experimentations has not been shared to be used constructively in the field. What is clear is the fact that a great movement of actors are mobilized around the development of the circular economy, but the exchange of knowledge, know-how, innovations and crucial findings has not been yet established.

All the parties moving towards a circular system are working in the same parallel directions. This working in isolation should never be considered when envisioning a systemic change. Therefore, it is crucial to build a system of sharing, preferably on the scale of the Delta, in which the learnings from the different practices, knowledge institutions, port authorities and governmental bodies can be bundled. Making this neutral ground should make it possible to look beyond the existing competition of ports and to form a base of support, where every participating party gains from its presence, collaboration, sharing, etc. From this shared knowledge, a learning process can be constituted to develop new insights on how circularity can move forward in the Delta's port areas. Lessons learned, new technologies, knowledge on innovation and know-how, but also findings

from pilot projects and experimentation in the fields can come together in a neutral ground in which cross-pollination takes place in order to build new mutual knowledge to understand the transition and what the missing links are. Peer-to-peer collaboration can be facilitated by this process, in connection with the establishment of tailor-made programmes of collaboration in which specific needs and particular qualities come together in the same place, accelerating the process of exchange. The initiation of different collaborative processes can help build up new circular dynamics and systems within the port areas, enlarging them towards the hinterland and the whole region. This peer-to-peer platform can help initiatives set new local value chains. At the same time it can enhance port-to-port collaborations in looking for a shared programme of exchange and partnership. It can also become a matchmaking platform and a pool of expertise of companies, actors and experts.

This neutral ground can be more concretely translated into a 'Circular Port Project Transition Academy'. This 'Academy' could be a peer-to-peer platform of learning and exchange between different actors, where specific know-how is shared and where innovations and skills are built up. These can start up different collaborative pathways to constitute new circular dynamics.



“The tackling of the transition will be done by setting collaborations between different players from different fields.”

Daan Schalck, CEO at the North Sea Port

The field of circularity is still vague in many aspects and has many connections with other transitions, which are themselves not clear. The effect that circularity will have on the changes of our port system has to be investigated more structurally.

The constitution of a think-tank represents a way to join the forces of different actors, like experts, leading port authorities, interested public authorities, overarching platforms, etc. It presents a tool for these willing actors to come together and exchange, strategize and take action together, starting up new (systemic) projects, helping to build up specific coalitions and put circularity on the agenda of their own and other parties. The establishment of a think-tank can help incubate and accelerate differentiated programmes to tackle the circular economy transition. The ambition is to constitute dynamics in which willing actors from different levels can start to strategize in collaboration with others, and to find the right parties to discuss with.

A way to translate this think-tank could be a platform or incubator of 'Circular Port Projects'. This can more concretely observe the opportunities in the field and develop concrete actions to be taken. This platform can support complex projects and broaden the spectrum of engaged actors, steering towards new coalitions for additional circular projects.

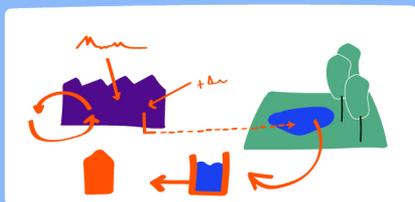
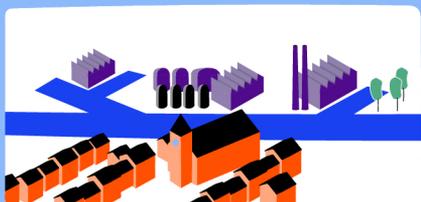
Spaces in transition

Moving towards circularity is the next step to be taken in order to deal with the current challenges: climate change, material scarcity, etc. As industrialization in the nineteenth and twentieth century was not only a driving force to change the economy itself, but also a call to think about its spatial impact and needs. It was a challenge to spatial thinkers, architects and urbanists to invent different planning methods for ports, cities and regions, to produce new typologies of housing and industry and to investigate the spatial interrelations between these new invented economies and their demands. Nowadays, while the transition to circularity is happening step by step on the economic level with the ecological driving force behind it, these same spatial thinkers are needed to take up the challenge to reflect on these new needs of circularity in spatial terms.

As circularity can be broadly interpreted – ranging from the circular economy of recycling, reducing but also regenerating ecologies to the rethinking of our energy needs and uses – the spatial impact of all these aspects should be considered in the ongoing discussion on the economic and ecological levels. It requires new typologies for new clustering principles and for the spatial imagination on the impacts these future typologies, clusters and

infrastructures will have. Spatial thinkers also have the ability to look beyond the economic and ecological aspects to discover new ways of dealing with space, materials and other resources: space itself and its occupation should be done in a smart, flexible and circular way, for which new ways of dealing with this circular area development should be envisioned.

Space and the interrelations of spaces will play an even more crucial role in this moment of change. With making the shift from the global to local economy, with looking at new forms of energy and by rethinking the use of all materials, both new and secondary, as sources, the direct and close connection between these different elements is crucial to make the transition possible. Proximity and mixity will be key assets, which spatial thinkers can help steer.



“What we are doing now is a free brainstorm with different stakeholders to envision to gather a strategic master plan for the port.”

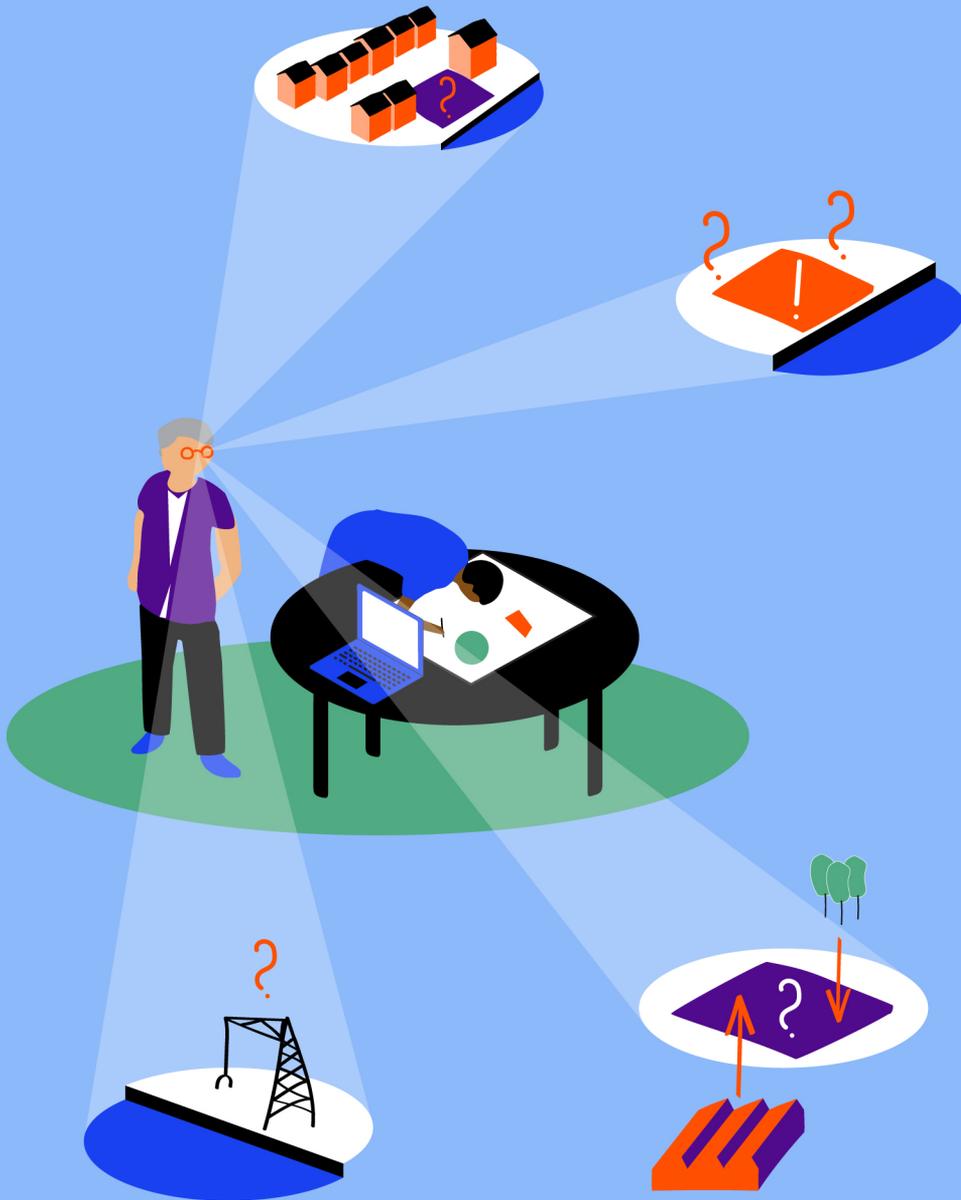
Karen Polfiet, Environmental policy advisor at the North Sea Port

Many actors currently have difficulty understanding what circularity exactly is and how this will affect their daily mode of operation and their environment. What does circular area development mean precisely for spaces? What will the future port look like when it implements more and more circular initiatives? What kind of spaces will circularity need?

Imagining and investigating the future spaces that facilitate the circular aspects and activities is crucial in order to implement the circular transition in our surroundings. These spaces are spots where new conditions are created based on changing frameworks, legislation, activities, clusters, etc. In addition, thinking about space, both in concrete sites or as a research tool, helps translate big goals into specific space-related elements. When a testing project on a concrete site is successful, the knowledge and work method can be translated into a more general strategy, accelerating the transition. The spatial design, its interrelation with its surroundings and the spatial role it plays in a bigger plan of the port, city and region are currently not clear. Spatial thinkers need to have the opportunity, and also need to be steered and challenged, to think about these spaces, and this in combination with other (economic) experts. The Building Blocks are a first stepping stone to imagine these spaces where the different

conclusions of the explorative trajectory of Circular (City) Ports on legislation, specific projects, interrelation port, city and hinterland, etc. are combined in an imaginary space. The same exercise should happen on other scales: circular area developments, cluster areas in ports, specific urban economies as a link between port and city, regional plans to connect circular hotspots along waterways, etc. Imagining these spaces also makes it possible to broaden the discussion on the circular transition: talking with a broader public about circularity will be more convincing with concrete images and plans. It will show the valuability of productivity close to living areas, and will try to facilitate a mental shift. These new spaces for circularity will definitely have a place in the living environment of people, and creating imaginaries can help to open up the discussion and change the culture of how to look at these things: from the current negative connotation to a positive one.

In order to imagine the next circular spaces, a participative process to build up the new circular port imaginaries could be started up. Workshops involving citizens and stakeholders as well as spatial thinkers can create shared imaginaries of what the circular port – and city – of the future can look like. Making it a shared process will increase the acceptance of this future.



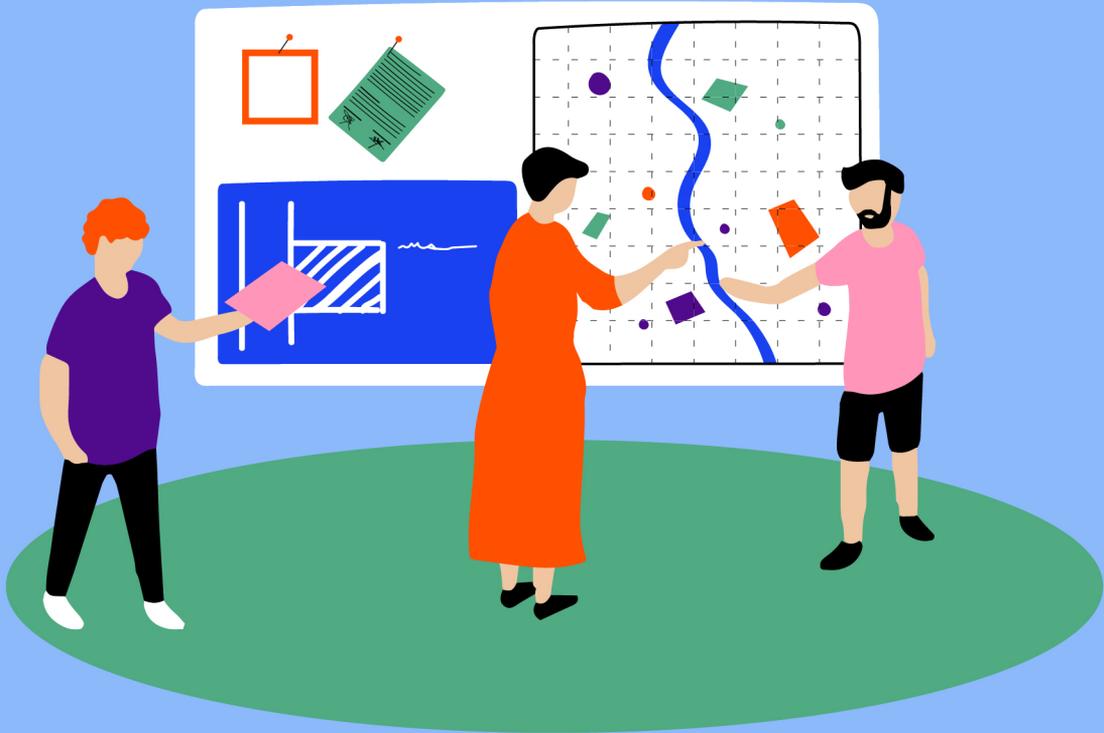
“We are convinced now that the starting point for circularity is the existing: don’t think to green-fields if you think circular!”
Daan Schalck, CEO at the North Sea Port

Research is currently ongoing in the Delta on how some sites should be redeveloped, knowing that the transition to circularity and sustainability will require different activities with related spaces. Instead of each time developing new land, it is necessary to look at the existing and already used spaces.

An overview of two sorts of spaces is needed, where new circular practices can be implemented. First, existing vacant plots in ports, cities and regions should be inventoried and considered as crucial potential spaces where new activities can happen. These activities should play a role in closing a gap in the ecosystem of its surroundings or should be an important place to launch new dynamics. An example is a building logistics centre in a city port area as a hinge between port and city. Secondly, an inventory of old industries or infrastructures, which could be valid for the new economy, is required. This should prevent, on the one hand, the unnecessary demolition of still useful infrastructure, for which the reuse of old oil tanks for biofuels are exemplary. On the other hand, initiatives could be better clustered and positioned. For example, the investments made by ports for new quays for deep sea ships, while activities may be disappearing at existing quays. Investments could then go to other crucial projects.

These two sorts of spaces could be used for pilot projects and as testing grounds in order to experiment with new legislation, modernized concessions policies, new spatial design, circular area development, etc. As a testing ground, the recurring questions and opportunities in the (re)development are also a learning process: the (re)development with a circular mindset and the general learning of the experiment could be a leverage to start up new projects elsewhere. It is important that this indexation is not only done within the boundaries of the port, but also beyond, looking more at the corridor scale.

The constitution of an 'Atlas of opportunities' can be a first step to index and screen potentialities. By mapping the different specific opportunities for cities, ports and regions to implement (missing) circular initiatives, a shared overview can be created to start up spatial transformations.



“We are looking for a kind of normalisation of the many different norms and tools to be used: which is the best to use and which are the one we use all together to makes things work in the same way?”

**Rainier Reekmans, Commercial and legal director at the port of Brussels;
Vicechairman EFIP**

The integration of port and urban planning is crucial to deal with the dynamics that combine physical structures in spatial, social and programmatic assemblages. More flexible land management with a specialized environmental legislation in port areas is important for the scalability and growth of these new economies. This goes hand in hand with the interrelation between concession policy and a spatial strategy on the port side, and with the land management policy, on the city side, where there should be a balance between urban uses and production.

Next to the inventorization of vacant and reusable plots, an overview is needed of the different specific planning conditions. Firstly, planning tools should be inventorized to find out which ones can be used or redefined in a flexible way so as to facilitate new circular activities in port and city. These should aid and protect the productive activities from real-estate and public pressure. Better coordination between economic expansion (the business demand), the available land and how this matches the leasing contracts is one example worth investigating. Secondly, good examples of planning economic mixity in port and city

port areas should be brought up as learning possibilities. Lastly, specific planning which touches upon the different scales of circularity in ports – company, city port, port region and the Delta as a whole – should be investigated or started up if necessary. Exemplary for this is the connection of port areas with different hotspots in the hinterland.

To search for these different planning possibilities, a ‘Circular area development Policy Brief’ can be drawn up. By facilitating a series of workshops with the planning authorities, the current potentialities of planning can be put on the table. These can envision new adaptations of the current tools or make up new devices to optimize, facilitate and protect the spatial development of circular initiatives, in the port and beyond.



“If we really want to change, everyone needs to think about circular economy: it is about mobility, spatial planning, energy,... all together, otherwise we cannot move forward.”

Nadia Casabella, Partner 1010 architecture urbanism

Integrating spatial thinkers in the transition to circularity is not always considered at present, even though this crucial aspect needs to happen in order to translate the aspects of the circular transition into specific spatial demands.

With each next step that has to be taken in the circular transition, it is important to consistently include spatial experts in the conversation. Actually, a multidisciplinary team comprising economic, financial, juridical, environmental, spatial and other expertise should always be considered in the development of new activities and initiatives. This should be done in all phases of implementing circularity in our current ecosystems: from the experimentation phase and start-up to upscaling, from specific sites to a master plan of a broader region, from regional visions to a national or European level. Spatial thinkers can present concrete material to talk about, in conversation with other experts but also with local stakeholders. Creating spatial imaginaries will help to change the culture of how to look at things, also for the spatial thinkers themselves. As spatial thinkers, there is a need to explore new instrumental tools to think not only about housing and cultural buildings, but also about industries, productive activities, logistics, etc.

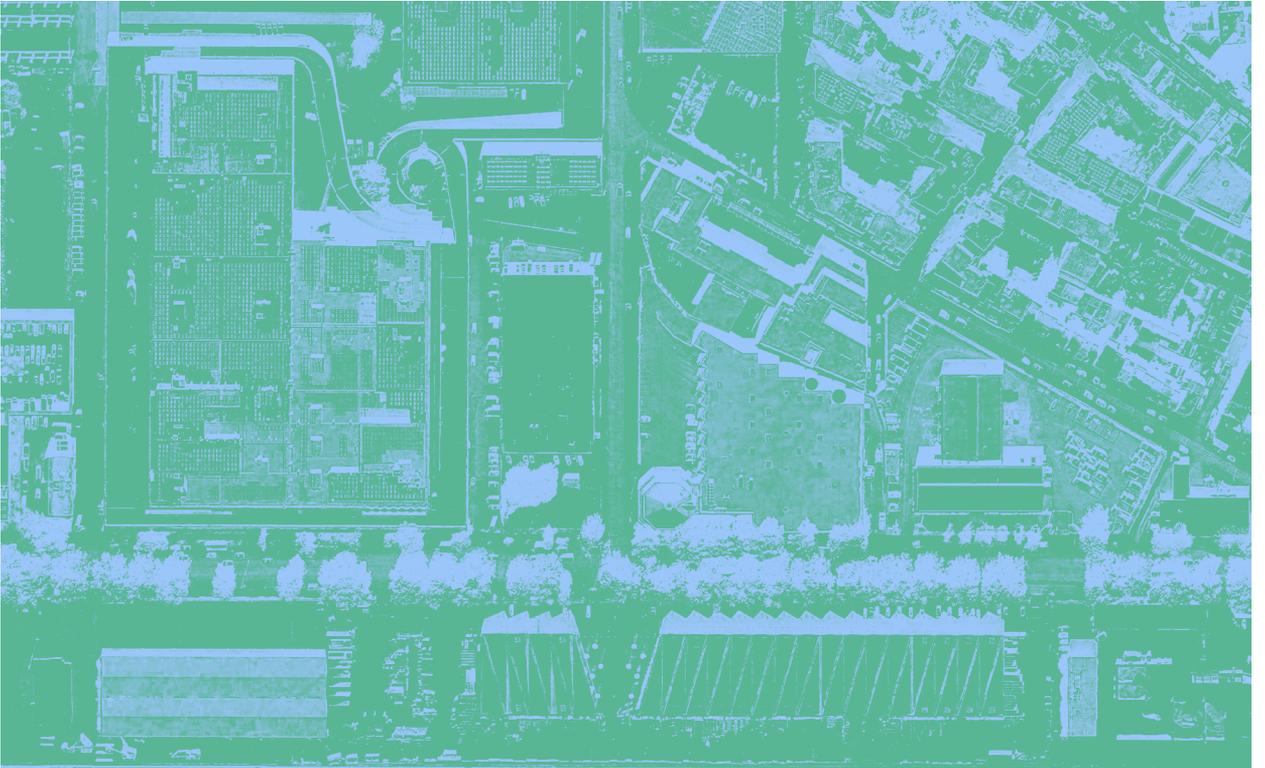
The 'Atlas of opportunities', which indexes the vacant and underused plots, can be augmented with other layers in order to let spatial thinkers act with this tool. These other layers could show local redevelopment issues, new building projects, challenges of the areas, etc. Putting these opportunities, in the broad sense, in an atlas, can initiate the integration of circular transformations. This would help to envision a broader transition strategy touching upon different fields and levels.

Shaping future changes

Shaping future changes

The 12 action lines give a broad but clear direction of where action can be taken. However, priorities need to be set as to where the first next steps can begin. The online core group sessions held in late April 2020 represented an open moment of verification and collective strategic thinking. It is clear from the many conversations that each port, city and region finds itself at different stages of the transition. Everyone is trying to tackle the shift to the new economy with different processes of learning-by-doing in response to the various local questions. The fact that the overall system of heterogeneous actors, embedded in our port environment, is busy strategizing toward this systemic change of going to a circular mode of operation clarifies the need for exchange and mutual learning between practices. The experiences, expertises and knowledge gathered from these differentiated local processes can be seen as an opportunity to build a common ground of know-how and of a more structured approach to tackle the circular economy transition together.

As a result of the open discussions in the online sessions, five main 'work packages' could be recognized. They show a first reflection on the 12 action lines developed in the explorative research and on the core arguments and priorities that each actor brought to the fore during the sessions. The five work packages focus on different aspects of the action lines and are seen as crucial first steps that can accelerate the transition to a more circular mode of operation of our port systems.



1 Creating a learning and capacity-building environment

Overcoming the overall confirmed dispersed knowledge, expertise, projects, etc. by creating an environment where these are bundled, shared and strategized upon.

The circular economy is a vast field that still needs further investigation and experimentation to be fully understood and discovered. Many projects are ongoing, and there is a common feeling that everyone is 'reinventing the wheel'. To achieve a systemic change, the understanding and learning from already existing practices and experimentation in the field of circularity is a first priority. A learning environment in which innovation, technologies and know-how can be gathered and used is crucial. This builds upon the already existing experiences and starts creating a progressive process of shared knowledge-building.

In this way, an annually updated status questionnaire of which initiatives are taking place or are starting up, bundled together in a handbook, along with a peer-to-peer system of exchange can be seen as key components to facilitate the exchange and learning of the many circular modes of operation. It makes it possible to start strategizing beyond the different scales of each projects' mode of operation and aids the many active actors in accelerating the transition to circularity. A peer-to-peer exchange environment is also responding to the need to find a neutral ground in which shared capacity can be built that goes beyond port competitiveness and specific local gains. It tries to steer the positive-sum game for the different parties involved, and builds capacity of planning, business cases, etc. It is a potential tool to constitute a pool of expertise and knowledge that represents an asset that practitioners can rely on to build up new local strategies and circular projects.

2 Supporting and strengthening Circular Port Projects to implementation

The existing and new circular port projects are still in a fragile position. An 'Atelier of Projects' can help support and strengthen the ongoing and upcoming projects.

Port authorities stress the fact that the translation of different learning and innovation on the circular economy into concrete local projects is difficult. Each port environment is busy experimenting and developing new circular projects, without an applicable recipe on how a circular project should function. There is an overall concern that it is a complex and continuous process of trial and error, of learning-by-doing that is going too slow.

There is a need for support in this operation of circular experimentation and project development. An 'Atelier of Projects' can help consider different scales and elements that make the transition process difficult: starting from the need of flexible land management and implementation at the local level to a more comprehensive planning system at the regional scale or even a broader envisioning of circularity at the national or Delta scale. This 'Atelier' should not only focus on new projects, but also on the reuse, restructuring, reform and adaptation of existing spaces and infrastructures.

3 Exploring further a circular system at the corridor level

Circularity will not be restricted to the boundaries of each port, but will have ecosystems stretching beyond. This local and regional aspect needs further investigation in order to serve the current and future ecosystems of the port.

The transition towards a circular system envisions that the entire economic environment is going to be focused much more on a smaller scale. In essence, this would mean going beyond the isolated port environment and building a specific connection with the hinterland, the living environment and the cities, based around supply and value chains.

Therefore, the analysis and development of the circular economy cannot stop at the port borders. In fact, a deeper understanding of the interrelation of the port areas and their surroundings, as well as possible synergies with other fields of production and operations, seem fundamental.

The scale of the corridor offers a clear opportunity to develop this investigation further. It is a good scale to map opportunities for possible new synergies, to understand flows and actors, to investigate the different kinds of spaces and their connection. For the implementation of a broader circular system, this scale and investigation are a relevant first step. To start envisioning this exploration more concretely, mapping these corridors in search for these opportunities and problems is crucial in order to find a scope of the possibilities.

4 Developing monitoring principles for circularity at the Delta scale

There is still a lot of vagueness on what circularity exactly is and what its new values are. The development of a monitoring principle in collaboration with academics, experts and actors should facilitate the measuring of the circular transition.

It is not easy to go from a linear to a circular economy, especially since the circular mode of operation is measured according to the principles and values of the old economy. The development of new measuring principles goes hand in hand with the monitoring of the circular port projects. International monitoring and measuring at the Delta scale was one of the key conclusions of the online sessions and could help facilitate the various port strategies and new and old projects.

A monitoring system on the Delta scale would observe the development of the different circular ecosystems and measure them in their transition process, while also looking to reinforce them in this process. It can help steer the various port developments towards a circular mode of operation, since the monitoring system shows the legitimacy of the circular transition. The monitoring could help better understand the legislation and policy needed in order to shift to this new economy. In general, emphasis has been put on the fact that a monitoring system on the Delta scale can enhance the development of a structured framework to guide the transition.

5 Interlocking local needs of ports to national and international policy environments and financing opportunities

To make this transition happen, there is, on the one hand, an overall call for governance and financial support on a national and international level, while, on the other hand, they formulate on these levels different legislation and goals for circularity. There is a clear need to connect these two ends

Legislation around the development and goals of the circular economy is usually framed at a higher level. The operationalization and the translation into policies, programmes or specific interventions at the regional and city level never find their way through a clear and linear process. This happens while there is a clear demand for support on the regional and local level from the ports that need links with the diverse national and international policy environments.

Envisioning an international exchange can enhance the definition of shared ambitions by investigating supporting strategies at the Delta scale. Simultaneously, it can take the form of a facilitating body or platform that helps to translate higher policy ambitions into tailored instruments and tools to be implemented at the specific scale of the Delta, the ports' corridor or at the local port or project level. Furthermore, formulating shared goals and ambitions at an international level gives the possibility to collectively investigate the financing opportunities for the implementation of shared projects at the different scale of interest.

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