



A European Circular Economy for the 21st Century

HOW THE EUROPEAN PROJECT CAN FACILITATE THE
TRANSITION TO CIRCULAR SUPPLY CHAINS

A report drafted by JEF Norway & JEF Netherlands | “European Circular Supply Chains” | October 2019

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Introduction

A European Circular Economy for the 21st Century

Europe faces many challenges. Yet the greatest still is how to transition into a sustainable, climate-neutral society for the 21st century. Yet, living within the planetary boundaries is not simply a question of shifting from fossil to renewable energy sources. As a recent report concludes: Only 55 % of global emissions stems from the energy sector. Instead, Europe needs to enter a circular economy. This is an economy where materials are looped, from cradle to cradle, and economic activities are not draining scarce natural resources. Today, only about 12% of our resources are re-used. Europe has a high Domestic Material Consumption, currently at 14 tonnes per capita on average. Among the greatest sources of emissions globally is the housing and construction sectors. The EU annually extracts more than 3.25 billion tons and imports 530 million tons of raw building materials for construction, while throwing away 400 million tons of demolished materials. This kind of wasteful practices does at the same time represent a massive challenge as well as a great potential for substantial emissions reductions.

To achieve decarbonisation of and the circularity of materials in Europe one needs to consider the entire value chain from resource extraction, to use and disposal. Today most of these value chains from the design to manufacturing and assembly to the store and consumption products, are highly global. Yet material value chains are largely linear based on a take-make-dispose model. In order to achieve sustainability and the internationally agreed climate objectives, Europe needs to transition to a model of reduce-reuse-recycle. It means looping the supply chain to reduce the uptake of natural resources, reuse the materials already in use and recycle the waste so it re-enters the cycle. This means coordinating the actions and practices of a large number of companies, consumers and administrations across the entire supply chain. No one country can tackle this challenge alone, and the EU could become a vehicle for enabling the world's first truly circular supply chains.

Research objective and report mandate

On March 24th 2018, Young European Federalists adopted a resolution on a “Transition to Circular European Supply Chains”. The resolution demanded a new direction for Europe, urging a whole-of-the economy approach that places the responsibility to retain the value of products, components and materials at the highest possible level while reducing waste and leaks to a

minimum. It called for the European Commission to address the key barriers to transitioning to a truly circular economy in Europe. To learn about these barriers first-hand, a JEF-project titled “Circular Economy in European Supply Chains” sought to put young people at the heart of discovering the solutions needed. As part of this project, a trans-European team of youth went on a field trip to the Netherlands. The team sought to discover the best practices of the circular economy in the Netherlands, through talking to and learning from actors at the forefront of the push to make Europe a greener continent.

This report summarizes the findings from the field as presented by young people living in Europe today. The field trip took place on November 2018 over a week and combined youth from across the continent to grapple with one of the biggest issues of our time: How can we transition into a sustainable circular economy? The team visited a range of organisations and companies working towards the circular economy in Europe, learnt from internationally renowned experts on the circular economy and worked together to conceptualise new economic models for the circular economy. Through the trip, the team experienced some of the barriers first-hand and considered concrete steps to address them.

Overall, the objective of the trip was to gather young people from Norway and the Netherlands and exchange ideas, stimulate cooperation and learn from each other and external actors. Secondly, the project sought to map out the best practices and solutions in the European private sector today. Finally, the project aims to “produce a report which summarises our findings, which will be presented and made available for our member bases as well as the public.” Our aim with this report is to summarize the lessons learned about the circular economy to inform our own member-base, interested third parties as well as the broader public. We hope the report can feed into the policy debate on how to deliver on the objectives of the EU circular economy package in a fair, transparent and equitable way.

Problem statement

The concept of the circular economy has become mainstreamed in debates about the future of the European economy, industry and jobs. This is in part due to a consistent push from the European Commission through its Circular Economy Package introduced in 2015 aimed at ‘closing the loop’. Yet, there has also been an important drive from the European industry itself, taking key steps towards reducing waste and reusing more materials. The Netherlands represents a perfect location to study this transition. Not only is the Dutch private sector known for high innovation; the city areas forming ‘hubs’ of interesting actors are located densely. Many initiatives have been

piloted in the Netherlands, from the circular city plan of the city of Amsterdam to the refurbished industrial site de Ceuvel and the circular start-up hub called Blue City in Rotterdam. However, materials flow and waste streams are not restricted to a single country in Europe today. As such, these initiatives and projects only represent one part of the broader supply chain. This report thus takes the supply chain as its starting point to try to analyse some of the cross-European solutions to the challenges ahead for the circular economy.

Definitions

The term Circular Economy means different things to different people. It was, therefore, important to define what the circular economy meant to us as a project team, early on.

A key principle of the circular economy is to make products, materials and components last as long as possible, through looping them in a cycle. The ultimate aim is to minimize the leakage of minerals and materials from this cycle and thereby reduce the absolute demand for new, virgin resources. The circular economy represents a new paradigm of the economic system that is regenerative by design with the restorative use of resources at its core. The definition applied by the European Commission states that:

“In a circular economy the value of products and materials is maintained for as long as possible; waste and resource use are minimised, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value” (European Commission, 2018).

Team definition of Circular Economy

Taking this as a starting point, the project team started formulating its own interpretation of the term. The team was divided into two groups that among themselves discussed the most important elements of the circular economy. What resulted was a deliberate discussion on what had to be included in a definition of the Circular Economy from their own perspective. According to the team’s definition, the Circular Economy is:

“Sustainable systems designing long-lasting products, that re-enter the production chain after losing their original utility.”

Team definition of Corporate Social Responsibility

Another key concept the team considered is what has become known as Corporate Social Responsibility, or simply CSR. This term is meant to capture how private entities in the economy, such as corporations, companies or non-profits take responsibility for the society around them. Usually, the limited liability company is said to be accountable mainly to its owners, its shareholders. However, in later years companies have increasingly realised the benefits and prudence of contributing to other stakeholders in their business environment, such as their workers, other civil society organisations and the environment. This is known as the private sector CSR-initiatives.

This term can just as well have many interpretations, and the team again discussed the concept in two groups. As it often is the companies themselves that need to design new systems for integrating their products and services into the circular economy, a central discussion was what role private actors had in taking steps to achieve the circular economy. Weighing up different descriptions of the term the team describe CSR as:

“Creating more opportunities through a balance between social, ecological and economic considerations within the sphere of interest of the corporation.”

Team definition of a circular economy business model

As a natural next step, the groups discussed how this combines to describe the role of the private sector in the transition to the circular economy. This has by some been described as circular economy business models. This captures entirely new set-ups for businesses and companies that actively contribute to the circular economy, through providing new services or re-designing products so that waste is reduced, and materials reused. According to the team the ideal business model for circular economy represents:

“an organization of economic activities which allows for a viable business, and for positive impacts on society and the environment at large, while enabling the regeneration of resources and products, keeping components and materials at their highest value and utility.”

Structure of the report

The report is structured according to the working groups of the team, which was divided into three packages: The European Circular Economy, CSR-initiatives in the Dutch private sector and European integration in a circularity perspective. First, the circular economy is described in the European context, providing key examples of how Europe can progress and prosper in a circular economy. Then, the solutions so far presented by the European Commission are presented and compared to the national strategy of the member state the Netherlands. Thirdly, the company-specific examples are described in detail, while also discussing and problematizing their strategies. Next, the overall perspective of the report is presented in a chapter on cross-European solutions and the role of European integration. Finally, we reflect on the conclusions made on the way forward for the European circular economy.

Topic 1: The European Circular Economy

Why Europe needs a Circular Economy strategy

Technological and economic advancements have facilitated an ease of obtaining resources and has reduced the costs of managing and discarding these resources when they are no longer of direct usefulness (World Economic Forum, 2014: 21). This has led to highly inefficient and unsustainable practices within our economies today. Europe, in particular, is facing a detrimental problem of overconsumption, consuming resources at double the rate nature are able to renew them (European Environmental Bureau, EEB, 2014). Our current practices are continuing to exacerbate negative pressure on the environment leading to problems including pollution of our air, water and land as well as accelerating issues with loss in biodiversity (Geissdoerfer, Savaget, Bocken & Hultink, 2017: 757).

The EU is heavily dependent on the import of raw materials from other parts of the world. The figure below shows that in 2014 alone, imported around 1,600 million tonnes of raw materials (EEB, 2014). Conversely, the export was about 800 million tonnes (see Figure 1). In order to reach a more sustainable future, the EU can no longer continue to import at this current rate. When it comes to the recycling management in the EU, as of 2014, only 40 % of all the materials were actually recycled in Europe (EEB 2014). This means that there is potential in increasing the amount of “locally” recycled materials. There are huge pressures on resource productivity, and it is reaching a break-point (World Economic Forum, 2014: 34). Finding alternative ways to get the needed resources are therefore important, but doing so, we are now observing new challenges.

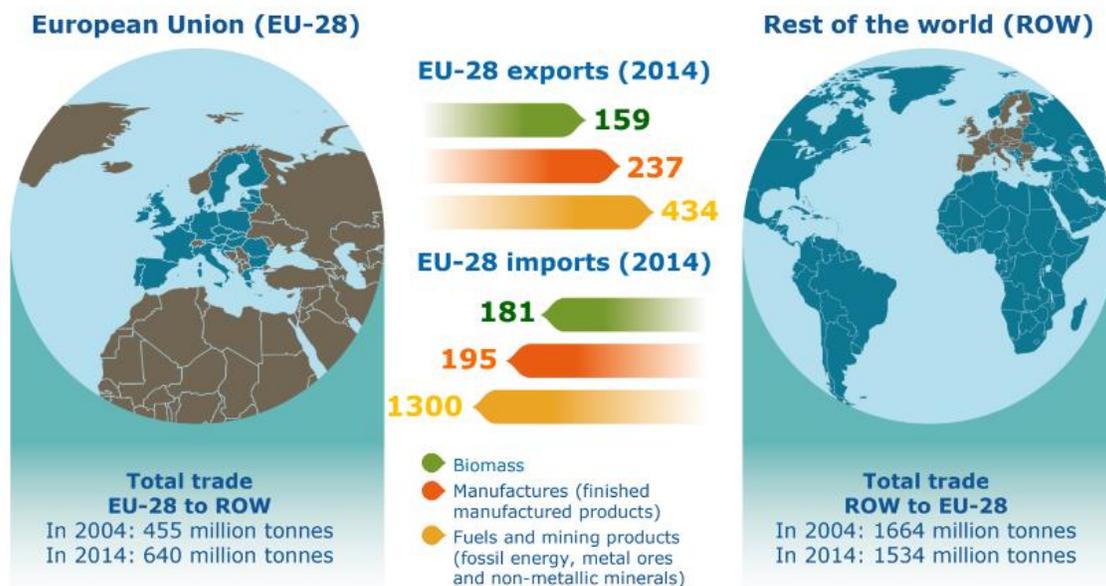


Figure 1: The amount of imported and exported raw materials in 2004 and 2014 (EEB 2014).

The main barriers to recycling can be divided into five categories:

Separation of products and materials

Linear products like mobile phones have often no cost-efficient way to extract the embedded raw materials using chemicals or physical processes without degrading the product. This makes it difficult for businesses, especially the small ones, to take the step by producing new materials from old ones.

Sufficient scale and reliability of supply

The volume, composition and mix of materials in supply networks are highly variable. This makes it not always economically viable to recycle old products.

Purity of materials

Today's products are often produced with a lot of different resources, which makes it difficult to be recycled. Through good product design, it is possible to make products consisting of fewer materials. For example, a well-developed product design could help to reduce the use of different plastic in a yoghurt box. By using only one kind of plastic, it would be possible to reduce the energy and time spent on recycling the yoghurt box.

Identification of material

Materials like metals can be easily identified by their physical property like density magnetic property, melting point etc. This is not possible for all types of resources such as polymers. Therefore, we need other methods to identify materials such as polymers. The figure below shows how the density of a material not necessary says anything about what kind of product we are working with.

Quality of the materials

Multiple cycles of manufacturing and recycling are reducing the quality of the materials. Bonding properties of the fibres, in for example paper, are weakened each time they are recycled. This leads to decreased paper strength, which makes it difficult to keep the circle as closed as possible.

There is enough evidence supporting the science that our current processes are inefficient and unsustainable. However, despite increasing attention focusing on the urgent need for more sustainable practices, the EU has not yet introduced a specific, integrated approach for tackling our problem with resource inefficiency (EEB, 2014). The current problem calls for a solution which addresses the environmental, societal and economic problems associated with the issues of our current practices. As such, the economic and sustainability model conceptualised as the *Circular Economy* (CE) has been gaining increasing attention as a viable solution.

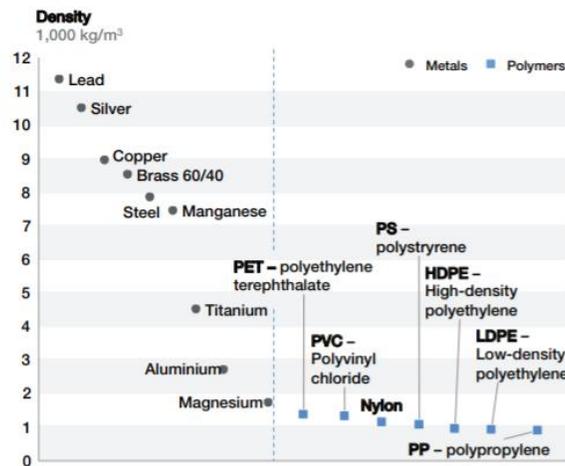


Figure 2: How only some types of resources can be distinguished by density (World Economic Forum, 2014: 34).

How is the Circular Economy defined by European actors?

The concept of Circular Economy

There are three major roots illustrating the concept of the circular economy; Industrial Ecology, Cradle to Cradle, and Biomimicry. Representatively, Industrial Ecology is mainly about optimizing the way energy and materials are used, minimizing pollution and waste, and considering the environmental impact of every (by)product of a manufacturing process.

The difference between Linear and Circular Economy

Compared to a linear economy whose resources flows are take-make-use-dispose, extracting more raw-material and dumping waste, the circular economy model includes the usage of the end-of-life products as feedstocks in another process, limiting the production of raw-material and waste in a system. This relies on the hierarchy of maintenance-reuse-refurbish-recycle to maximize value by reutilizing used material.

Fundamental grounds for a Circular Economy in the EU

As mentioned above regarding the high dependence on importing materials outside European Union, the security of resources of EU has been and will be threatened by an external crisis - it is the essential reason EU should do the paradigm shift towards the circular economy, but also this new model can bring socio-economic opportunities.

From a social perspective, the contribution to human health improvement and resources consuming habits change in well-being and eco-environmental manner, approximately 178 000

jobs are predicted to be created by 2030, with the resulting business and policy chain expanding (European Commission, 2018). Also on the economic side, there are three main arguments for the circular economy; creating a resilient economy with low-risk supply chains through resource security, net-material savings, and better competitiveness through business model transitioning.

The economic value of the Circular Economy

For example, in case of Rare Earth Elements (REE), which calls the very essential elements for low-carbon energy system, around 85% of the total reserve is concentrated on China (49%), CIS (20%), and United States (14%). At the same time, about 90% of the amount is produced in China, especially in a single mine in Mongolia (P, Koltun. et al, 2014). Because it is hard to access to REE which is produced in the refinery process of general mines, to vitalizing the system for reusing elements inside EU is necessary (e.g. Closing the Loop).

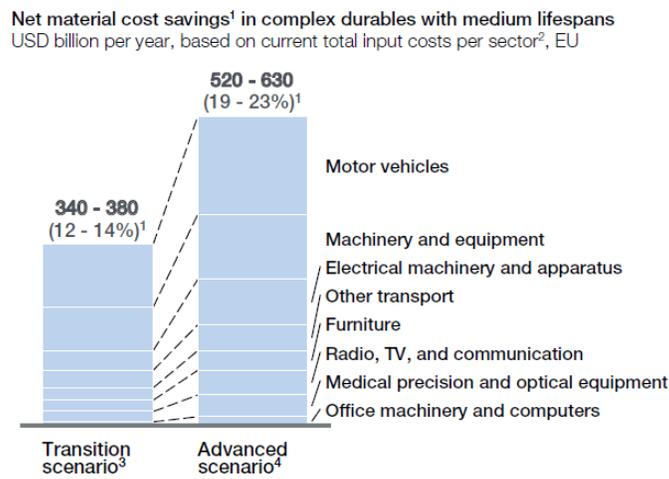


Figure 3: Potential savings with reuse of secondary items, in manufacturing sector. Source: World Economic Forum (2014) Towards the Circular Economy.

As the idea of ownership changing, business model transitions have already occurred in modern society from conventional product-oriented, use-oriented design towards result-oriented models such as car-sharing and rental services; designs that are predicted to accelerate in the context of the circular economy.

A EUROPEAN CIRCULAR ECONOMY ACTION PLAN

In wake of the current waves of sustainability awareness, actors at different institutional levels - from national governments to private entities to civil society at large - are challenging and changing

the way we manage our socio-economic system. With our economic activities heavily straining the environment, both in terms of resource depletion and carbon footprint, a different approach towards the economy is needed; an approach based on heightened cooperation, responsibility and awareness of environmental footprints and negative effects.

In 2015, the European Commission took the first steps in the implementation of a ‘Circular Economy’ through releasing its Circular Economy Action Plan. The [EU Action Plan for the Circular Economy](#) establishes a concrete and ambitious programme of action, with measures covering the whole cycle, with the aim of "closing the loop" of product lifecycles through greater recycling and re-use. It focuses on changing production and consumption behaviours, as well as improving resource efficiency through waste management and markets for secondary raw materials. This chapter seeks to outline the emerging policy initiatives on the European level and contrast it to a national set of policies in the Netherlands. Finally, a range of private initiatives from companies will be assessed in order to see how far CSR-level engagement has come within the field of the circular economy.

The Commission’s Circular Economy Package

The EU’s Circular Economy Package is focused on mainly four aspects of the economy. The package introduces key targets and metrics for each of these areas and proposes several measures. Vitality, the European Commission stresses that without delivering on all four of these areas, the Circular Economy cannot be achieved. The four target areas are within production, consumption, waste management and ‘markets for secondary raw materials.’

Within **production**, the European Commission wants to improve the durability, reparability and recyclability of products. This is to be achieved via the Eco-design directive and other broad-based incentives. The European Union has focused on four areas of the production phase: making better product design, creating incentives, improving the production process as well as supporting innovative industrial processes within the European industry.

In the area of consumption, the main attention is placed on **consumption** patterns. Here, the key is the reduction of household waste and reducing the amount of new stuff people consume. Central to the circular economy is to use, rather than to consume products and natural materials. However, this is often more effective at the national and local levels, where awareness campaigns and incentives can be better targeted. The Commission promotes waste prevention and reuse

through the exchange of information and best practices and by providing Cohesion Policy funding for projects at the local and regional level.

On **waste management**, the attention is to limit the amount of landfilled materials and on improving waste reception facilities. The commission has proposed stricter caps on the amount of waste that can be disposed of and ambitious recycling targets. The Commission will also examine how to optimize this use of ‘waste to energy’, without compromising the desire for higher reuse and recycling rates. To that end, the Commission will adopt a 'waste to energy' initiative in the framework of the Energy Union.

Finally, regarding the **markets for secondary raw material**, the Commission has launched a work package on EU-wide quality standards for Secondary Raw Materials (SRM) in consultation with different industries. Moreover, it will establish rules clarifying when an SRM should no longer be legally considered 'waste', providing operators with a more reliable supply of used materials and creating more even market conditions.

The Dutch Circular Economy policies

There exists a government-initiated programme which aims to develop a fully circular economy in the Netherlands by 2050. The strategy is to have a unifying theme in policy which will enable the Dutch government to sustain a future-proof economy. This is enabled through fostering common vision and cooperation, and facilitated through government interventions (legislations, market incentives, financing, knowledge and innovation sharing, international cooperation).

The transition involves a shift from the current “take, make and waste” linear economic model to a system which uses the least amount of raw materials. The priorities set out by the government are in the sectors of biomass, food, plastics, manufacturing, construction, and consumer goods; with usage of primary raw materials as the overarching concern. An ambitious programme is to reduce the use of primary raw materials by 50% by 2030, through the involvement of a variety of stakeholders.

Each municipality is then responsible for their respective transition to the circular economy. Amsterdam became the international frontrunner, being the first city in the world to propose a roadmap in 2015, winning the World Smart City Award in 2017, and currently having 73 projects on hand. Their understanding of the circular economy is a reflection on systematic (socio-economic) change. Similarly, Rotterdam has its own framework. Indeed, its “embed, act,

inspire” policy aims to enable and facilitate circular thinking. The autonomy of regional actors is crucial as each region deals with its own respective challenges.

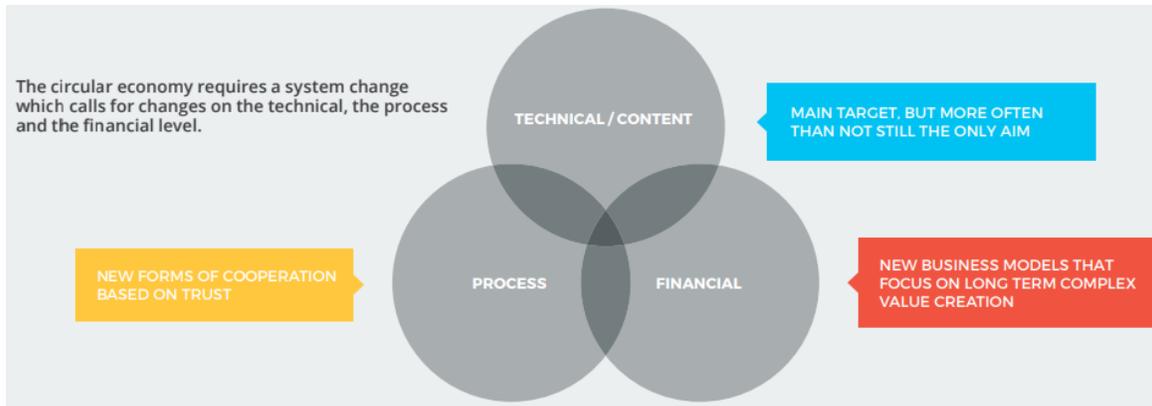


Figure 4: Illustration of the Dutch national strategy for approaching the circular economy.

Topic 2: Industry and Business-level Initiatives

The various activities involved in the JEF Circular Economy Project highlighted some of the urgent improvements required to lead the path towards circular economy implementation. Decentralization, awareness and mobilization of all types of actors, from individuals and start-ups to multinational corporations and governmental and transnational organizations, seem to be common challenges.

In a McKinsey report commissioned by several business leaders, the case for a business-led transition to the circular economy is made. The report made seven conclusions. First, it concluded that most businesses still operate largely on a linear basis. Secondly, it saw disruptive technologies and business models already turning the circular economy from theory to practice. By adopting circular-economy principles and integrating new technologies and business models, Europe could achieve ‘growth within’, it concluded. A growth-within model would create better outcomes for the European economy, generating annual benefits of up to €1.8 trillion by 2030 (McKinsey, 2016). The report concludes that a transition to the circular economy would “better welfare, GDP, and employment outcomes than the current development path”, but that as such “...moving toward a circular economy would incur considerable transition costs” (McKinsey, 2016).

Learning from CSR initiatives in the Netherlands

During our project, the project team made several visits to different organisations working in the Netherlands and across Europe to forward the ideals of the circular economy, each in their own way. In table 1, the companies visited are listed and described. As can be seen, the visited organisations represent a broad range of sectors and vary between private, public and private-public entities. Some are grassroots-initiatives and others driven by large multinational corporations. Still, we considered the broad range of organisations used could serve as a representative sample of CSR-initiatives throughout Europe.

Table 1: List of companies visited and studied

Name	Sector	Business concept
Leiden-Delft-Erasmus Centre for Sustainability	Higher education	Provides education and research within the fields of industrial ecology and the circular economy.
ICL Amsterdam	Chemicals	Produces different chemical products such as fertilizers and packaging. Also runs the subsidiary PolystyreneLoop creating polystyrene plastics.
Port of Rotterdam	Transport and shipping	A public body running the operations at the largest port in Europe, the Port of Rotterdam.
Closing the loop	Materials recovery	A company that recovers and recycles critical raw materials from old and used phones in African countries.
Blue City Rotterdam	Entrepreneurship	A start-up lab for circular businesses and new innovative ideas.

De Ceuvel	Urban development	A city area development project to reinvigorate an old industrial part of the Amsterdam.
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[More case studies from the Netherlands](#) (at Business Europe’s site www.circulairy.eu)

It became evident during our field visits, that technical development and expertise are needed, in academia as well as in industry, and that closer connections and communication between researchers and entrepreneurs are essential. The meeting with researchers of the Leiden-Delft-Erasmus (LDE) Centre for Sustainability suggested that the creation of physical and institutional spaces and networks for greater connections between academic researchers and market actors would stimulate the access, proximity and integration of circular economy, also creating a form of ‘sharing economy’. The EU already strongly supports the exchange of information and best practices. As an example, a research program at the LDE Campus presented during the project, supported by EU funds, is working to create bridges between university researchers and entrepreneurs with practical issues. More initiatives like this must be supported, also at smaller-scale academia and spread throughout all the countries in the Union.

Logistic companies, such as Closing the Loop, take advantage of new market opportunities by transporting materials so that the electronics supply chain loop can be closed, while recycling is enabled. Clearly, circularity goes beyond merely recycling, and must not be considered a sufficient solution or an excuse to continue consuming at today’s rates, but starting by rethinking such processes is necessary to deal with the quantity of waste we have to deal with, and opens the debate about whether these logistical companies could be publicly funded, making it into a public service. At the moment, funding of sustainable and innovative companies like Closing the Loop is partially provided by the Executive Agency for Small and Medium-sized Enterprises (EASME).

Grassroots activities and start-up organizations involved in the Project demonstrated a high level of involvement, interest, and beliefs that are central to the circular economy. They seem to be more keen to take action in line with these values. Blue City, for example, created a community of entrepreneurs that support each other and spread the risk over all of them in order to minimize its consequences. This organization strongly supports innovation labs and engages with opportunities at the local level and was initially financialized by a private investor. Organizations like this need to find financial support at the European level and greatly increase quantitatively. Similarly, De

Ceuvél allows visualisation of how a realistic and feasible circular future could look like and thus suggests that sustainable reuse of industrial areas should be supported by EU policies, especially improving policies regarding reused materials and energy supply for the individual or village-size power plants. The implementation of renewable energy systems should also be further supported.

A parallel analysis must be developed between local and small-size activities such as those just mentioned and large or multinational corporations. The meeting with ICL raised questions regarding the financing of the circular economy. A trade-off exists between prioritizing bank investments in innovative start-ups, which have the potential to do better by developing on a circular and sustainable mission and vision but are at high risk of failure or supporting the initiation of circular activities in established multinationals. The latter, in fact, have a high impact on the global achievement of sustainability and circularity but are based on different sets of goals, being built on the concept of linearity. Circularity represents in their context a new, complex, risky and expensive implementation that clashes with the company's original priorities. It is important that governments and the EU analyse the importance of allocating financial aid and the trade-off between prioritizing start-ups or established corporations, searching for the overall preferable solution.

From the ICL meeting, it appeared that currently, banks do not invest enough in the greening process of large corporations because it is too risky. By spreading such risks between a group of large private actors with common stakes, the risk can be minimized, the same way risk is spread through the start-ups within Blue City. Networks and communities must be developed on a large scale as well, raising however a greater set of complications and an increased level of conflicts of interest. Also, it is centrally important that corporations, but most importantly the powerful individuals within it, despite based on a linear economy model, make a transition of values and beliefs towards sustainability and circularity. If such a transition does not happen at the individual level, financial support from banks, governments and international organizations towards the whole business will be hindered by a lack of trust.

Throughout the project and during this final report, it became clear that policymaking is a crucial facilitator, thus the link between policymakers and implementation processes must be close and reviewed, aligning all levels of governance. However, personal beliefs and awareness of individuals regarding environmental issues still result to play the central role in the transition to effective circularity.

Topic 3: European integration and the circular economy

While studying the circular economy policy drive in Europe, we quickly realized the close connection to the development of the European project. The European project has been the development towards closer cooperation and coordination between the central European powers, since the Second World War in the mid-20th century. By 2013, 28 European countries had joined in this project. A central question to the project goals was: *How is the 'ever closer union' among European nations relevant to achieving the circular economy?*

After the concept of circular economy was popularized in the early 2010's several studies investigated the level of maturity of policies in the different EU-28 countries. It was reported that only 10 of the 28 member states identified the concept of the circular economy while only three of them made strategies to close the loop. Moreover, a lack of circular economy development was directly related to the lack of investment and economic incentives. Therefore, to integrate climate change and resource efficiency policy with the waste legislation in the European Union an action plan was developed as a range of directives relevant for all member states.

The main four objectives of the action plan were to harmonize and simplify waste legislation, improve monitoring, optimizing waste management in all member states and establish binding targets for recycling and reuse across the region. All these objectives are supranational in scope. It is therefore relevant to consider the integration of European countries and the harmonization of the countries rules and regulations on issues such as waste management, resource productivity and food standards, as important for the success of circular economy policies overall.

European or national policy on the circular economy?

If we are to discuss how European integration and harmonization will affect the implementation of circular models within the EU and their partners, we need to establish a clear understanding of the meaning of those concepts. European integration is usually acknowledged to be cooperation regulatory frameworks in the policy fields of economy, justice, industry, social insurance. This has had the side effect of leading to a greater harmonization in these policy areas. This harmonization comes as result of EU implementing regulations or directives to encourage its members to reach certain goals or discourage/forbid certain practices, and will through this harmonization over time (hopefully) lead to a synergizing of the values, outlooks, and practices of EU member states, thus creating an inner cohesion amongst the members.

The term "European integration" refers to the process of political and economic cooperation in Europe, which has become increasingly restrictive since the 1950s. Integration creates markets that transcend national borders and transfers political competences from the national level to a supranational level. From the very beginning, the concept of European integration has an interest in long-term peacekeeping.

Many of today's political problems cannot be tackled effectively on the national level - this is another important reason for the unification process. This is most evident in environmental policy. The fight against acid rain, the maintenance of rivers or the prevention of disasters, which may be caused by major technical projects such as nuclear power plants or chemical factories, can only be done together across borders.

Coordinated action in the EU is also becoming increasingly necessary in other areas. This concerns the fight against international terrorism, drug smuggling and international money laundering, as well as the stimulation of the economy, the creation of new jobs, the long-term safeguarding of natural resources and the elimination of the causes of global migration flows. In many cases, global solutions would be most effective, but such agreements are often not respected because of the lack of commitment, for example in the context of the United Nations.

Conclusion

Challenges facing Europe in transitioning to the Circular Economy

As the paradigm changes from a linear to a circular economy, policy, legislation and laws need to follow suit. Although there is both broad public demand and a societal need for businesses and enterprises to change, the economic structures throughout the world are still facilitating the old linear system. To be able to meet our ecological challenges, Europe faces a period of drastic change.

During our field trip we visited start-up companies and multinationals to understand their progress towards the circular economy, and the barriers they are facing. The small and medium-sized enterprises working together in Blue City in Rotterdam and De Cuevel in Amsterdam as hubs displaying the potential of young entrepreneurship. These hubs work as playgrounds for innovation and experimentation where young entrepreneurs work out new solutions for environmental sustainability and the circular economy. However, where these novel start-ups find new ideas and develop solutions, they are often faced with financial insecurity or legislative barriers at the national

level. The multinational companies on their side are in a financial position to take the risks but are unsure about the long-term promise of the legislation. Moreover, they argue that the lack of progress is due to insufficient national policies, incentives and an unwillingness to act from other businesses and shareholders. They proclaim that it is hard for them to move towards these transitions alone and will result in losses. Additionally, they also highlight the distrust of the banks to provide financial loans for such initiatives that make the transition to circular economy an uphill task. This needs to be addressed by European decision-makers.

As the supply chains of most products and services are becoming increasingly globalized, there are strong arguments for continuing the process of European integration. During our visit to the Netherlands, we discovered that the challenges posed by the transition to the circular economy cannot be solved in a single country alone. However, there is currently little agreement on how the European Union is to evolve. The conflict lines have just become more apparent over the years. The question moving forward comes down to whether Europeans are willing and able to continue to pool their efforts in solving global challenges such as climate change and biodiversity loss. This will require the coordination of increasingly intrusive decision-making affecting local communities. As an example, the circular economy demands establishing shared standards in areas such as waste management practices, design specifications and eco-labelling. In the end, the circular economy will require a large degree of cooperation across countries in order to ‘close the loop’ and make all European supply chains circular.

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