I.
FOOD FOR THOUGHT

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The circular economy carries with it the promises for a more environmentally sustainable, socially inclusive and economically prosperous society. The project "Working for a more circular economy – horizon 2035. Scanning the future to better prepare for the next steps" imagines the future of working in this more circular economy in Belgium.

Discussions about the circular economy are ubiquitous in the public debate, business practice and academia. Yet, it is a loosely defined model, its implications on the environment, people and economy and imperatives for policy and the industry are multidimensional, complex and nuanced.

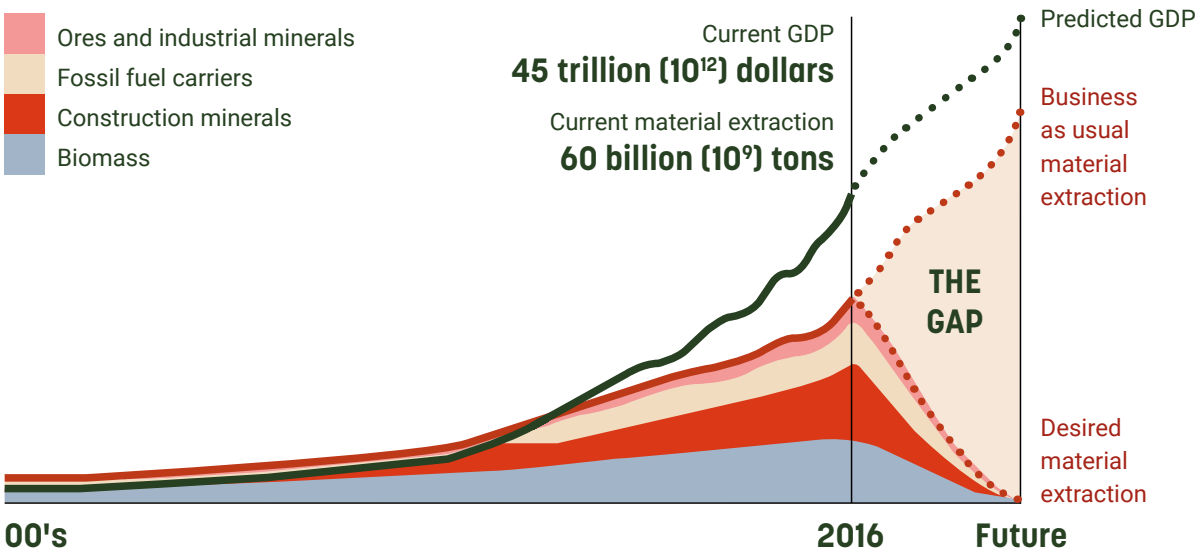
This document provides an introduction to the topics of circular economy and work and how they relate to one another. It is aimed at bringing general background knowledge for all members of the Creative Group to have the same starting level of understanding of the topics at hand, as well as introducing nuances and complexity into the debate by provoking critical ideas.

1. THE CIRCULAR ECONOMY

The circular economy is an economic and industrial development system that provides an alternative to our current linear take-make-waste system.

It keeps products and materials in use for as long as possible. Abiding by principles of reducing consumption of natural resources, reducing waste and pollution, eliminating toxic materials, maximising the use of regenerative resources and keeping products in use for as long as possible, the system is "restorative and regenerative by design".[1] It is underpinned by innovative technologies, integrated service delivery, strengthened local and regional supply chains and the decarbonisation of energy supply. As such, circularity goes far beyond recycling, something it is often wrongfully reduced to.

Rather, the circular economy proposes a fundamental shift in what it means to create value. Since the Industrial Revolution, economic growth coincides with material extraction; material use has tripled in the past 50 years, and is expected to double again in the next 30.[2,3] Unsurprisingly then, the most prosperous countries tend to have the biggest environmental footprints (with Belgium transgressing all but one planetary boundary).[4] The circular economy aims to continue to develop prosperity, without extracting more virgin resources, decoupling value creation from material use. In other words, the circular economy proposes a system in which we keep the things we want (prosperity, jobs, ...) and eliminate the things we do not want (pollution, environmental degradation, ...).



Economic growth and resource use coinciding and growing exponentially

1.1. THEORETICAL FOUNDATIONS

As with any theory, it is difficult to pin down the origins of the circular economy (see the evolution of the circular economy and related concepts in scientific literature on this timeline). Roughly speaking, the circular economy emerges from theories that rethink the economics of materials on the one hand, and theories that redefine the scope of industrial systems on the other hand.

The term 'circular economy' was introduced in the study of environmental economics, where an open-ended economic system was seen as detrimental to the sustainability of human life on the planet.[5] It leans on the metaphor of 'spaceship earth', the understanding that ultimately, we have the one planet as our one and only system. Preceding the theories built on this thinking, it already stated that environmental and social value should be built and preserved in an integrated approach (watch this interview excerpt with Barbara Ward from 1972). This fundamental idea of closing our economic system has down the line resulted in concepts that operationalise closing material loops. Prominently, cradle to cradle introduces design as the central lever towards high value cycling of materials.[6] Further down the value chain then, the performance economy addresses modes of consumption, and decouples the relationship between product use and ownership.[7]

Beyond the economics of materials, the circular economy also builds on theories related to systems analysis that re-establish what constitutes an industrial system. This insight may seem hardly innovative now, but central to the circular economy is that our industry is embedded in the natural environment with mutual interactions between both systems.[8] This idea was introduced in industrial ecology, which embraces a systemic approach to cycling materials and energy in a joint ecosystem of industry and the environment.[9,10] Similarly, urban metabolism, which is committed to mapping resource consumption, asset accumulation and waste emissions in cities.[11] The very fact that (private) industry is embedded in and interacts with our (collective) natural environment has consequences for scope of analysis and intervention, and hence which stakeholders should be involved.

It also means that an industrial system—and therefore the circular economy—touches upon our economic, environmental and social systems at the same time, and should hence be understood from these different perspectives. As shown above, however, the circular economy is mainly rooted in natural sciences and economics, and understudied in the realm of social sciences. In our enthusiasm to promote and propagate the circular economy, the social dimension of the circular economy is often assumed, rather than critically examined.

Is the circular economy too technocratic to address societal challenges?

One of the main criticisms of the circular economy is that it is a very technocratic fix, which is presented as a systemic solution to address broad societal challenges.

The circular economy, conceived to make the business case for using less raw materials, does not necessarily question consumption patterns, power imbalances or our conception of (economic) value.[12] It is, in that sense, an incremental improvement of our current business rationale. This is illustrated by the fact that most businesses adopting circular economy practices reconsider their material input, yet the profit models remain largely intact.[13]

For the circular economy to succeed and achieve its environmental and societal goals, its institutional dimension needs to be further developed. Circular economy theory and practice needs to reconsider aspects such as labour, for-profit and not-for-profit activities and governance systems. In this regard, the social and solidarity economy can serve as inspiration (read about the combined social and circular approach in these case studies of social circular enterprises).[14]

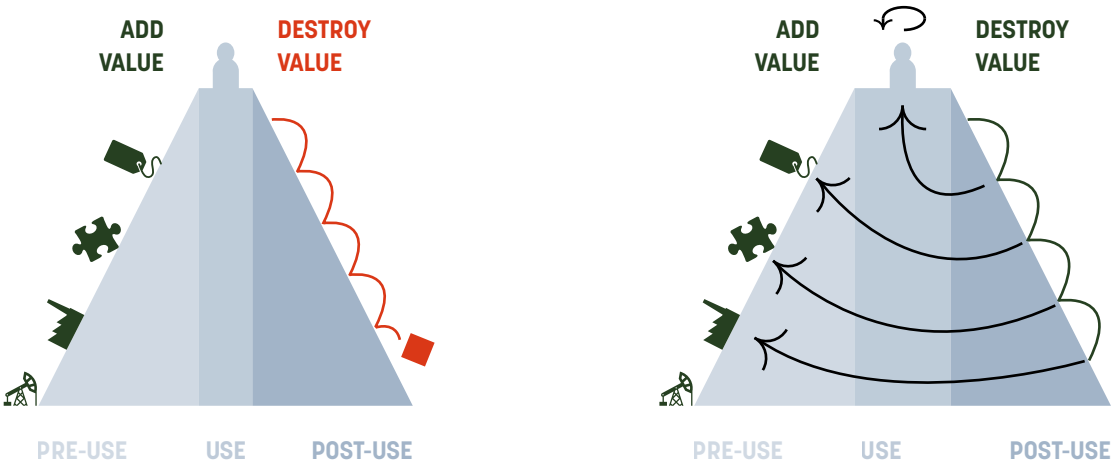
1.2. KEY MECHANISMS

The circular economy intervenes in technological and natural material flows.[15] These flows can be closed (wasted resources are reused), slowed (resources are used multiple times), narrowed (resources are used more efficiently) and regenerated (resources are reusable).[16] In an effort to maximise value creation and retention, the circular economy adheres to the waste hierarchy, which favours prevention over reuse, reuse over repair, and repair over recycling.[17]

Operationalising and scaling these strategies in the industry requires relevant supporting activities too. Large scale repair and remanufacturing requires specific product design strategies; efficient reuse of product requires peer-to-peer marketplaces and so on. Activities and strategies quickly accumulate in such reasoning about the circular economy. This makes it challenging to pin down the system borders of the circular economy; where it starts and where it ends is the topic of active debate.

In an effort to develop a common understanding of the circular economy, Circle Economy has mapped various terms and definitions used and grouped these into seven key elements of the circular economy. The idea was to pool expert knowledge and literature on the characteristic activities of a circular economy and structure a common understanding of circular economy strategies.

The eight key elements identify the majority of terms linked to the circular economy, covering the activities, strategies and interventions used to promote greater levels of circularity. The core elements (1-3) serve to close, slow, narrow and regenerate material flows. The enabling elements (4-8) serve to overcome barriers to mainstream, scale up and accelerate core elements.[18]



Cascading loops in the circular economy, where, following the waste hierarchy, smaller loops retain most value.

Key element	Description
1. Prioritise regenerative resources. Renewable, reusable, non-toxic resources in water, material and energy cycles are considered above non-regenerative resources, with corresponding processes to support regeneration.	Focuses on ensuring renewable, reusable, non- toxic resources that are used in the most efficient way possible especially in fields where resources are transformed or consumed during the process. This includes, regenerative water management or the reuse of rainwater and wastewater where possible. It also refers to regenerative material management or the use of bio-based, reusable, non-toxic and non-critical materials. Regenerative energy management is also considered here covering energy generated from renewable resources substantially reducing overall energy use.
2. Preserve and extend what's already made. Resources and products are maintained, repaired and upgraded to maximise their lifetime and usage intensity.	Maximising the lifetime of products and resources by means of maintaining, repairing and upgrading them and giving them a second life through take-back strategies when applicable. Old goods can be refurbished and parts of them used as a basis for new goods where possible. Furthermore, goods can be reused or shared between users to make them accessible to more people, either by facilitating peer-to-peer sharing or by making products available on a service basis.
3. Use waste as a resource. Where waste creation is not avoidable, recover it for recycling, using waste streams as a source of secondary resources.	When waste cannot be avoided, it should be recovered and processed to be used as inputs into production processes. An organisation can cooperate with other organisations to set up better recycling capacities, as seen in industrial eco-parks, or source secondary resources as inputs into their own production processes via secondary markets or cooperation. Recycling is best practiced in a closed loop but cross-industry open-loop recycling is an alternative to delay/avoid waste.
4. Design for the future. Design products to facilitate repairing, reusing, or disassembling them.	The design of a product affects the possibility for the recovery of materials and longevity of products. Designing for the future entails a systemic approach that rewards lower resource use over time. Product design is most important in manufacturing, but systems in other sectors, e.g. agriculture, are also designed with a focus on short-term efficiency. Designing is also vital for encouraging the adoption of more circular techniques and materials within construction. For example, designing buildings for renovation and disassembly rather than demolition enables materials to be captured and reused in other construction projects.
5. Rethink the business model. Shift business models to price the entire life-cycle of products and capitalise on cooperation and long-term relationships.	Changing the value proposition of the product entails moving towards new business models which provide services and generate profit over the entire lifetime of a product. Circular business models promote a systematic, holistic view of business through the renting of goods, the servitisation of products, or repair services. Changing the value proposition for people includes long-term collaborations between workers and suppliers. In a circular economy, labour is seen as a resource whose value must be preserved and nurtured.

Key element	Description
6. Incorporate digital technology. Employ digital technologies to facilitate connecting actors and keeping track of resources.	Supply chains that are no longer linear require mutual knowledge of resource stocks and needs among their members, which can be facilitated by digital marketplaces for waste materials or material exchanges. Such marketplaces can also connect peers to create a platform for sharing, such as material libraries, or for product-as-a-service models that rely on short- term rental. Finally, collection and exchange of big data through digital equipment and Internet-of-Things (IoT) approaches can help to identify and fix inefficient production steps.
7. Collaborate for joint value creation. Work together with actors to implement circular economy strategies on the systems level.	Structural collaboration amongst actors is required to widely implement core circular economy strategies in order to overcome competitive pressure and initial investment costs. SMEs can particularly benefit from geographic clustering and sharing logistics as they lack capital and weight to set up circular operations on their own; such clusters can also be important to build local industry and infrastructure. Currently, widespread cooperation is hindered by business models that fail to account for collaboration, but also by legal barriers designed to prevent collusion.
8. Strengthen and advance knowledge. Develop research, structure knowledge, encourage innovation networks and disseminate findings with integrity.	The successful implementation of the circular economy is founded on a solid knowledge base—across contexts and industries, as well as different actors of the value chain. Lack of knowledge, poor knowledge management and the absence of coherent systems for defining and researching circular economy have been identified as barriers to its success. Increasing the knowledge level of circular concepts can be achieved through research and development and knowledge management, which then feed into education, workplace training and wider communications to the general public.

1.3. IMPACTS

The circular economy has an impact on multiple dimensions of our society and surroundings. Considering the origins of circular economy thinking, it is no surprise that the main impacts are environmental. The involvement of private and public sector stakeholders has skewed interest towards the potential economic benefits too. The result is a debate that is mainly fueled by environmental and economic arguments. The social dimension has only recently entered this debate, most frequently relating to employment impacts. Yet, the social - and sociological - foundations of the circular economy remain understudied.[19]

Below are some of the most prominent impacts of the circular economy. Please note that all impact calculations are estimates of future scenarios, the outcomes of which heavily depend on the definitions, methods and data employed.

1.3.1. Resource use

The primary aim of the circular economy is to decrease the use of raw materials which, despite increased efficiency and productivity, continues to grow globally. A more circular economy could reduce our dependence on raw materials by 10% to 24% by 2030.[20,21]

Will rebound effects cancel out the positive environmental impact of the circular economy?

The circular economy constitutes interventions that aim to alleviate environmental pressure, but may, unintentionally, also bring about increased environmental pressures that may to some extent cancel out its initial benefits. This is called the rebound effect. Early research suggests that the use of repair and rental services as yet does not reduce the material footprint of consumers.[22]

The circular economy may engender three types of rebound effect:

- Insufficient substitutionality: circular products may not be good substitutes for their non-circular equivalents, for example because of reduced quality (such as recycled plastics). In this case, circular products do not enter in competition with their non-circular counterparts, which could reduce the production of the latter, but rather create new markets altogether, which increases total production.[23]
- Price effect: circular products may be cheaper than their non-circular counterparts (such as second-hand goods). In this case, the consumer saves money on circular consumption choices on the one hand, which they could then spend on non-circular products and services on the other hand. Moreover, the presence of circular products in the market may cause the price of their non-circular counterparts to drop as well, doubling up on the price effect.[24]
- Symbiotic: circular systems are, in reality, far from perfect in capturing secondary resources and value, partially because of the laws of entropy, partially because businesses often lose control over their products and resources once they leave their organisation. This results in them having to work with incomplete information when it comes to their feedstock, which may reduce the value of the system as a whole and foregoing potential benefits of circular resource use.[25]

Policies that can limit rebound effects include restricting the use of primary materials and educating consumers. On the systems level, circularity should be pursued in all product and service categories to eliminate the rebound effect altogether.

1.3.2. Greenhouse gas emissions

The extraction and processing of primary resources is responsible for half of all greenhouse gas emissions worldwide.[26] These emissions together form so-called embedded or scope 3 emissions of products, and are to be tackled in conjunction with direct emissions. As the aim of the circular economy is to eliminate the need for primary resources as much as possible, it also eliminates these embedded emissions and hence contributes to climate change mitigation.[27,28]

Can the energy transition be circular?

Our collective responsibility towards the climate is to reduce greenhouse gas emissions in all its forms and from all sources. As explained above, half of all these emissions are related to the sourcing and processing raw materials. This makes the circular economy a key lever in climate change mitigation.

At the same time, it is important to tackle the energy transition with circular economy ambitions in mind. The energy transition, which tackles direct emissions, consists firstly of shifting our energy sources from fossil energy carriers (such as oil, gas and coal) to renewable energy sources (such as wind, solar and water). It secondly includes reducing our total energy demand, by making production processes and infrastructure more energy efficient.

Current renewable energy technologies are very resource intensive in that they require a high amount of (critical) metals. Think of critical metals that are used in solar panels and batteries (see how many more years we can keep using the world's critical resources). In their current form, they would create a demand for these metals that largely supersedes global stocks.[29]

1.3.3. Employment

As a consequence of an increase in labour intensive activities (such as repairing, remanufacturing and recycling over traditional manufacturing and disposal), the relocalisation of these manufacturing activities (so-called re- shoring or near-shoring manufacturing) and the creation of new markets (such as rental business models), the circular economy is expected to generate new jobs.

Worldwide, the circular economy is expected to generate a 3% increase in employment by 2030.[30] In Europe, the circular economy is expected to create 700,000 jobs in that same time horizon.[31] In its most ambitious scenario, the circular economy could create up to 100,000 jobs in Belgium by 2030.[32] In all economic sectors combined, the circular economy could create 30,000 jobs in Flanders alone.[33] It follows that the estimated employment effects of the circular economy heavily differ per region and country (and of course per estimation method), but is on average modestly positive for European countries.

This relatively small change in net job creation hides the large shifts that will happen across sectors in relation to changing jobs and a much broader impact on the world of work than can merely be captured in jobs created and jobs lost. The broader discussion can be found in Chapter 3 below.

1.3.4. Economic development

Following the same rationale as the employment effects, the transition to the circular economy is anticipated to contribute to economic development. For the European Union, it is estimated that the circular economy can bring about seven percentage points increase in GDP, or €1.8 trillion in annual benefits.[34] Economic gains are estimated between €1 and €7 billion for Belgium.[35] A separate study for Wallonia estimates economic gains for the region between €169 and €447 million.[36] Amongst the circular economy factors that impact economic growth, environmental employment, renewable energy shares and resource productivity are prime examples.[37]

Certain authors present this causal relationship between circularity and growth as being conditional, where transitioning to a circular system is an absolute necessity for sustaining economic output.[38]

Is the circular economy a vehicle for green growth?

As explained in the introduction, the circular economy aims to decouple value creation from resource use. Absolute decoupling (where environmental impacts are reduced regardless of economic value creation) is put forward for wealthier countries such as Belgium and relative decoupling (where environmental impacts are reduced relative to economic value creation) in low and middle income countries as a way to maintain or increase economic growth sustainably; green growth.

There is, however, mounting criticism against green growth thinking, which increasingly seems to be incompatible with the environmental capacity of our planet.[39,40,41] It relies on a level of technological advancement to achieve resource and emission efficiency that is, at the very least, optimistic.

The economic argument shown above, is at first sight a very attractive one for any circular economy advocate, whether in the private or public sector. Indeed, circularity is often propagated as an instrument to achieve green growth: the Sustainable Development Goals promote both "Decent work and economic growth" (SDG 8) and "Sustainable consumption and production" (SDG 12); the new EU action plan aims to decouple economic growth from resource use and the Flemish government supports the circular economy in as far as it does not cripple economic growth.[42,43,44]

The focus on this argument seems to promote the circular economy as "an alternative growth discourse, rather than an alternative to growth discourse".[45] Alternatives to growth look towards other indicators to represent societal value, and hence reconsider what value creation means (learn about the evolution of our understanding of economic value).

A more multidimensional understanding of the socio-economic impacts of the circular economy can engender a more nuanced debate. A debate that is, in times where traditional and easily quantifiable headline indicators are under scrutiny, arguably more desirable. Below impacts are not structurally analysed in the context of the circular economy and hence less is known about their relationship, yet, add perspective and nuance to the debate.

1.3.5. Biodiversity

The circular economy affects biodiversity as it changes the materials that are taken from (natural resources) and flow back into the environment (waste, emissions, stocks and sinks). There is a common understanding of a positive effect of circularity on biodiversity as a result of reduced toxicity, chemical waste, land use and combustion. Yet, this relationship is studied in little detail. Controversially, certain circular strategies, such as ecosystem service valuation and renewable energy have a negative impact on biodiversity.[46]

1.3.6. Resilience

In the context of the crisis caused by COVID-19, calls to "build back better" have coupled the circular economy with a more resilient system. A survey of Flemish businesses has indeed shown that whereas the majority of businesses active in the circular economy did not experience shortages disrupting the supply chain during this crisis, the overwhelming majority of other businesses did experience such shortages.[47]

The circular economy firstly increases resilience in that it entails a more localised and therefore more diverse economy, industry and labour market. Diversity reduces the vulnerability of a system, in that a similar shock would not affect the entire system at once. Secondly, a circular economy would ideally be a more decentralised system where products and resources are more shared. This increases the level of participation and multiple governance, which in turn reduces response time and increases the relevance of these responses in the face of crisis.[48]

Does Belgium have to become self-sufficient?

The coronavirus crisis has confronted us with the weaknesses in our heavily globalised value chains. Supply chains have been disrupted as a consequence of, amongst others, closing borders and uncoordinated national responses to the pandemic. The circular economy, it is argued, would make us less vulnerable to such shocks by localising value chains. Sourcing, producing, consuming and reprocessing everything within Belgium would, however, be next to impossible.

Circularity for different value chains makes sense on different scales. A more circular agrifood chain, for example, should be localised and therefore diversified considering production abilities, limited shelf-life and logistical complexity. The food chain moreover relates to heavily localised challenges such as nutrition. It therefore makes sense for food systems to be addressed at the regional, municipal and even neighbourhood level.[49] A more circular manufacturing sector, on the other hand, requires a careful interplay between local and global material flows. Whereas activities in repair and remanufacturing can be relocalised (or reshored), international trade in scraps and secondary materials can continue to develop.[50]

It follows that a more circular economy is embedded in international trade, with implications for related policy with regards to raising trade barriers to favour domestic processing of secondary materials, regulation on international waste transport and extended producer responsibility.[51,52] Rather than being an argument for closing borders, more circular value chains call for international efforts with regards to transparency and supply chain engagement.[53]

1.3.7. Competitiveness

The subtitle of the New Circular Economy Action Plan for Europe is unambiguous about the motivation behind the circular transition of the European Union: increased competitiveness.[54] The newly launched European Green Deal is equally geared towards competitiveness by decoupling economic growth from resource use.[55] The circular economy is generally understood to increase the competitiveness of firms, with underlying reasons varying from the creation of new markets, over reduced dependence on imported resources to anticipating regulatory compliance and changing consumer demand.

In reality, the relation between firm competitiveness and sustainability (not exactly the same as circularity) is ambiguous, calling for nuance in the link between competitiveness and circular business. In the circular economy, soft factors such as leadership qualities, organisational culture and intangible resources are prerequisites to achieve increased competitiveness.[56] Moreover, gains from first mover advantages related to technology and market leadership are to be balanced with its potential disadvantages linked to free riding and capacity building.

The impact of the circular economy on competitiveness is especially relevant in Belgium, which is heavily import dependent (both for (indirect) material and energy inputs). Belgium is moreover not riding the European eco-innovation wave and is lagging further and further behind since 2012.[57]

2. POLICY CONTEXT FOR THE CIRCULAR ECONOMY

Achieving desirable behaviour from people, market players and other organisations can be attained through adequate policy interventions. Whereas policy support should be tailored towards any local reality, there are three types of policy interventions that are commonly agreed to be required boundary conditions to make the circular economy work.

Firstly, there are price incentives in place that have a perverse effect on the advancement of the circular economy. Most prominently, a tax shift away from labour to resource use and pollution would make the financial argument for the circular economy a lot stronger (this infographic illustrates the magnitude of environmental taxation in Belgium).[58] Whereas the circular economy creates market incentives for all stakeholders to exhibit desirable (circular) behaviour, there are a few hard no-no's. The use of toxic materials should therefore, secondly, be prohibited to avoid increases in environmental and human toxicity levels. Thirdly, as a result of more complex value networks (rather than value chains) and a more impact- driven economy, collaboration is getting a new meaning and increased importance. Institutional players hence take multiple and unusual roles to drive the required implementation and innovation of circular value networks.

The circular economy has also gained traction in Belgium in the last few years, with efforts across different levels of government aiming to support the circular transition.[59]

2.1. BELGIUM

In 2016, the Federal Government proposed 21 measures to support the circular economy transition. These measures fall within the mandate of the federal government and include informing consumers (about quality assurance, environmental performance and repairability of products), supporting the recycling industry (by promoting demand for recycled plastics, addressing technical and economic barriers and promoting the chemical recycling techniques) and playing an exemplary role by integrating circularity in public procurement practices.

Where multiple efforts to implement legislation against planned obsolescence on the national level have stranded without result, the Federal Government has actively participated in the debate on eco-design and consumer protection on the European level.[60,61,62] The current Federal Government will prioritise the elimination of hindering legislation, product standardisation and circular product design through instruments such as procurement, trade legislation and product legislation, as well as collaboration on the European level with regards to product passports and procurement.[63]

2.2. BRUSSELS CAPITAL REGION

In 2014, the Brussels Regional Government included the circular economy in its coalition agreement as a system for employment creation and opportunity for Brussels' businesses to develop new markets.[64] Subsequently, the regional government indicated its vision for the circular economy in its Strategy 2025, which contains a Regional Programme for the Circular Economy that kickstarted the circular transition.[65]

The Regional Programme on the Circular Economy contains over 100 interventions to support the local circular economy and sets three ambitions: to translate environmental ambitions into economic opportunities; to drive local production where possible, optimise land use and added value for the inhabitants of the region; and to contribute to job creation.[66] Since its launch, the programme has educated 1.700 people about

circularity, financially supported 139 circular SMEs and created over 200 direct jobs.[67] The Regional Programme operates in parallel to the region's Industrial Strategy and Resource and Waste Management Strategy The Brussels Regional Government included the circular economy in its recent coalition agreement 2019-2024.[68]

2.3. FLANDERS

The 2014-2019 Coalition Agreement of the Flemish Government consolidated the past successful efforts of the Flanders Material Programme in the Flanders Vision 2050.[69] This vision aims to work towards a strong, open, resilient and internationally oriented region that provides wellbeing for all in an innovative and sustainable way and proposes the circular economy as one of its seven transition priorities.[70]

Currently supporting and guiding this transition is Circular Flanders, a public-private partnership that acts as a central mediator for the circular transition of Flanders and aims to further consolidate and mainstream the circular transition. It is a partnership of governments, businesses, civil society and knowledge organisations that focuses on the following core activities: network (bringing stakeholders together), lab (personalised guidance for pioneers), knowledge (sharing and creating knowledge), policy (policy support and guidance), innovation (supporting innovation with multiple instruments), anchor (to scale up and anchor circular economy principles and best practices).[71]

2.4. WALLONIA

The Walloon Government expressed the intention to improve the region's competitiveness by supporting, amongst others, the transition to the circular economy in 2014.[72] The Walloon 4.0 Marshall Plan for regional development further engages the region in the circular transition. It prioritises energy efficiency and the circular economy with the aim to recover and deploy the Walloon economy. With regards to the circular economy, the waste and recycling sector, as well as the construction, chemical (plastics) and metal industries have been identified as carrying high potential.[73]

The Walloon parliament hence adopted a resolution on the transition to the circular economy in 2019, with the intention to develop a circular economy strategy for the region.[74,75] The Walloon Government included the circular economy in its recent coalition agreement 2019-2024, which, prominently, formulates the ambition to reduce current incineration levels with 50% by 2027.[76] The circular strategy, officially adopted by the government on 4 February 2021, focuses on construction, food, plastics, transport, metallurgy and water. In these value chains, the Walloon Government aims to improve public services for the circular economy, increase consumer demand for circular products and services, engage all relevant stakeholders in the transition and improve waste management systems in a set of ten ambitions.[77]

3. WORK

Much like the circular economy, it is challenging to define work. Starting with a narrow and superseded understanding of work, its main critiques help to achieve a more nuanced understanding of what it constitutes and what are the relevant issues at hand.

Traditional neoliberal economists view work, labour, as a commodity. The employment relationship is one where both the employer and the employee seek to maximise utility in a rational transaction that follows the market logic of supply and demand.[78]

This understanding firstly ignores human agency. In reality, work can not be reduced to objective labour as it includes behavioural aspects that influence the behaviour, attitude and reactions of workers. According to Maslow's famous hierarchy of needs, once one's physiological and security needs are met, people seek self-actualisation.[79] People indeed also engage in work with intrinsic motivations, most notable for the ability to exercise their skills and abilities.[80] Work can then become a vehicle for achievement, mastery and self-worth, emphasising the importance of the individual experience of work.

The neoliberal view on work also ignores power. At work, there are more often than not conflicts of interest and power imbalances at play. Maximising profits of the employer does not automatically result in higher pay, job quality or satisfaction for the employee. This is where the state and civil society organisations come into play. This institutional context emphasises the importance of the political economy of work.

Taking the above consideration in mind, work can be defined as "purposeful human activity involving physical or mental exertion that is not undertaken solely for pleasure and that has economic value" (in its broadest sense).[81]

3.1. EMPLOYMENT IN BELGIUM

The employment rate in Belgium, or the share of the population between 20 and 64 years old at work, has reached 71% since 2019. This is slightly lower than the European average of 74%, but has shown a positive trend over the past years. The unemployment rate, or the share of the population between 20 and 64 not at work looking for a job, had also reached new lows nearing 5%. Despite these positive trends, vulnerable groups are often left behind. Employment amongst people with a migration background is 19 percentage points lower than people born in Belgium, and 38 percentage points lower for low-schooled people. As such, Belgium performs worse than the European average when it comes to equality.

These challenges persist in 2020, where the coronavirus crisis has thrown the labour market upside down. Temporary unemployment reached an all time high in the spring of 2020, and it is as yet unclear whether and to what extent this would turn into unemployment and affect employment and unemployment rates on the longer term. The crisis has also worsened inequalities in the labour market and hit low-skilled and young people and people with a migration background hardest.[82]

3.2. UNPAID WORK

Next to paid forms of work, there are also unpaid forms of work. Unpaid work relates to work that happens in the private sphere, and is therefore often not counted as work. It relates to household and caring tasks, such as cooking, bringing children to school or caring for an elderly relative. There is a huge disparity across the sexes when it comes to paid versus unpaid work. When counted in hours, just over 40% of all work done in Belgium is paid. On average, men are paid for just over half of the work they do and women are paid for just over 30% of the work they do.[83]

Voluntary work is unpaid work outside the home, and is mostly located in the sports, healthcare, youth, education and socio-cultural sectors.[84] Over one million Belgians are estimated to engage in voluntary work, or about 12% of the population

older than 15, more or less evenly spread across Flanders and Wallonia though lower levels of engagement in the Brussels Capital region.[85]

3.3. STRUCTURE OF WORK

In the last few decades, a number of meaningful changes have occurred in the organisation and structure of work.

Workers and employees have evolved to take more autonomous roles, rather than fulfilling a specific task.[86] Since the Industrial Revolution, the work content has changed dramatically, and so have work forms (and continue to change). Where it makes a lot of sense to organise manual labour in a factory in 9 to 5 work days, such a structure makes less sense when labour is increasingly based on the exchange of information and knowledge. The organisation of work has hence evolved to less rigid and less hierarchical models, involving for example self-managing teams and job crafting.

With increased autonomy comes increased flexibility (read how standardisation of work may be the cause of burnout in this reflection). Increased servitisation of society has resulted in increased flexibility of working times. Think of next-day package delivery, and shops opening in the evening or on Sundays. People in Belgium do not have to work as many flexible hours as in other European countries, in part as a consequence of strict regulation against working nights and weekends (this infographic shows flexible working hours in Belgium compared to other European countries).

We also witness an increase in flexibility of working contracts. Innovative employment contracts such as pooling contracts, in which multiple employers hire the same workers, have emerged and may develop further into the future.[87] Platform mediated work, where individual tasks are matched with candidates through online platforms, has dramatically increased in the past decade. It is estimated that around 10% of the adult population in Europe has ever performed work through an online platform.[88] Whereas platform work can lower the entry barrier to the labour to vulnerable groups, it also comes with increased pressure on pay and working conditions, further polarisation of the labour market and offshoring of certain activities.[89]

Contrary to what the trend in platform work would signal, we see the amount of very short term employment in Belgium in the past two decades decrease. Regardless of this decline, however, there is a clear trend where low-paid jobs tend to last shorter and high-paid jobs longer, showing increased precarity in the lower segment of the Belgian labour market.[90]

Flexibility of the labour market needs to be carefully balanced with the protection of workers, so as to achieve both labour market and individual worker resilience.[91]

Should we consider gender in the circular transition?

Even though it is a determining factor in the distribution of effort and impact of the circular economy, gender is not often considered in circular economy literature or policy. Next to the fact that women and girls in the Global South suffer most from the environmental degradation that the circular economy fights, there are relevant gender issues closer within Belgium to take into account.

The potential employment benefits of the circular economy are likely to differ across gender lines. Current jobs in the circular economy in Flanders are predominantly occupied by men. Circular economy sectors also increasingly require technical skills, which could hurt women that are underrepresented in STEM education. Furthermore, circular economy enterprises have not yet disrupted the pattern of male-dominated leadership, and hence not necessarily contributing to representation, power and wealth of women.

Gender also surfaces as an important—if not the most important—determinant of purchasing choices with regards to sustainability. Women are more inclined to buy sustainable products, ranging from organic food, over eco-labelled products to energy efficient transport. On the other hand, women are majority consumers of a few highly polluting industries, such as the fashion and cosmetics industries. Moreover, increasing employment rates and a persisting burden of unpaid work increase the pressure on women's time. Time-saving decisions are often less circular; think of single use products versus reusable ones (ranging from nappies to packaging), sorting waste at the source versus using a single bin; repairing clothes versus buying new ones, and so on.

Beyond gender, then, similar considerations hold for other groups following lines of ethnic background, age, disability and class. This is referred to as intersectionality, which takes into account the multiple identities that may each exacerbate a person's situation.

In conclusion, blanket measures, such as broad taxation of certain products and services, will have different impacts on women and men and could hence exacerbate social justice issues for women and minorities. The circular economy should be mindful of gender dynamics and intersectionality in employment, consumer patterns, and distribution of wealth and power in order to promote a circular economy that furthers gender equality.

4. WORK IN THE CIRCULAR ECONOMY

The circular economy presents opportunities not only for the economy and the environment, but it can also play a vital role in promoting societal wellbeing through new ways of working and relating to the world around us. It presents us with an opportunity to redefine work, rebalance power and reimagine the way we use and value resources—including labour.

4.1. FROM LINEAR TO CIRCULAR JOBS

Section 1.3.3 describes the expected quantitative changes in employment as a consequence of the circular economy. Focusing on these changes alone overlooks the large shifts that are expected to happen across sectors that impact working in them. Overall, we can characterise changes in employment according to job creation, destruction, substitution and redefinition.[92]

Jobs are created as a result of new circular activities, possibly stimulated through specific circular economy policies, such as the repair sector, or take back schemes and circular business models.

Jobs are destroyed when there is no direct circular replacement of current activities. This is the case for jobs in the production of products that are banned, or for example the extractive sector.

Jobs are substituted when a circular activity directly replaces current activities. For example, when recycling substitutes landfilling waste, or renewable energy substitutes fossil energy generation.

Jobs are redefined when their content evolves so as to fit the circular model. This is the case in the retail sector, where people working in sales will see their jobs evolve towards rental and related services; or in manufacturing, which will evolve towards the remanufacturing of products.

These broader changes, then, cause ripple effects to the world of work, which are summarised under 4.3, 4.4 and 4.5 as impacting skills, inclusion and the quality of work.

4.2. CIRCULAR ECONOMY JOBS IN BELGIUM

Following the definition of the key elements above, there are core, enabling and indirect circular jobs. Core jobs ensure that raw material cycles are closed, activities include renewable energy, recycling and repair. Enabling jobs support the acceleration and upscaling of core activities, activities include leasing, engineering and digital technology. Indirectly circular jobs provide services to core and enabling activities, activities include education, logistics and public administration.

A baseline analysis for Belgium has shown that:

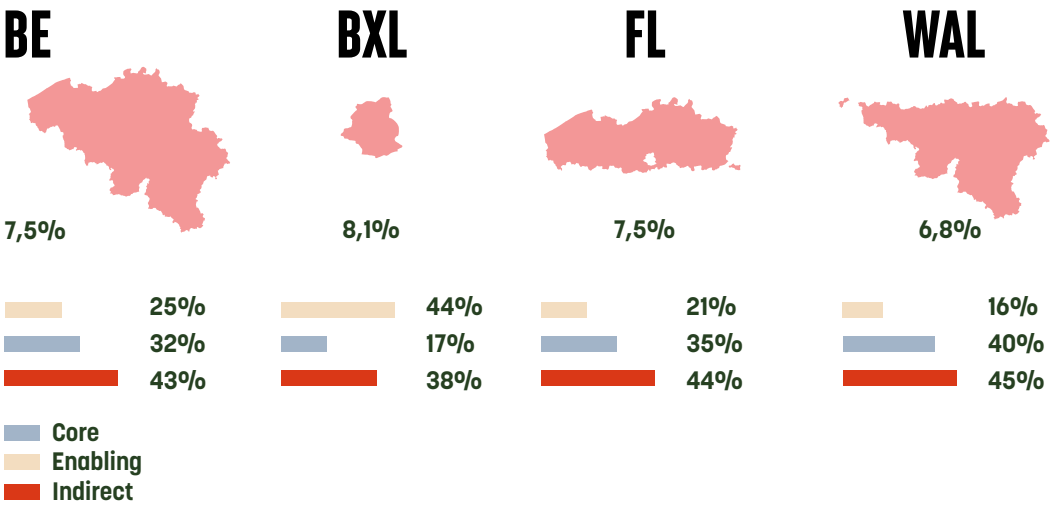
- In Belgium, 262.000 jobs are circular (7,5% of all jobs). The recycling and repair and maintenance sectors together create over 80.000 jobs (30% of all circular jobs). All provinces show a circular share of employment between 5% and 9%.

- In the Brussels Capital Region, 58.000 jobs are circular (8,1% of all jobs). Most circular jobs in the region are enabling (44% of all circular jobs) and indirectly circular (38% of all circular jobs).

- In Flanders, 148.000 jobs are circular (7,5% of all jobs). Most circular jobs in Flanders are indirectly circular (44% of all circular jobs) or core (35% of all circular jobs). Antwerp and Ghent are important clusters for circular economy employment.

- In Wallonia, 56.000 jobs are circular (6,8% of all jobs). Most circular jobs in Wallonia are indirectly circular (45% of all circular jobs) or core (40% of all circular jobs). Namur, Charleroi and Liège, as well as the Hainaut province are important clusters for circular economy employment.[93]

These results can be further explored on the online Circular Jobs Monitor.



Core, enabling and indirectly circular jobs in Belgium and its three regions

If managed well, the transition to the circular economy can have multiple benefits for the labour market. The ideal scenario would include the opening up of job opportunities, raised job standards and reduced inequalities. However, there is a risk that it could also lead to job insecurity, labour shortage and skill gaps if businesses and governments are unprepared.

4.3. SKILLS

Skills are the abilities of a worker that they employ in order to carry out their tasks. Skills are traditionally described ranging from technical, over social to problem-solving skills. Since 2015, the same language has been used to describe competencies in all of Belgium (the Competent platform is a database with professional competency profiles that describe required skills for professions).

Through different production processes, design practices and contact with consumers (or better, users), job content will change in the circular economy (read about changing job content in these interviews with four types of professionals in the circular economy). This goes hand in hand with a changing demand in skills. Developing the adequate skills, knowledge and mindsets is salient for the good functioning of the labour market, bearing in mind both initial schooling (for the future workforce to be prepared for their tasks) and lifelong learning (for the current workforce to remain relevant and ahead of the curve).

Managing skills and talent is a long-term effort that typically shows delayed effects. Long-term thinking and anticipatory planning is therefore essential to not create labour shortages—or perpetuate existing ones, such as in the waste management and recycling industry.[94]

Part of the reason for these shortages is the image and attractiveness of certain circular economy sectors (more on that below), the other part is found in a mismatch between skills demand and supply. It remains, however, difficult to predict which skills will be required in the circular economy.

We do know that the circular economy will require a general upskilling of the entire workforce. As we work with inputs that are irregular in shape, quality, time and provenance, workers will need a better understanding of and be more involved in the steps ahead and after them in the value chain (vertical integration).[95] It will moreover likely require new combinations of skills from workers: a combination of traditional skills (such as manual skills) and more novel skills (such as material sciences); and a combination of soft skills (such as service-related skills) and hard skills (such as programming, operating and repairing equipment).[96] The circular economy will require both workers with academic and practical education, across all fields of knowledge.[97]

As the word implies, the circular transition is a process of change; the only constant is the change. In that regard, the skills of adaptive learning (learning how to learn) becomes a necessity for every worker.

4.4. INCLUSION

An inclusive labour market provides opportunities for people in precarious work, that are distant from or at risk of being phased out of the labour market, as well as workers across skill levels, regardless of their location.

The circular economy can contribute to a more inclusive labour market, opening up employment opportunities for a wide variety of workers. As shown above, the circular economy is expected to deliver a net growth in jobs compared to a business as usual scenario. Partly hidden by this small average change, is a significant shift in sectors. Whereas the mining and traditional manufacturing sectors are expected to decline, the repair and recycling sectors are expected to grow.[98]

Also shown above, the circular economy creates jobs for both high- and low- skilled workers, hence also catering for people with a distance to or facing barriers entering the labour market. This is likely to be a more powerful effect in the short term, as it is unclear what effect automation will have on low- skilled jobs. This is discussed more elaborately below.

There is a particular opportunity for the social economy, which historically carries out activities central to the circular economy, ranging from sorting and cleaning to disassembly and repair.[99] Whereas the sector has relevant expertise, it is not yet structurally integrated in the circular economy.

Lastly, the circular economy can support the local and regional development of supply chains by reshoring certain manufacturing related activities, such as repair and remanufacturing. These services are often time sensitive, and can therefore hardly be shipped around continents. One would not wait three weeks for their laptop to be repaired for example, nor can a business run the risk of having to sell refurbished phones far below their value as the new model just happened to be released. These jobs are mainly directed at mid-skilled workers, and can counter the current trend of a hollowing out, or polarisation of the labour market.[100]

4.5. QUALITY OF WORK

Just because a job contributes to the circular economy does not make it inherently better than any other job. Good quality jobs are fairly paid, secure and carry social value, supported by governments, market mechanisms and labour standards that are championed and upheld by business and through regulation.

There is very little evidence on the quality of jobs in the circular economy. A UK study suggests higher quality jobs in the circular economy as they have more adequate hours, higher job satisfaction and longer tenure than other jobs.[101] However, very little is known about the redistributive effects of the circular economy. Moreover, one criticism that is yet to be addressed is the nature and extent of the social ambitions of the circular economy (as, for example, discussed in the circularity and growth debate).

The social value of work in the circular economy, and the meaning that is attributed to circular jobs are other important denominators of job quality, alongside the socio-institutional boundary conditions. There is circumstantial evidence that could mean that the social value of circular jobs is indeed high(er).

Firstly, autonomy and adequate use of skills are ranked as two of the most important factors determining job satisfaction in Belgium.[102] The circular economy is characterised by irregular processes (think less Modern Times and more Alliander), which require making judgement calls as well as using a range of different skills, and ultimately increases job satisfaction.[103]

Reversing the argument, significant levels of worker engagement and job satisfaction would be necessary for businesses to achieve their circular economy goals.[104]

Secondly, where being employed gives people a sense of purpose, green workers report higher levels of job satisfaction and involvement as a consequence of a higher feeling of usefulness of their jobs.[105]

5. DISRUPTORS

5.1. DIGITISATION

Technological advancement and accelerating rates of digitisation and automation have a profound impact on the world of work. It has far-reaching consequences in the type of business we work for (such as e-commerce), our job content (such as data optimisation) and how we work (such as assignment platforms). It is very difficult to predict the exact impact of technological advancement on jobs, but we know for sure that it will destroy some jobs, create others, and change all of them (check how likely your job is to be automated).

In the past, technological revolutions have always caused a labour mismatch at first, yet had job-creating effects on the long term. Indeed, half of all employees worldwide will require re-skilling to fit transforming or emerging professions in a digitised labour market.[106] Technological advancement has already resulted in the above-mentioned polarisation of the labour market in Belgium. While high-skilled jobs increased by almost 4% between 2000 and 2013, mid-skilled jobs reduced by more than 3% in that same period.[107]

Current estimates greatly vary from 7% to 39% of all Belgian jobs being at risk of automation.[108] On a global average, 43% of businesses are set to reduce their workforce as a consequence of automation, while 34% plan to expand their workforce.[109] In the circular economy, the low-skilled jobs run the highest risk for automation. A lot of circular economy jobs will, however, require creativity, problem-solving and interpersonal skills (think of the irregular processes above), which are currently not likely to be automated.

Human-robot interaction moreover presents opportunities to improve job quality. Recycling activities, which are increasingly automated, can benefit from a division of tasks between people and robots for both improved productivity and job satisfaction.[110] Reducing the need for human activity also brings about rising questions about working less hours for similar remuneration.[111] The way in which and the extent to which we work today, is opened for debate.

5.2. COVID-19

The coronavirus crisis has had and will continue to have a profound impact on the labour market. As a consequence of the forced closure of businesses during periods of lockdown, labour inputs have decreased over 13% in the second quarter of 2020. This sharp decline is not directly translated in jobs lost (0.7%) through temporary unemployment schemes.[112] It remains to be seen how many jobs will have gone lost in the crisis, after businesses can reopen and re-evaluate how many of those in temporary unemployment still have a job to return to.

The crisis has affected vulnerable groups and minorities disproportionately, and resulted in inequality rising even further.[113] The closure of schools has resulted in a lot of mothers reducing work to take on care tasks, re- establishing traditional gender norms and reversing the evolution of the gender balance in the labour market (see these testimonials on the impact of lockdowns on the division of care tasks of Dutch households).

Whereas employment and unemployment rates are expected to return to their old rates in a few years time, this crisis is also expected to have long- lasting effects on the way we work.[114,115] 2020 has probably been the final breakthrough of working from home, virtually. Experts believe that distance working, at least partially, is likely to become the norm for white collar workers. The crisis has further reasserted the importance of lifelong learning, and can have meant the turning point in it becoming a structural part of anyone's career. The pandemic has as such acted as an accelerator for ongoing changes in the labour market. Whether or not this also holds for declining (fossil) and growing (renewable) sectors, will heavily depend on investment allocation decisions of the recovery funds.
Utilities such as energy, waste and water management, closely linked to the circular

economy, have been declared critical sectors (and key workers), and remained in operation during lockdown.[116] Key workers, people active in these critical sectors, are typically remunerated below average wages, and the coronavirus crisis has created a wave of appreciation for these workers (illustratively, the Vogue magazine dedicated their cover to essential workers).

With these cultural changes in the world of work, the coronavirus crisis is likely to further accelerate the changing relationship between employer and employee.[117] Employers will need to rethink performance management, as well as invest in said lifelong learning and adaptive career paths of their employees.

Does circular economy build social cohesion?

Whereas digitisation and COVID-19 have significantly disrupted the functioning and balance of our social fabric, other societal tensions may engender even further reaching consequences. Social cohesion is one such tension.

In the past few decades, European democracies have been able to mitigate the worst consequences of these tensions, and instead integrate them in generally positive developments. Despite consecutive crises, such as the oil, financial and migration crises, we have been able to contain levels of poverty, inequality and violence. This is particularly true for Belgium.

The rise of political fragmentation and extremism, erosion of trust in public institutions and the growing divide between the communities begs the question as to whether we will be able to maintain this level of relative harmony, or whether, instead, we will witness further polarisation.[118,119] If we continue on the path of polarisation, we risk developing our communities as a juxtaposition of fragmented parts, rather than based on shared challenges and solidarity.[120]