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AGILE4CIRC

Agile leadership transformation for business in circular economy

Project 2019-1-LU01-KA204-050106

**Adult and new business
opportunities in Circular
Economy (CircEc) and Social
Responsibility (SR) report Nord
Macedonia**

2. CircEc & SR at Policy Maker level

Waste in Macedonia is a serious environmental problem, the approach and practices in the circular economy in the European Union offer an excellent solution for solving environmental problems. The terms of Circular economy and Social responsibility are more and more present in the new approaches of policy development in the country, but a lot is expected to be done in the near future.

Until now there aren't specialised national policies regarding both of them, but they are included in other national policies.

One key law related to this area is the Law on waste management that is still in the preparational phase and without this document it is hard to predict and develop strategies and policies. The current waste management in the Republic of N. Macedonia, where 80% is deposited, represents a great potential and challenge for the competent institutions to work out and find models on how to use the waste value of waste which with this approach only further endangers other environmental media (soil, air, water).

With the National Waste Management Plan (2018-2024) and the Waste Prevention Plan, the Republic of N. Macedonia plans to harmonize with the EU legislation which will ensure:

1. Prevention of waste generation;
2. Prohibition on the disposal of recyclable waste (plastic, glass, metal, paper, biodegradable waste);
3. Increased reuse and recycling of municipal waste;
4. Tax burdens for inappropriate waste treatment

Circular economy

The Circular economy is seen as part of the whole picture, where it all starts at the very beginning of a product's lifecycle. Both the design phase and production processes have an impact on sourcing, resource use and waste generation throughout a product's lifecycle. Product Lifecycle Management covers a total production system that tracks a product from inception to disposal. It includes marketing, conceptual development, design, planning, production, quality requirements, packaging, sales, shipping, maintenance and disposing of the product when its useful life is over.

This concept offers huge opportunities for the North Macedonian economy. Companies are finding a new alternative way to provide resources and energy at lower prices and thereby increase their competitiveness. In addition, this concept reduces the demand for expensive and limited resources.

In such a situation, North Macedonia has two options. The first option is to continue the linear production mode by applying a reactive approach while respecting minimum environmental requirements. According to this approach, it is necessary to raise the economy to a level that can both match capacity and quality with the environment.

The second possibility is a gradual transition to a circular economy through a proactive approach, with additional investments to gradually abandon the linear principle. In this approach, timing is crucial, i.e. the faster the initial investment begins,

the lower the transition costs. In fact, the circular economy is nominally more financially intensive, but the effect on value for money is significantly higher¹.

There are wide area of national policies that are related to Circular economy:

Legislation in the Republic of N. Macedonia (related to the area of circular economy)

- Environmental legislation
- Instruments to support innovation and competitiveness
- Strategy for Innovation and Technological Development of the Republic of Macedonia
- Industrial Policy Strategy of the Republic of N. Macedonia
- Western Balkans Regional Innovation and Development Strategy (developed by World Bank and EC)

Environmental legislation

- Law on Waste Management
- Law on Management of Packaging and Packaging Waste
- Law on Battery and Battery Management
- Law on Electrical and Electronic Waste
 - Strategies, action plans, bylaws

Law on Ambient Air Quality

- Strategies, action plans, bylaws

Law on Waters

- Strategies, action plans, bylaws

Law on Noise Protection

- Strategies, action plans, bylaws

Administrative procedures related to Circular economy

Integrated Pollution Prevention and Control (IPPC) is in correlation with the requirements of the Circular economy

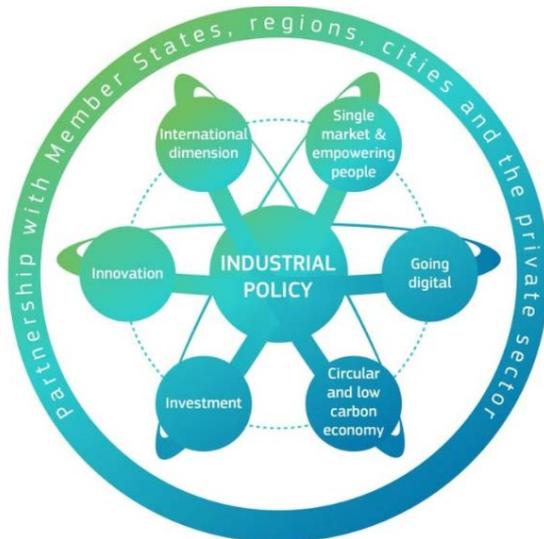
- Production processes and industrial plants need to meet EU BAT requirements
- Best Available Techniques - Best Available Techniques BREF Documents
 - By industry types available at EC JRC
 - The European IPPC Bureau (<http://eippcb.jrc.ec.europa.eu/reference/>)

Circular economy is also included in “Industrial Strategy of the Republic of N. Macedonia 2018-2027, with Action Plan”. In this key county document is stated that: *“there is a need not only to rebuild the country’s industrial policy but also to refocus it*

¹ Circular economy a chance for development, the case of Macedonia, Zorica Anastasievska, Hristina Taneska, International Journal for Science and Arts-IDEA Int. J. Sci. Arts. 1(2017)2: 37-42.

on sectors that offer the greatest potential for impact on productivity and growth, including attracting investment, stimulating exports, adding higher quality and better paid job places, while contributing to sustainable growth in the circular economy and the green industry". This is the main vision of the strategy and it is related to all industries in the country.

The whole Industrial strategy is related to the 2017th EC / EU IP communication (Investing in a Smart, Innovative and Sustainable Industry COM (2017) 479), where the latest challenges are not only faced by EU Member States; but also N. Macedonia and the country needs to take them in account if order to be able to effectively absorb EU development funds.



The Industrial Policy of the Republic of Macedonia 2009-2020, focuses on five areas of action, as the main pillars for increasing the competitiveness of the domestic industry, where one of them is:

- Development of environmentally friendly products and services for sustainable development where main measures include: public awareness activities, green procurement, training, joint research and development of new environmental products and services, sustainable industrial resource infrastructure and environmental support certification.

This pillar is planned to be achieved by implementing wide range of industry-led voluntary initiatives that can be supported by the Ministry of Economy, the Ministry of Environment and Physical Planning, the Energy Agency and other institutions that promote efficiency and environmental improvements. These initiatives are planned to be supported through grants / co-financing.

Another important part is that multinational companies adopt green chain supply standards that must be adopted by their suppliers as well. EU EcoLabel helps identify products and services that have reduced environmental impact throughout their lifecycle, enabling consumers to make informed choices and reward processors who decide to design durable and correctable products promoting innovation and saving resources.

The Eco-Management and Audit Scheme (EMAS) is an official European environmental management tool that helps organizations improve their environmental performance and demonstrate their efforts to implement abatement, reuse and recycling practices.

"Product Environmental Footprint (PEF) and Organization Environmental Footprint (OEF)" are tools that measure and inform consumers of the environmental impact of products and organizations - their approach to life cycle assessment is the essence of the circular economy.

All of those measures will support processors, especially SMEs wishing to export to the EU and elsewhere, through co-financed consulting services and certification costs.

Also, part of the Industrial policy is the Awareness raising and training in circular economics, green industry / processing, closed loop processing, energy efficiency and clean production.

This is important because greening is no longer just an option but an urgent necessity for manufacturing firms to stay competitive and take advantage of day-to-day competitors, especially if they want to export to EU. The fact is that Macedonian manufacturing SMEs are still relatively uninformed about the potential threats, as well as the benefits offered by the concepts of circular economy, green industry / manufacturing, etc. The role of information provision, awareness-raising, education, training and capacity-building should not be underestimated, and it is important that the state liaises with business associations and other institutions, such as UNIDO / REC, EEN, etc., on a systematic basis.

The focus will be on developing a practical Awareness and Training Program to enable industry participants to learn more about circular economics, green industry / manufacturing, closed-loop production, energy efficiency, clean production as a whole and adaptive focus on specific types of green processes, technology methods most relevant to Macedonian industry and economics. It is also necessary to raise the awareness of managers working with credit lines about the need to integrate the circular economy as a criterion for financing industrial projects.

Social Responsibility

The European Commission sees social responsibility as part of the business sector's contribution to sustainable development of the Union's growth and help to the employment, and with this to contribute to the achievement of various common goals, such as social cohesion, economic competitiveness and rational use of natural resources. The accession of the Republic of N. Macedonia to the EU imposes the need for acceptance of its norms and practices, including the recognition and promotion of SR and its contribution to social cohesion and the creation of sustainable competitiveness and development. This requires a review of government policies in the areas that are within the scope of the SR concept, developing a comprehensive SR agenda, implementing supportive activities and monitoring progress in achieving the goals set in the SR domain.

However, the Macedonian community still lacks the appropriate knowledge and practical tools to fully implement socially responsible principles. The challenges on the road to developing a socially responsible community appear to be overwhelming and include a misunderstanding of the concept of SR and the justification for SR; unpredictable business climate; low level of consumer awareness and activism and poor consumer rights exercise; the lack of socially responsible investors, the lack of a dominant model of corporate governance and financing; weaknesses in corporate governance; lack of SR incentives and poor coordination among different stakeholders.

Public knowledge of the social concept and social economy is limited. In addition, a great challenge in the country presents the lack of institutional capacity and knowledge to recognize the value of the sector and supports its development. Regarding the institutional setup, specialized government body in charge of the development of the social economy sector is missing, which clearly demonstrates government bodies' lack of knowledge of this area.

3. What has been done in country

Though the term of Circular economy more present in the country, until now there isn't specialised national policy or law regarding this concept. The "Industrial Strategy of the Republic of N. Macedonia 2018-2027, with Action Plan has the potential to start the things to move in this area, because of the pillar dedicated to circular economy public awareness activities, green procurement, training, joint research and development of new environmental products and services, sustainable industrial resource infrastructure and environmental support certification.

4. Level of low-skilled or low-qualified adults involved

The gender gap remains significant in the country, with about 78% of men participating in the labour market, compared with 52% of women, with little change over the past 5 years. Youth unemployment, which has slowly, but steadily declined in recent years, remains high. The employment rate has increased from 44% in 2012 to 51.7% in 2018, but remains low by regional comparison. Around 80% of unemployed are long-term unemployed, reflecting the skills mismatch.

Informal employment continues to decline in the country, but the proportion remains high. The proportion of informal employment, at 18.1% in 2017, has decreased steadily from 28.6% in 2008, but remains significant, especially for the low-skilled. The high labour tax wedge affects participation and formal employment.²

Those 80% of long-term unemployed and informal employed are the target group of this project and they will be included in the planned activities.

There is no specific data related to the level of low-skilled and low-qualified adults involved in Circular economy in North Macedonia, but there is data of the Employed by sectors of activities.

From what has been said before we can see that there are around 20% of employed in the country are in the activities related to Circular economy, or more specifically to Manufacturing and Water supply, sewerage, waste management and remediation activities. Of course there are possibilities for other activities and fields where new jobs can be created and to be related to the Circular economy, but that has to start with development of National strategy for Circular economy and better involvement of all key stakeholders.

² COMMISSION STAFF WORKING DOCUMENT, North Macedonia 2019 Report, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 2019 Communication on EU Enlargement Policy {COM(2019)260final}

This project and the good practices shared between the partner countries can result in defining new possibilities for new job creations in the field of Circular Economy that will be disseminate to the key stakeholders in the country.

Percentage	Employed	Sectors and divisions of activities
100.00%	794283	Total
14.27%	113318	Agriculture, forestry and fishing
0.82%	6505	Mining and quarrying
19.72%	156625	Manufacturing
1.35%	10703	Electricity, gas, steam and air conditioning supply
2.15%	17059	Water supply, sewerage, waste management and remediation activities
7.28%	57830	Construction
13.75%	109242	Wholesale and retail trade, repair of motor vehicles and motorcycles
5.07%	40256	Transportation and storage
4.77%	37914	Accommodation and food service activities
1.97%	15625	Information and communication
1.30%	10303	Financial and insurance activities
2.66%	21113	Professional, scientific and technical activities
2.59%	20534	Administrative and support service activities
6.58%	52227	Public administration and defence, compulsory social security
5.65%	44861	Education
5.56%	44145	Human health and social work activities
2.43%	19272	Arts, entertainment and recreation
1.79%	14194	Other service activities

5. New Business Opportunities for low-skilled or low-qualified adults in the CircEc

Most of the new opportunities for low skilled and qualified adults related to the Circular economy can be find in the industries commonly cited as green or “greening” industries. The distinction between green and greening industries reflects the fact that some industries, such as wind and solar energy, are relatively new and unambiguously green, while other more traditional industries, such as construction and manufacturing, are incorporating new green practices, inputs, or products.³

- Solar power

³ Low-Skill Workers’ Access to Quality Green Jobs Karin Martinson, Alexandra Stanczyk, and Lauren Eyster, THE URBAN INSTITUTE, brief 13, May 2010

- Rail transportation
- Hydroelectric power generation
- Electric power generation, transmission and distribution
- Motor vehicle electric equipment manufacturing
- Engineering, legal, research, and consultation
- Crop production
- Utilities
- Basic chemical manufacturing
- Engine, turbine, and power transmission equipment manufacturing
- Power and communication line construction
- Wind power
- Construction

Knowing the situation in N. Macedonia and looking at the proposed green industries mentioned before, we can see that there are options for jobs in:

- Solar power and wind power – those industries are in upraise and still there are fields of them that have to be discovered and analysed in the direction of Circle economy
- Motor vehicle electric equipment manufacturing – there are factories that are operating in this area, mostly FDI and Greenfield investments, that are bringing knowledge for Circle economy from other developed countries.
- Construction – analysis is need in the direction of Circle economy

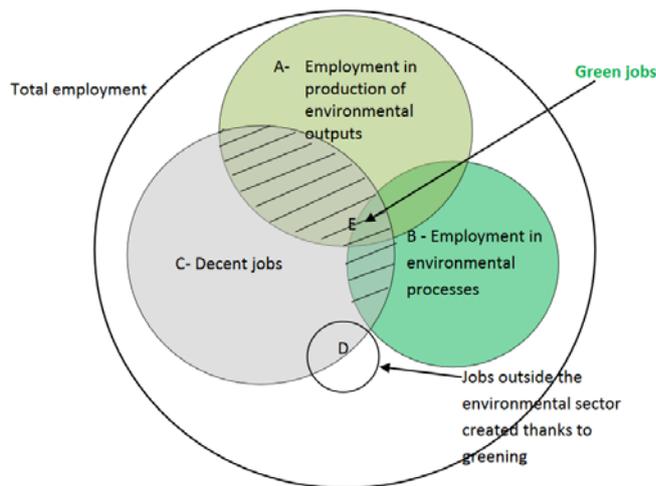
Another option is to have more jobs in newly opened industrial waste processing facilities. Waste management in the direction of the circular economy can be defined as sustainable resource management, because the products need to be present on the market longer, and ultimately re-used, repaired, refined, upgraded or recycled. Principle "4R" - Repair - Repair, Reuse - Reuse, Remanufacture - Rebuild / Recycle, Recycle - Recycle.

In addition to protecting the environment, waste management also provides for the creation of new jobs: incineration of 10 000 t of waste - 1 job if disposed of on landfill - 6 jobs, recycling - 36 jobs, recurring usage - 296 jobs.

The waste that will be processed in industrial facilities will produce a raw material that will be used to produce another product, substituting the use of new resources and saving energy in the production process.⁴

Another area where low skilled and qualified adults can find jobs are in the area of green jobs. Green jobs are defined as jobs that reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable (UNEPet

⁴ "CIRCULAR ECONOMY - Development and new employment through product redesign and waste reuse", Slavjanka Pejchinovska - Andonova



al., 2008). Green jobs are a subset of employment in environmental activities that meets the requirements of decent work. The relation between total employment, green activities and decent work is shown in the figure. ⁵

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⁵ Anticipating skill needs for green jobs A practical guide, Skills and Employability Branch Employment Policy Department ILO Geneva, Con Gregg, Olga Strietska-Ilina, Christoph Büdke, 2015

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[12]

7. Tools and methodologies for CircEc and SR applications

New business models⁶

Basic linear sales model can be replaced by new business models based on the principles of circular economy, for example:

- PRODUCT LIFE EXTENSION

The business model of product life extension intends to extend the lifecycle of a product to ensure it remains economically useful. Through remanufacturing, repairing, upgrading or remarketing material, that otherwise would be eliminated from the life circle, is maintained or even improved. By extending the lifespan of the product for as long as senseful (not as long as possible!), companies can keep material out of the landfill and discover new sources of revenue.

Depending on the customer's needs, bearing in mind market and regulatory bodies' viewpoints, a specification has to be developed where the product's major technical parameters and its main functional aspects are defined. In the detailed design phase, the development of the product is predetermined, materials and modularity are defined, life span of the final product is fixed.

As soon as the manufacturing is done, the product is sold and delivered, the final lifecycle starts including a various number of actions to pay attention to: Use, operate, maintain, support, sustain, phase-out, retire, recycle! This of course includes providing

⁶ CIRCULAR ECONOMY INNOVATION TOOLS, Different Business Models based on Circular Economy, Qualification Programme Handbook, Prepared by DI Siegfried Keplinger, June 2018 (<http://www.interreg-danube.eu/approved-projects/moveco> accessed 09.12.2019)

support and information to customers and service engineers which are required for maintenance and repair as well as correct handling of retiring and recycling. Recycling is the last component of the "Reduce, Reuse, and Recycle" philosophy.

- RESOURCE RECOVERY

The business model of resource recovery uses technological innovations and capabilities to recover and reuse resources. In this case it is necessary to eliminate material weaknesses and maximize economic value. Important approaches serving this business model are closed loop recycling and Cradle-to-Cradle design.

Resource recovery creates products of value using wastes as an input material. The key feature of resource recovery is to reduce the amount of waste generated and extract the maximum additional benefit from retired products. Resource recovery minimises the need of new raw materials in the manufacturing process.

Recycling is one of the most important resource recovery practices. It presupposes the collection for a possible reuse of disposed materials. Material for recycling optimally should be collected separately from general waste using dedicated containers and collection vehicles, or, if this is not available has to be sorted directly from mixed waste streams. The most common consumer products recycled include aluminium like beverage cans, steel food and aerosol cans, copper from wires, old steel furnishings or other equipment, glass bottles and jars, polyethylene and PET bottles, newspapers, magazines and light paper, paperboard cartons and corrugated fibreboard boxes.

Valuable resources can be recovered not only from materials used to manufacture products but also from operating resources like energy, water or industrial gases. Beyond these fertilizing nutrients like nitrogen, phosphorus, potassium, as well as micro-nutrients such as sulphur and organic matter can be recovered.

Disposed materials of organic nature like food scraps or plant material can be recycled using biological composting. The resulting organic material can be used as mulch or compost for agriculture and landscaping. Waste gas from the composting process can be used for generating electricity and heat.

- CIRCULAR SUPPLIES

The business model of circular supplies solves the problems of scarce commodities. Companies facing scarce resources will replace these with fully renewable, recyclable or biodegradable resource inputs to ensure their availability to future generations.

Circular supplies offer companies a possibility to provide renewable, recyclable or biodegradable materials in its production process. In a world of finite resources, this secures a company not only in the supply of scarce (and maybe environmentally destructive) raw materials but for ALL raw materials. The supply chain of raw materials becomes predictable and sustainable, on the long run even at lower costs.

Circular supplies require the replacement of previously available or used conventional materials by new and improved materials. Anyway, materials undergo constant development, material properties are designed for special applications. The continuous development of plastics, metals, glass, ceramics, textiles or composites give birth to a wide variety of material substitutes. In the focus stand innovative

materials like nanomaterials and hybrid materials besides the already mentioned renewable, recyclable or biodegradable ones.

On the other hand, there is a considerably higher development risk in the complete substitution of proven construction materials. New materials require of course some development effort which may be considerable higher and need comprehensive testing before being released.

- **PRODUCT AS A SERVICE**

The business model product as a service tries to convince customers to use a product through a lease or pay-for-use arrangement instead of the usual buy-to-own approach.

In the linear economy manufacturers typically focus on selling their product in a one-time transaction. And sometimes selling the product is followed by a warranty contract or a service agreement to keep the product useable. The business model product as a service changes this approach to a new concept where the buyer no longer owns a physical thing, instead the product is delivered as a service. The customer subscribes to the service and pays a recurring fee for using the product in case he needs it.

Another example of product as a service is a leasing program like offered by car dealers. The customer subscribes a leasing contract, the car stays property of the car dealer. Insurance and maintenance work stay with the customer or is included during the lifetime of the lease, depending of the kind of contract.

Product as a service allow producers to create a long-term relationship fostering recurring revenue. For companies which are able to develop a service mentality, this leads to a differentiated position in the market. Of course, starting the journey can be disheartening. It may decrease the former sale performance and show revenue losses. But experience in other cases show that manufacturers can expect more stable and profitable overall revenues than with one time sales moving from a physical sale to a recurring service fee.

If a product is moved to a product as a service also a new business opportunity can be utilized: Pooling of own and external services. In case of the leasing of a car very often 3rd party insurance and roadside assistance are added.

The cream of the product as a service altogether is that it can increase the manufacturers market potential. The entry price for the buyer gets reduced dramatically so new classes of buyers with less capital expenditure can be gained.

- **SHARING PLATFORM**

The business model sharing platform is focused on sharing a product that has a low ownership or use rate. Low use rate means that the time over which products or service lay idle is wasted value.

This idle time can be reduced if groups of users or organizations use a business model based on sharing to better utilize a product or service. The classic example are cars. They stay unused 90% of the time. This significant resource can be used by car sharing platforms, an opportunity for new economic solutions.

Unlike earlier generations we face increasing cities and more and more people living in urban areas providing a critical mass of providers and consumers who are sufficiently close to each other. In this constellation it is easier to develop other

commonly used sharing models besides car sharing like sharing of living room in shared flats or sharing of office services like printers, phones or conference rooms for small and new enterprises.

Examples of circular economy approaches in developing countries⁷

	Shelter	Mobility	Food	Waste
Extending the use cycle	El Salvador – a housing NGO partnered with the government to use more durable earthquake-resistant building technologies in social housing	India's Tata Steel set up an Advanced Materials Research Centre along with the Indian Institute of Technology to develop lightweight, high-strength materials for automobiles.	Vietnam's government is working with the World Bank on a supply chain for frozen food, to reduce losses and improve food quality.	In Nigeria, about 70 per cent of all imported e-waste is functional – it is now sold to consumers after testing.
Enabling additional use cycles	Modular construction is being used for low-cost housing solutions in New Delhi, enabling more efficient disassembly at product end of life.	In Brazil, a number of companies are active in the market to replace car parts through the National Association of Auto Parts Remanufacturers.	In Nigeria, tractor sharing among smallholder farmers is being used to improve agricultural productivity.	In India, a new e-waste Extended Producer Responsibility system requires companies to set targets for collection and repairs.
Minimizing impact	In Vietnam, building materials from rice husks are used in Ho Chi Minh City to build more fire-resistant, heat-insulated and sound-insulated buildings.	Fiat cars exported to Brazil contain polyurethane seat foams with 5 per cent soy polyol.	An entrepreneur in Indonesia is experimenting with bioplastic food packaging to reduce plastic waste in Jakarta.	In India, EnviGreen has created a 100 per cent organic, biodegradable and eco-friendly plastic bag
Changing utilization patterns	In India, new digital platforms such as Airbnb and OYO are allowing users to share rooms and homes.	7 million km of driving may have been cut by the introduction of UberPOOL in Bangalore and Delhi.	In Tanzania, the government is working with the World Bank to develop more water-efficient practices among smallholder farmers.	In India, the government has passed new e-waste handling rules to divert waste away from local scrap merchants.
Looping an asset through additional use cycles	In Haiti, debris from natural disasters has been converted into concrete building blocks to build affordable homes in Port-au-Prince.	In India, trials are under way to evaluate the potential to bury shredded plastic in roads, both reducing amounts of waste sent to landfills and increasing the durability of roads.	In Brazil, Procomposto, an SME start-up, provides waste collection and composting services to generators of organic waste in cities.	In Tanzania, BORDA, ISWA and the Dutch government have given technical and financial support to municipal governments to improve municipal waste-management processes

⁷ A Wider Circle? The Circular Economy in Developing Countries, Felix Preston and Johanna Lehne, Briefing December 2017 Energy, Environment and Resources Department (<https://www.chathamhouse.org/sites/default/files/publications/research/2017-12-05-circular-economy-preston-lehne-final.pdf> accessed 09.12.2019)

The ResCoM platform and tools⁸

The ResCoM platform brings together software applications and descriptive (i.e. non-software) tools and methods in one place to support decision-making and implementation of closed-loop product systems.

Unlocking the reverse logistics conundrum⁹.

A significant hurdle to the implementation of the circular economy is reverse logistics. It is not within the core competencies of most organisations, can require significant investment and typically requires a large strategic shift in the way the enterprise produces and delivers its offer to its customer. Therefore, a major hypothesis to test is that reverse logistics is successful only when costs are kept low by either getting the previous user of a product to deliver it for value recovery or when performed at local scale so that transport costs are a minimal part of the cost structure. An understanding of working examples and potentially any identifiable mechanisms would facilitate other organisations to become more circular.

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9. Appendix